2nd INTERNATIONAL EURASIAN CONFERENCE ON

BIOLOGICAL AND CHEMICAL SCIENCES

(EurasianBioChem 2019)

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ABSTRACT BOOK

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ABSTRACT BOOK

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➢ **ORAL PRESENTATION**

Micro-mesoporous FAU type zeolite for catalytic applications

Vladimer Tsitsishvili*, Nanuli Dolaberidze, Nato Mirdzveli, Manana Nijaradze, Zurab Amiridze, Vakhtang Gabunia, Giorgi Tsintskaladze

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Abstract

The effectiveness of zeolite catalysts increases when a secondary porous network exists in the material, thereby allowing shorter diffusion paths and providing access of reagents to active sites on the surface of the catalyst. The purpose of the study was to obtain a micro-mesoporous FAU type zeolite by recrystallization of Georgian natural phillipsite. It is found that phase-pure zeolite with chemical composition $|Na_{66(3)}$ $[K,½Ca,½Mg,½Cu,½Zn]_{12(1)}$ $(H_2O)_{248(10)}|$ $(Al_{78(3)}Si_{114(4)}O_{384})$ can be prepared in the form of octahedral crystallites with uniform micrometric (2-7 μm) dimensions by hydrothermal crystallization (95ºC) of aged (96 hr) at room temperature aluminosilicate gel ($2.9Na_2O$: $0.26Al_2O_3$: $1SiO_2$: $150H_2O$) obtained from water suspension of natural phillipsite, treated with hydrochloric acid and mixed with sodium hydroxide. According to the X-ray diffraction pattern showing the strongest peak at $2\Theta = 6.1°$ (hkl=111, d-spacing 14.28Å) and all weaker peaks typical for hydrated NaX zeolite, as well as in accordance with the IR spectrum presenting all characteristic vibration bands, the resulting zeolite has a crystal structure FAU and is classified as the Na-X type. The nitrogen adsorption-desorption plot measured at 77 K corresponds to typical Langmuir isotherm at a relative pressure up to $p/p_0=0.9$; specific surface area calculated by the Brunauer-Emmett-Teller method is 589 m^2/g. At higher pressures ($0.925< p/p_0<0.999$), type H_1 narrow hysteresis loop is observed, corresponding to the filling of well defined cylindrical pore channels with average diameter of 55 nm calculated by the Barrett-Joyner-Halenda method; the total pore volume is 0.578 cm^3/g, of which 52% are micropores with a diameter <0.8 nm, and 48% are mesopores. Measured for water vapor sorption capacity exceeds 0.2 cm^3/g, scientific ion exchange capacity of prepared NaX is 4.876 meq/g. The resulting zeolite in its characteristics is competitive with commercially available materials; additionally, it has a developed system of mesopores providing transport of large molecules.

Keywords: Hydrothermal crystallization, Phillipsite, Micro-mesoporous zeolite X.

➢ **ORAL PRESENTATION**

Energetic and kinetic pathways to explain performances and mechanisms, related to oriented processes through affinity polymer membranes

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Abstract

Membranes for extraction, separation and recovery are adopted in industry: desalination, pharmaceutical, biotechnological, food. In particular, polymer membranes, which are efficient for processes and are adopted to carry out research and development topics.
Polymer membranes containing, *Methyl cholate*, *Resorcinarene*, *Dibenzo-18-crown-6* and *β-Cyclodextrin*, were prepared and characterized. Obtained membranes were adopted to carry out extraction processes of substrates that are active ingredients very useful for industries. Processes were performed at different acidities and temperatures, *permeability* and *initial flux* of the membranes were determined for studied processes.
Initial fluxes of extracted substrate are related to initial concentrations by a law, which allowed determining *apparent diffusion coefficient* and *association constant* for the migration of substrate across membrane. Results show an influence on membrane performances, and *activation parameters* were determined.
Membrane performances and selectivity are related to movement nature of substrates through membranes, and to *energetic* or *kinetic* pathway that control processes mechanisms.

Keywords: affinity polymer membranes, oriented processes, permeabilities, apparent diffusion coefficients, activation parameters.

Projects: PPR2/ERANETMED3 (MESRSFC – CNRST)

➢ **ORAL PRESENTATION**

The mineral composition of the roots of *Barbarea vulgaris* R.Br.

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Abstract

The purpose of the work is to determine the mineral composition of *Barbarea vulgaris* R.Br. Brassicaceae Burnett family by inductively coupled plasma atomic emission spectrometry with mass spectrometry from *Leeman Lab Profile Plus*. As a result of the research, it was revealed that the roots of the plant B. vulgaris R.Br. rich in macro - and microelements (41 elements), 11 of which are vital. Roots are represented by the highest content of such elements as - P, Al, Fe. Sr, Ti, Zn and Mn. Analysis of the content of heavy metals showed that the content of the elements Pb, As, V, Cd, Co, Cu corresponds to the MPC, with the exception of zinc, the concentration of which exceeds twice. Also, an analysis of the good quality of raw materials was carried out. According to these calculations, the rate of extractability of raw materials is 28.183%, the total ash was 6.4398%, the ash is insoluble in 10% HCl is 2.4633%, and the value of sulfate ash is 4.4534%.

Keywords: Barbarea vulgaris, mineral composition, heavy metals.

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➢ **ORAL PRESENTATION**

Effectiveness prebiotic and synbiotic from composite flour (*Canna indica* and *Spirulina platensis*)

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Abstract

Prebiotic can stimulate growth of non pathogenic microflora in intestinal such as Bifidiobacteria and Lactobacillus with the result that prevent benefit of health. Sources of prebiotic that contain oligosaccharide were *Canna indica* and *Spirulina platensis*. Information about the effectiveness of *C. indica* and *S. platensis* as prebiotic and component of synbiotic based on in vivo treatment were minimal. Aims of the research were to know the effect of flour composite from *C. indica* and *S. platensis* (Cannalina) as prebiotic and synbiotic on ability to suppress total of microbe and support the growth and hold *Lactobacillus* (LAB) in intestine male *Sprague dawley* . The methodology was experimental design which divided for 4 groups for treatment. There were control, prebiotic, probiotic and sinbiotic groups. The division of control group which was mice fed up standard ration and 1 ml NaCl physiology. The prebiotic groups fed up pellet from *Cannalina* flour and 1 NaCl physiology, probiotic groups fed up pellet standard and LAB cultured 6.5 x 108 log cfu / ml in 1 ml NaCl and synbiotic group fed up *Cannalina* formed as the pellets and LAB cultured 6.5 x 108 log cfu/ml in 1 ml NaCl. The number of *S. dawley* in each groups were six mice. Bacteria from mice feces were isolated and analyzed to find the total of microbes and number of LAB. The results from in vivo treatment showed the highest total of microbe was found in control. probiotic, prebiotic and syntiotic have ability stimulated growth and hold of LAB in intestine compared with control in 10 days treatment and 5 days after treatment.. On 5 days after treatment synbiotic group was highest hold log 10,59 cfu/ml of LAB, and probiotic group was the lowest total of mecrobe log 9,21 cfu/ml.

Keywords: Cannalina, *in vivo*, pebiotics, probiotics, synbiotic

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➢ **ORAL PRESENTATION**

Antidiabetic activity of aqueous and acetonic extracts of *Drimia maritima* L.

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Abstract

In Algeria, diabetes is a major public health problem. For socio-economic reasons, the local population often uses medicinal plants to treat this chronic disease. The purpose of our work was to take a scientific look at this traditional practice. During this work, we experimentally evaluated the antihyperglycemic activity of a medicinal plant (*Drimia maritima* L.).
The objective of this study is to evaluate in rats the antihyperglycemic activity of aqueous and acetonic extracts, bulbs and leaves of (*Drimia maritima*), these were harvested, dried, crushed and extracted. Successive in water, acetone. After the chemical screening, the extracts (200 mg / kg) were administered to normoglycemic albino whistar rats or made diabetic by subcutaneous injection of alloxan at the dose of 60 mg / kg of body weight.
The results showed that the acetone extract of leaves and bulbs contains the greatest number of compounds: tannins, flavonoids, saponins, compared to other extracts, and a significant effect of the organ of this plant on the content of these compounds shows that the bulb richer compared to the leaves of the same plant studied. After 2 hours, the baseline glycaemia significantly increased ($P < 0.001$) from 1.05 ± 0.06 to 0.65 ± 0.02g / L for acetone bulb extracts and 1.06 ± 0.05 to $0,89 \pm 0.03$ for the acetone extract of the leaves of the same plant, ie reduction rates of 40% and 17% respectively. This decrease is only 16% for the reference medicine, metformin. These results are confirmed in rats subjected to constant hyperglycemia by treatment with alloxane which show significant decreases ($P < 0.001$) in glycemia after 15 days of treatment with the acetone extract of the two studied organs of the species (Drimia maritima). The acetonic extracts of the bulbs have effects reminiscent of some insulin secretors. These bulbs of this plant species could be used in hypoglycemic treatments.

Key words: *Drimia maritima*, leaves, bulbs, diabetes, blood sugar

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➢ **ORAL PRESENTATION**

Effect of milking season and pasture location on bioactive components of mare's milk produced in Kyrgyzstan

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Abstract

In Kyrgyzstan, mare's milk is used for production of the traditional fermented dairy beverage koumiss and fresh mare's milk has also being used to cure lung diseases as a traditional method of therapy. The quantity and contents of bioactive constituents in mare's milk considerably depend on the milking season and the altitude at which the animals are grazed. In this study chemical composition ($P<0.01$) and fatty acid profile ($P<0.05$) of mare's milk samples obtained from animals grazing at 1700 m and 2200 m above sea level was measured depending on the milking season. The animals (Novokirgizskaya horse breed) were kept under extensive pasture conditions and received no additional feed supplements. Milk samples were collected monthly using machine milking from May to July (1700 m) and from May to August (2200 m) from 25 mares. Total solids (11.05-11.84%), milk fat (1.23-2.23%) and ash (0.40-0.53%) contents of the milk samples produced at 1700 m above sea level decreased to the end of milking season, while those in the milk produced at 2200 m (10.93-11.11% total solids; 1.29-1.60% milk fat) and as well as protein (2.20-2.29%) and lactose (6.98-6.93%) did not change significantly during the milking season, except for ash content (0.46-0.30%). Fatty acid composition of the milk obtained at 2200 m (vegetation variety consisted of 18 plant families and 38 plant species) was richer in unsaturated fatty acids than that of produced at the pastures at 1700 m above the sea level (vegetation variety consisted of 19 plant families and 31 plant species of which only 3 species were found at both pastures). The results of the study have shown that the chemical composition and fatty acid profile of the mare's milk are significantly influenced by milking season and geographical location of pastures.

Keywords: chemical composition, fatty acids, geographical location, mare milk, milking season.

➢ **ORAL PRESENTATION**

Inflammatory mediator and antioxidant role in gastroprotective of *Tinospora crispa* against ethanol Induced gastric ulcer

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Abstract

This research performed to determine the potential protective effects of Tinospora crispa stems to the rat gastric mucosal injury of induced by ethanol. As well as clarify the role of gastrin, pepsin, prostaglandinE2 (PGE2), superoxide dismutase (SOD), catalase (CAT) and malondialdehyde (MDA) and cytokines (Tgfb1 and TNF-α). Seven groups of rats were orally pre-treated with Tween20 as vehicle control group, Tween20 as ulcer group, 20 mg/kg of omeprazole as reference drug group, 100, 200,500 and 1000 mg/kg of extract as the experimental groups. An hour later, induction ulcer by given 95% ethanol orally except vehicle control group. The results have been showed significant ulcer protective effects by reduction the ulcer area and increase the ulcer inhibition grossly and histology. As well as significant elevate the gastric juice PH and increasing the production of mucus. In addition, significant elevated of inflammatory mediators PGE2, increased the activity of SOD and CAT have shown in gastric mucosa and significant elevated of in Tgfb1. On the other hand, observed reduction the serum level of gastrin and pepsin, and decreasing the level of MDA and TNF-α. In conclusion, our results proof that T. crispa pretreatment has protective effects in ethanol-induced gastric ulcers in rats. Moreover, these results provide evidence that these protective effects of T. crispa by stimulation of some inflammatory mediators as PGE2, gastrin, Tgfb1 and TNF-α. Moreover, important antioxidant enzymes such as SOD and CAT which are scavengers of ROS and therefore prevent gastric injury induced by them.

Keywords: Tinospora crispa, Gastroprotective, Prostaglandin E2, Tgfb1, TNF-α, Antioxidants enzyme.

➢ **ORAL PRESENTATION**

Characterization of Georgian natural phillipsites

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Abstract

Phillipsite-containing Eocene rocks were discovered in Georgia at the northern fringe of the Akhaltsikhe depression, along with other zeolites, and in the Gurian range, near Shukhuti village. Zeolite phase of Akhaltsikhe deposit (PA) is not typical for the sedimentary tuffs from saline alkali lakes due to comparatively high content of calcium and magnesium, its content in rocks differs in a range of 60-70%, major impurities are chlorite and montmorrilonite. The Shukhuti phillipsite (PS) is characterized by high content of potassium, zeolite phase content differs from 60% (lower plot) to 80% (upper plot), main impurity is heulandite. Powder X-ray diffraction patterns of PA and PS are in a good agreement with Breck's data for natural phillipsite from Nevada, USA, and with the pattern of synthetic sample (P). Water adsorption capacity of micropores (p/p_S=0.40, 20ºC) is in the range of 5.2 (PS, upper plot) to 7.25 mmol/g (PS, lower plot), comparable with the capacity of the synthetic sample (7.83 mmol/g). The total pore volume in PA takes 0.32 cm^3/g, pore system is well developed and differentiated: distribution curve V(r) shows maximums at 1000 (0.21 cm^3/g) and 200 nm (0.06 cm^3/g), a broad peak corresponds to the mesopores with radii in the range of 20-60 nm (0.035 cm^3/g); PS samples are characterized by macropores (100-4000 nm, 0.28 cm^3/g) and mesopores (4-100 nm, 0.02 cm^3/g). Total ion exchange capacity (2.6-3.3 for PA, 2.2-3.2 meq/g for PS) is less than measured for P (4.5 meq/g), ion exchange isotherms prove high selectivity of both zeolites towards NH_4^+ and K^+, but the selectivity series are different: $K^+ > NH_4^+ >> Ca^{+2} > Mg^{+2}$ for PA, and $NH_4^+ > K^+ > Na^+ >> Ca^{+2} > Mg^{+2}$ for PS. There are considerable differences between thermal properties of studied phillipsites: crystal structure of PA is destroyed at 400ºC, PS samples preserve the metaphillipsite structure to 500-550ºC.

Keywords: Microporous crystal structure, Mesopores, Metaphillipsite.

- **ORAL PRESENTATION**

2. ABSTRACTS
2.1. ORAL PRESENTATIONS

➢ **ORAL PRESENTATION**

Oriented membrane processes for the facilitated extraction and recovery of L-tartaric acid through affinity polymer membranes

Sanae. Tarhouchi[1*], R. Louafy[1], H. Mouadili[1], T. Eljaddi[1], K. Touaj[1], L. Lebrun[2], M. Hlaïbi[1,2]

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PPR2 and ERANETMED3-166 Projects (MESRSFC/CNRST)

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Abstract
L-Tartaric acid is a compound involved in many biological and biochemical processes as an antioxidant and a pH regulator. The recovery of tartaric acid as an interesting product from winery liquid discharges and wastewaters is an important operation.
To conduct experiments for recovery processes of L-tartaric acid, affinity polymer membranes based on PVDF and PVA polymeric supports, respectively containing *methyl cholate* and *cholic acid*, were adopted after characterization.
Two models have been adopted to determine values of parameters: permeability, initial flux for the membrane performance, and association constant, apparent diffusion coefficient relating to interactions between substrate and extractive agent, necessary for the diffusion of L-tartaric acid through the membrane. Influence of temperature was examined and activation parameters were determined. All results make it possible to identify membrane type that allows the selective extraction of L-tartaric acid, to elucidate processes mechanisms and to specify an ***energetic*** or ***kinetic*** pathway that controls processes.

Keywords: Oriented membrane processes, L-Tartaric acid, metyl cholate, permeability, flux, apparent diffusion coefficient.

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➢ **ORAL PRESENTATION**

Study and quantification of oriented processes related to the facilitated extraction of norfloxacin antibiotic through a polymer inclusion membrane.

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Abstract

Antibiotics have been widely used in human and veterinary medicine. They have toxic effects on aquatic ecosystems. In particular, norfloxacin (**NRF**) widely used as a drug, which is most detected in wastewater effluents. Considering this situation, polymer membranes were adopted to extraction and recovery of this antibiotic as high value-added compound.

Present work, describes results relating to oriented membrane processes for extraction and recovery of this drug. FTIR and SEM techniques have been used to characterize elaborated membranes, which have been adopted to carry out extraction oriented processes of NRF substrate. Results make it possible to determine several parameters: ***permeability*** (***P***) and ***initial flux*** (J_0), at different acidities, ***association constant*** (K_{ass}) relating to interactions between substrate and extractive agent, and ***apparent diffusion coefficient*** (***D****) relating to substrate movement through the membrane. Evolution of these parameters makes it possible to elucidate the diffusion movement of substrate through the membrane and ***kinetic*** or ***energetic*** pathway which controls the studied oriented processes.

Keywords: polymer inclusion membranes, antibiotics, permeability, flux, apparent coefficient diffusion, kinetic and energetic pathways.

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➢ **ORAL PRESENTATION**

Membrane processes through various affinity polymer membranes for the extraction and recovery of methylene blue.

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Abstract

This work is about the extraction of blue methylene through three synthesized membranes, each containing an amphiphilic extractive agent: A supported liquid membrane (**SLM**), an inclusion polymer membrane (**IMP**) and a grafted polymer membrane (**GPM**). IR and SEM techniques were used to characterize these membranes, which have been adopted to carry out the extraction processes of methylene blue substrate. The influence of substrate concentration, pH and temperature factors was studied and the following parameters have been determined, such as: permeability (***P***), initial flux (J_0) related the membrane performances, and apparent diffusion coefficient (***D****), association constant (K_{ass}) related to the interaction between substrate and each extractive agent, which ensures the substrate diffusion through the membrane phase. On the other hand, activation parameters energy E_a, enthalpy, $\Delta H^{\neq}$ and entropy $\Delta S^{\neq}$, have also been determined and analyzed to elucidate the energetic or kinetic pathways that control the studied processes.

Keywords*:* affinity polymer membrane, flux; permeability, apparent diffusion coefficient, association constant, activation parameters.

➢ **ORAL PRESENTATION**

Bactericidal activity of metal-containing phillipsites

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Abstract

Metal-containing zeolite adsorbents and ion exchangers are promising for environmental protection and medical application. Silver-, copper-, and zinc-containing micro-mesoporous materials have been prepared on the basis of natural phillipsite from Shukhuti (Western Georgia) using ion-exchange reactions between zeolite and a salt of a transition metal in the solid phase followed by washing. According to the data of chemical analysis, prepared Ag-, Cu-, and Zn-forms contain up to 230 mg/g of silver, 66 mg/g of copper, and 86 mg/g of zinc, respectively. Ion exchange reactions do not change the microporous crystal structure of the zeolite, this is confirmed by the powder X-ray diffraction patterns and FTIR spectra of the modified samples. Isotherms of nitrogen adsorption-desorption and water adsorption capacity indicate preservation of total pore volume and system of mesopores including cylindrical pore channels with average diameter of 22 nm and slit-shaped pores in non-rigid aggregates of particles (over 50 nm); SEM images show that the procedure of dry ion- exchange synthesis leads to an increase in the dispersion of the material. Synthesized adsorbent-ion-exchangers show bactericidal activity towards *Escherichia coli*. According to the changes in the relative number of viable cells of bacteria contacting with zeolites and the data on leaching of metals from modified zeolites compared to the minimal inhibitory concentration (MIC) values for corresponding ions toward *E. coli*, the silver-containing zeolite exhibits a certain antibacterial activity even before the concentration of ions in the solution reaches the MIC value, and its bactericidal effect could be ascribed not only to released Ag^+ ions but also to Ag-phillipsite itself; the copper- and zinc-containing zeolites emit a small amount of ions (up to 0.5MIC) and their activity is entirely attributed to Cu-phillipsite and Zn-phillipsite themselves. Strong bacteriostatic activity of modified zeolites was established by the Kirby-Bauer test.

Keywords: Silver-, Copper-, Zinc-containing zeolites, *Escherichia coli*.

➢ **ORAL PRESENTATION**

Correlation between climate conditions on physicochemical properties of bovine's milk in Morocco.

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Abstract

Milk production of dairy bovine in Morocco plays a major role in feeding a growing urban population. For that reason, the aim of this study was to evaluate and characterize the physicochemical properties of milk along with the climate change conditions, in Gharb Chrarda Beni Hssen (GCBH). Moreover, the correlations between bovine milk composition and Mediterranean climate conditions was examined on several milk collection provided from different centers and farms. Indeed, over 53 weeks, all samples were characterized in terms of pH=6.49, acidity 19.58 and 1.034 density in acid. The average of chemical contents showed protein content (TP) 3.05%, fat content (TB) 3.52% and the content of the defatted dry extract (DDE) 9.18%. Correlation coefficients between fat and protein reached +0.7; whereas between the defatted dry extract and the fat this coefficient reached +0.9 and+0.8 between the defatted dry extract and the proteins chemical composition of milk showed a considerable variability throughout. These variations are mainly due to fat, protein content and the defatted dry extract. Overall, this study showed also a positive correlation between these three components.

Keywords: Raw milk, Defatted dry extract, Protein, Fat, Morocco.

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➢ **ORAL PRESENTATION**

Performance evaluation on vanadium transport through functionalized polymer membrane by TREN as a carrier

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MESRSFC / CNRST PPR 2 Project**

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Abstract

Over the years, the development of mechanically stable synthetic or natural polymeric membranes having advanced or novel functions in the various membrane separation processes for liquid and gaseous mixtures has increased significantly. One of the important techniques explored is related to the affinity membranes, by the introduction of carriers directly or by covalent grafting for the extraction of rare metals such as vanadium from industries acid leaching solution, in order to solve the problem of the depletion of the main natural resources and the huge consumption of vanadium in different industries. The present study aimed to describe the phenomenon of facilitated extraction of vanadium ions (VO_2^+); through a functionalized polymer membrane (FPM) and to evaluate its performance, this membrane based on polysulfone (PSU) and Tris 2-aminoethyl amine (TREN) as a carrier has been characterized by Fourier-transform infrared spectroscopy, scanning electron microscopy and Energy-dispersive X-ray spectroscopy. Herein we exploited membrane featuring stability in acidic conditions versus operation temperature and time. The performance of the elaborated membrane was quantified by determining the macroscopic parameters; the permeabilities $\boldsymbol{P}$ and the initials flows $\boldsymbol{J_0}$. The diffusion of the substrate in VO_2^+ ions through the organic phase as a function of the formation and dissociation reactions of the unstable entity (VO_2^+-TREN) was determined by calculating the microscopic parameters; apparent diffusion coefficient $\boldsymbol{D}$* and $\boldsymbol{K_{ass}}$ association constant. In order to explain the results obtained for the studied processes, the thermodynamic and activation parameters (energy $\boldsymbol{Ea}$, enthalpy $\boldsymbol{\Delta H}$, entropy $\boldsymbol{\Delta S}$) have been evaluated, the analysis of their values makes it possible to identify whether the studied process is controlled by kinetics or pathway energy.

Keywords: Vanadium, FPM, carrier, microscopic and macroscopic parameters, Activation parameters

➢ **ORAL PRESENTATION**

Inhibitory effect of Agave americana on the corrosion of stainless steel AISI 410 in 0.5M H_2SO_4

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Abstract:

The objective of our study is to improve the corrosion resistance of AISI 410 stainless steel by using green inhibitors. These steels behavior towards corrosion was studied in 0.5M H_2SO_4, using the Grated Agave Americana (GAA) plant as a green inhibitor. The study was carried by stationary electrochemical techniques (polarization curves), transient (Electrochemical Impedance Spectroscopy (EIS)), and microscopic observations by MEB-EDX and AFM. The efficacy 88.69% is obtained at 10% (v/v) of GAA after 2 hours immersion in 0.5M H_2SO_4. The MEB-EDX and AFM observations confirm the obtained results.
In conclusion, GAA is a good corrosion inhibitor of AISI 410 stainless steel in 0.5M H_2SO_4.

Keywords*:* corrosion, AISI 410, green inhibitor, H_2SO_4**,** EIS.

➢ **ORAL PRESENTATION**

Inhibitory effect of *Opuntia ficus-indica* on the corrosion of orthodontic pliers in 0.5M H_2SO_4

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Abstract

In the dental office, surgical instruments must be sterilized for each patient, after their contamination by saliva and blood. Sterilization repeated cycles cause corrosion. A worn and corroded instrument may cause toxicity to the patient. Our study objective is to improve the corrosion resistance of orthodontic pliers during sterilization using green inhibitors. The behavior of AISI 410 stainless steel with respect to corrosion was studied in 0.5M H_2SO_4, using cladodes of *Opuntia ficus-indica* (O.F.I) as a green inhibitor. Temperature effect on O.F.I. efficacy was studied at different temperatures (25, 35, and 45 °C). The study was conducted by the mass loss method, stationary electrochemical techniques (polarization curves), transients (Electrochemical Impedance Spectroscopy (EIS)), and microscopic observations by MEB-EDX and AFM. O.F.I behaves as a mixed inhibitor, with a physisorbed adsorption, obeys to Langmuir isotherm, with an efficacy from 89.17% to 10% (v/v) obtained after 2 hours immersion at 25 ° C. The MEB-EDX and AFM observations confirm the obtained results. In conclusion, O.F.I improves the corrosion resistance of stainless steel AISI 410 in 0.5M H_2SO_4 at 25 ° C.

Keywords: Corrosion; orthodontic pliers; AISI 410; green inhibitor; EIS.

➢ **ORAL PRESENTATION**

Assessment of the potentialities of *Vicia faba* seeds and *Opuntia ficus-indica* as natural coagulants to reduce cyanobacterial proliferation

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Abstract

Cyanobacterial Harmful Algal Blooms (CyanoHABs) have recently increased in drinking-water treatment plants that pose a serious problem for water utilities worldwide. Consequently, several physicochemical processes are used to reduce effects of cyanobacterial proliferation. Chemical coagulation-flocculation was used in potable water treatment to destabilize and remove algal blooms. However, the use of chemical coagulants induce serious problems for human health and high operation costs in treatment. To overpass those problems, ecofriendly alternative methods based on naturel coagulants are highly desirable. They have both the efficiency in application and the advantage of being biodegradable; without risk to public health and environment.
In this study, decontamination of polluted water with *Microcytis aeruginosa* by the application of *Vicia faba* seeds and *Opuntia ficus-indica* cladode extracts, as natural coagulants, was investigated. Optimization assays were conducted by the standard jar test method. Thus, effect of different parameters such as speed of agitation, type and dose of coagulant / flocculant and pH was studied. For this reason, coagulation-flocculation activity was performed by a screening study based in an experimental research methodology to achieve the optimal response level. The results revealed that natural coagulant extracted from bean and cladode cactus have a high abatement of turbidity that reach more than 90%, with a similar reduce in others parameters such as optical density, chlorophyll a and carotenoids The obtained results provide that these two natural coagulants can be used as an ecofriendly alternative to decontaminate polluted water with cyanobacteria.

Keywords: *Microcystis aeruginosa*, Jar test, Coagulation-Flocculation, *Vicia faba* seeds, *Opuntia ficus-indica*, Screening.

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➢ **ORAL PRESENTATION**

Evaluation of efficacy and safty of pletelet rich plasma (Prp) and microneedeling (Radiofrequency) in the treatment of atrophic acne scares

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Abstract

Acne valguris is a chronic inflammatory disease of the pilosebaceous follicles, characterized by different skin lesions, which may heal with squally of different types of scars (ice pitted, boxcar, rolling and keloid) . Many therapeutic options are used in the treatment of acne scars including: dermabrassion, surgical excision, laser and chemical peeling .

To evaluate the efficacy and safety of platelet rich plasma (PRP) and radiofrequency microneedeling (RF) in the treatment of atrophic acne scars.

An interventional study in which (31) patients with different types of atrophic acne scars (ice pitted, boxcar and rolling) were included. They were (27) females and (4) males, with a mean age of (26.41±8) years. The study was conducted in a private clinic in Kalar City, Al-Sulaymmania Province for the period from Jan. 2017 to Dec. 2018. All patients were fully assessed and treated by RF microneedling and than PRP was injected in the scars, after topical EMLA anesthesia for 30-45 minutes. Different number of sessions of therapy were used and patients were followed for 3months after the last session.

Thirty one patients were involved in the study, (11) had ice pitted scars and (20) patients had opened mouth (boxcar and rolling) scars. Ten patients (32.25%) shows an excellent response to PRP and RF therapy, with (2) grades improvement, (15) patients (48.38%) shows good response with one grade improvement and (6) patients (19.6%) shows poor response to therapy ,with out improvement in grades, (all of them of ice pitted scars) . There was a direct relation ship between the number of sessions and the response to therapy. Three patients developed folliculitis at sits of puncturing with isolation of staphylococcus auras bacteria, which cleared by topical and systemic antistaph. antibiotics.

It was concluded that PRP and RF represented a safe , efficient and satisfactory option for the treatment of atrophic acne scars, and ice pitted scars shows a poor response to therapy.

Keywords: Acne scars, PRP, RF, grading of scars, atrophic, keloid

➢ **ORAL PRESENTATION**

A skeletochronological estimation of age structure in a population of the Moroccan Painted Frog, *Discoglossus scovazzi*, from high Atlas Oukaimden

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Abstract

The age structure and growth of the Moroccan Painted Frog, *Discoglossus scovazzi* Camerano, 1878, was estimated by skeletochronology and reported for the first time for a population living in the High Atlas at the upper altitudinal limit of the species' range. Individual age was determined by counting the lines of arrested growth (LAG) from cross-sections of the phalanges. After maturity was reached at 3-4 years in both males and females, speed of osteogenesis and body growth slowdown. The maximum lifespan in males and females is 6 and 5 years respectively for respective average sizes of 47, 50 mm (N = 21, σ = 1.40) and 39.70 mm (N = 53, σ = 0.90).The oldest individuals are always bigger and heavier. Sizes corresponding to the same age are very heterogeneous reflecting divergent conditions and growth strategies. The delay in the acquisition of sexual maturity in *Discoglossus scovazzi* in Oukaimden could be explained by the low growth rate in relation to the environment and the rather constraining environment associated with the impact of anthropogenic pressure on the water points of the high mountains.

Keywords: Endemic species, skeletochronology, life history traits, Extreme environment, Morocco

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➢ **ORAL PRESENTATION**

Preliminary study on thermal ecology of the Atlas day geckos *Quedenfeldtia moerens,* in dry Anti-Atlas Mountains (Morocco)

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Abstract

The thermal environment is probably the factor that most affects distribution, activity patterns and physiological performance of reptiles. The Atlas day geckos *Quedenfeldtia moerens*, a Moroccan endemic lizard, is a strictly diurnal and widely distributed across the dry Atlas Mountains until the northern part of Atlantic Sahara in the south of the country, from sea level to more than 3000 m a.s.l., where the species live under variable thermal conditions. Therefore, we predict that *Q. moerens* is able to regulate its body temperatures by exploiting suitable microhabitats and to perform well in a wide range of temperatures. We studied the thermoregulation strategy of adults in Lkest Mountain (1200 m) in the Anti-Atlas of Morocco. We evaluated the thermal quality of the habitat using the standard thermal parameters: substrate temperatures (T_{rock}) and air temperatures (T_{air}), using data-loggers. Body temperature (T_b) and temperature of the rock (T_{rock}) around the animal were collected using a laser thermometer, from March to October 2017 and 2018.We measured preferred temperatures (T_{set}) in laboratory thermal gradient for 24 adults. The body temperature varied significantly among months from March to October and is closely related to rock temperatures, but the lizards never access to their preferred temperature range (35.2 - 32.9 °C), during the autumn, spring and summer (except July). These results suggest that *Q. moerens* exploit microhabitats with temperatures as close as possible to their optimal range, as a generalist and heliotherm rock-dowelling lizard.

Keywords: Atlas day geckos, *Quedenfeltia moerens*, thermoregulation, habitat selection heliotherm

➢ **ORAL PRESENTATION**

Micropagation of *Origanum elongatum* (Bonnet) Emb. & Maire , an endemic medicinal and aromatic herb of Morocco

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Abstract

Morocco is characterized by a diversity of medicinal and aromatic plants that have socioeconomic interest and the PAM field has been started these last years to occupy an important place in different sectors. Several species belonging to the genus Origanum are the most important among cauline weeds in world trade and in local markets, but production is still low in Morocco and in global level. Collection, conservation, improvement, domestication are the only ways to preserve this plant for future generations.

In order to conserve and to protect this natural heritage, considerable efforts are required to characterize, list and value this plant. Therefore, biotechnology tools may provide some solutions to the protection and domestication of the species. Moreover, it will be the requirement for a high added value producing molecules for different bio-industrial sectors. Vegetative multiplication or in vitro culture is one of the important plant biotechnology axes that represent a powerful tool for the industrial and economic prospects.

A part of our research is aimed at the obtaining of vitro plants of *Origanum elongatum* (Bonnet) Emb. & Maire that have a good quality, while going through different tests; mineral nutrition, phytohormones and another growth regulators. We established a protocol for vegetative multiplication in vitro by the axillary bud technique. Consequently, results from the tests of the mineral medium as well as cytokinins and auxins showed positive influence on the growth and the development of the explants. Indeed, the mineral solution SD gave the best results. In addition, the type of cytokinin present in the medium has an effect on budding, growth, hyperhydria and rooting. Also, the presence of auxins combined with cytokinins seems to be favorable for the generation of plantlets with an important roots ramification. Furthermore, the acclimatization of rooted vitro-plants of 12-16 weeks was successfully established.

Keywords: conservation, oregano, micropropagation, valorization.

➢ **ORAL PRESENTATION**

Antioxidant and antimicrobial synergistic effects of *Retama dasycarpa* essential oil with conventional antibiotics

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Abstract

Due to the indiscriminate and extensive uses of antibiotics, numerous microorganisms have developed multidrug resistance. Therefore, interest in the use of essential oils combined with antimicrobial agents has been increased recently in order to enhance the efficacy of classical drugs and overcome the resistance mechanisms. The main objective of this study was to determine, for the first time, the chemical composition of the essential oil obtained by hydro-distillation from aerial parts of a Moroccan endemic plant: *Retama dasycrpa* and to study the antioxidant and the antimicrobial synergic interactions with conventional antibiotics. The essential oil composition was analyzed by GC-MS. The analysis revealed the presence of monoterpenes, oxygenated sesquiterpenes and other compounds. The antimicrobial data indicated that the essential oil presented modest activities. In fact, Gram-positive bacteria were generally found to be more sensitive than Gram-negative ones. Moreover, the tested essential oil was more active on *Candida* strains comparing to bacteria. However, the combination of the essential oil at sub-inhibitory concentrations (MIC/4) with ciprofloxacin showed a total synergistic effect against Gram positive and Gram negative bacteria with a FICi value ranging from 0.28 to 0.38, with remarkable reduction of MIC (8 and 32 fold). It is worth noting that the combination of essential oil and fluconazole exhibited a total synergistic effect against *Candida* strains with FICi value from 0.26 to 0.28 and decrease the MIC of fluconazole with a gain of 32 to 128 fold. Furthermore, the obtained results showed that the essential oil possessed an interesting antioxidant activity using DPPH and reducing power assays. The overall data highlighted the remarkable antimicrobial and antioxidant activities and the potent synergetic interaction between antimicrobials. Therefore, our findings are very promising; it can be useful for pharmaceutical treatment and natural therapies.

Keywords: *Retama dasycarpa*, Essential oil, Antimicrobial activity, Synergic interactions, Antioxidant activity.

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➢ **ORAL PRESENTATION**

Formation of sustainable forest landscapes and management on a typological basis

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Abstract

Growth place conditions have a strong effect on the growth, formation, productivity and sustainability of plantations. Therefore, all forest management and environmental activities in the forests of the park should be carried out taking into account the mountain conditions. For this purpose, the enlarged groups of planting types have been identified, in the concept of forestry scientists requiring homogeneous silvicultural and environmental measures during managing the forests of the Ile-Alatau State National Natural Park. The division of forest stands into groups makes it possible on a typological basis, i.e. taking into account the conditions of vegetation and the characteristics of plantations, a differentiated approach to the conduct of all activities in each case and at the same time to prevent crushing of plantations into very small areas. (Goloshchapov, Maisupova and Kalachev, 2002).

An important and responsible event of this group of landscapes of deciduous forests (fruit and other small-leaved forests and light forests) are: the restoration of the generators of the Sievers apple tree (the plantations of apple trees have decreased significantly over the past decades). At the same time care for existing trees - sanitary cutting and pruning, pest and disease control; protection of rare plants (for example, plantings from *Celtis caucasica* Wild, *Myricaria bracteata* Royle, *Atraphaxis mushketovii* Krassn., *Dryopteris filix mas* (L.) Schott, etc.); felling of landscape formation in aspen woods; creation of plantations from introduced species that meet the growing conditions, increase the stability of forests and their aesthetic qualities.

In landscapes of the lower spruce belt (true spruce and aspen forests), plantings are formed mainly in mixed forests. In mixed spruce forests to reduce the contrast of aspen groupings and enhance the harmony of healthy parts, it is recommended to plant pine along the edges, as well as leaving up to 30% of deciduous species in spruce forests of birch-aspen. Saving on the edges of plantations of large specimens of spruce-wood accents and the formation of lawns for relaxing with views (whists) of landscapes and wide panoramas. Limitation of the development of aspen forests (clonal root-sprout recovery) - intensive (up to 60%) thinning. Possible additional planting of birch to improve the contrast in the stands among the background spruce trees.

For the middle spruce belt (sparsely (park) spruce forests) landscapes are most characteristic spruce-rowan and moss-grass plantings. In most cases, these middle-mountain forests were cut down or intensive herding of cattle took place in them, quite often destroying self-sowing and young growth in these forests.

Keywords: landsape, plantings, arboriflora, introduced species

➢ **ORAL PRESENTATION**

Design of the optimum mix of fly ash based geopolymer using Taguchi method.

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Abstract

In the present study, Taguchi method was used to optimize the fly ash based geopolymer (FAG) design. Geopolymers FAG were prepared by using fly ash as source of aluminosilicates and a mixture of sodium hydroxide and sodium silicate as alkaline activator.
A total of nine mixtures were evaluated by considering the effects of ratio of Fly ash/alkaline solution FA/AS (three levels: 1.5; 2.5 and 3.5) and ratio of Sodium silicate/sodium hydroxide SS/SH (three levels 1.5; 2.5 and 3.5) on the compressive strengths of the geopolymer FAG mix at 7 and 28 days.
The optimal FAG mixtures were characterized using several analytical methods such as XRD, FX, FTIR and SEM Microscopy. Thermal properties were also studied by investigating the thermal stability up to 1000°C by DSC analysis. The fire resistance of geopolymer FAG was evaluated by weight loss and compressive strength change before and after heat exposure to elevated temperature (600°C, 800°C and 1000°C).

Keywords: Fly ash, Geopolymer, Tagushi method, compressive strength, characterization–fire resistance.

➢ **ORAL PRESENTATION**

Guaiazulen terpeninin *in vivo* bio-etkileri

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Özet

Canlılık faaliyetleri için besinlerin içerikleri önemlidir. Farklı bio-etkileri olan ve bitkiler tarafından sentezlenen terpenler günümüzde, tıp, eczacılık, kozmetik ve gıda sektöründe kullanılmaktadır. Ancak bu metabolitler bazen toksik yada mutajenik etkili de olabilirler. Guaiazulen (Gua) seskiterpenlerin bir çeşididir ve kimyon, papatya ve mavi süt mantarı'ndan elde edilmektedir. Bu çalışma, farklı besinlerle vücuda alınan guaiazulenin toksik ve genotoksik olup olmadığını belirlemek için yapılmıştır. Bu amaçla yabanıl tip *Drosophila melanogaster*'in erkek ve dişi bireylerine farklı dozlarda Gua kronik olarak uygulanmıştır. Gua uygulaması sonucu, *D. melanogaster'*in dişi ve erkek popülasyonlarında doz artışına bağlı olarak ömür uzunluğunun kısaldığı belirlenmiştir. Şöyleki; dişi popülasyonunda ortalama ömür uzunluğu DMSO (Gua'nın çözücüsü) kontrol grubunda 48,83±1,95 gün iken en yüksek uygulama grubu olan 200ppm'de 12,11±0.26 gün; erkek popülasyonunda ise bu değerler sırasıyla 48,30±2,22 ve 11,44±0,21gün olarak bulunmuştur. Gua'nın bir diğer bio-etkisi, somatik mutasyonları uyarması ve doza bağlı olarak mutasyon frekansını artırmasıdır. Somatik mutasyon ve rekombinasyon testi (SMART)'nden elde edilen verilere göre; klon indüksiyon frekansı DMSO kontrol grubunda 0,66 iken bu değer doz artışına bağlı olarak 50ppm için 0,87 ve 400ppm içinde 1,84 olarak belirlenmiştir. Klon indüksiyon frekansındaki artış genotoksik etkinin göstergesidir. Ömür uzunluğunda gözlenen kısalma da Gua'nın doz-süre etkileşimine bağlı olarak toksik etkisini göstermektedir.

Anahtar Kelimeler: *Drosophila melanogaster*, guaiazulen, ömür uzunluğu, somatik mutasyon

Bu çalışma Atatürk Üniversitesi Bilimsel Araştırma Projeleri (BAP) Koordinasyon Birimi tarafından desteklenmiştir (FHD-2019-7000).

➢ **ORAL PRESENTATION**

The inhibition effect of the black cumin derivatives on breast cancer

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Abstract

Thymoquinone, the mainly component of black cumin seeds, had been detected from its ethanolic extract. The effective components of *Nigella sativa* were the firstly thymoquinone and the other related lipid soluble ingredients as the anticancer agents. Furthermore, the extracts of *Nigella sativa* seed had effective anticancer properties against YAC-1 tumor cells. In this study, the inhibition effect of Thymol, Thymoquinone and Thymohydroquinone on breast cancer were done by using docking.

Keywords: Thymol, Thymoquinone,Thymohydroquinone. breast cancer, docking

➢ **ORAL PRESENTATION**

Kimyon türevlerinin karaciğer kanseri üzerindeki inhibisyon etkisi

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Abstract

Nigella sativa L. (Black Cumin) tohumlarında ve ticari tohum yağlarının önemli bir bileşeni Timokinon dur[1]. Timokinonlu kara kimyon tohumları aktif bileşen temel olarak tıbbi amaçlar için kullanılır[2]. *Nigella sativa* (NS) 'daki farmakolojik olarak aktif bileşenler Timokinon (TQ), ditimokinon (DTQ), timohidrokinon (THQ) ve timol (THY) en önemlileridir[3]. Siyah kimyon tohumlarının temel bileşeni olan timokinon, etanolik ekstraktından tespit edilmiştir. *Nigella sativa*'nın etkili bileşenleri ilk olarak timokinon ve antikanser ajanları olarak diğer ilgili lipit çözünür bileşenlerdir. Ayrıca, Nigella sativa, karaciğer gibi çeşitli enflamatuar kanserler için güçlü yararlar sağlar[4]. Bununla birlikte bu tıbbi bitki kan sisteminde böbrekler, akciğerler, prostat, karaciğer kanserlerine karşı etkilidir[5].Bu çalışmada, Timol, Timokinon ve Timohidrokinon 'un karaciğer kanseri üzerindeki inhibisyon etkisi, doking kullanılarak hesaplanmıştır.

Keywords: Timol, Timokinon, Timmohidrokinon. karaciğer kanseri, doking

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➢ **ORAL PRESENTATION**

Terpenlerin kronik uygulanmasına bağlı olarak ömür uzunluğu toksisitesinin uyarılması

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Özet

Terpenler, bitkilerde ve hayvanlarda bulunan doğal ürünlerin en yaygın gruplarından birisidir. Çoğunluğu bitkisel kökenlidir ve gıdalarda aroma bileşeni olarak önemlidirler. Bazı bitkilerde birkaç terpen bulunabilir. İçerdikleri izopren sayısına göre de monoterpenler, diterpenler, triterpenler olarak isimlendirilirler. Nane ve kekikte bulunan timol bir monoterpendir. Abietik asit kozalaklı ağaçlarda bulunan bir diterpen çeşididir. Skualen de buğday ve pirinç gibi bitkilerde bulunur ve triterpendir. Çalışmamızda timol (TM), abietik asit (ABA) ve skualen (SKU) terpenlerinin doz-süre etkileşimine bağlı olarak ömür uzunluğu üzerine olası etkileri araştırılmıştır. Kronik uygulamalar için *Drosophila melanogaster*'in ♀ ve ♂ bireyleri kullanılmıştır. Deneylerimiz için *D.melanogaster'*in dişi ve erkek popülasyonlarıyla kontrol ve uygulama grupları hazırlanmıştır. Bunlar Standart Drosophila Besiyeri (SDB) içeren saf su kontrol ve DMSO kontrol ile SDB+TM/ABA/SKU'nun farklı dozlarını içeren (25,50,100,200ppm) uygulama gruplarıdır. Kontrol ve uygulama gruplarında 100 ergin birey kullanılmıştır. Tüm bireyler haftada iki kez taze besiyerlerine aktarılmış ve her aktarımda ölen bireyler kaydedilmiştir. Uygulamalar üç kez tekrar edilmiştir. Elde edilen verilere göre, ortalama ömür uzunluğu DMSO kontrol grubu ♀ popülasyonunda 49,07±1,92, ♂ popülasyonunda ise 51,01±2,12 gündür. Ortalama ömür uzunluğuna ait bu değerler, uygulama gruplarında her üç terpenin doz artışına bağlı olarak gerilemiştir ($P<0,05$). Şöyle ki; ♀ popülasyonu için ortalama ömür uzunluğu en yüksek uygulama grubunda (200ppm) TM için 23,09±0,74, ABA için 26,96±0,94, SKU için 9,24±0,44; ♂ popülasyonunda ise TM için 24,89±1,10, ABA için 23,21±0,92 ve SKU için de 8,98±0,46 gün olarak bulunmuştur.

Anahtar Kelimeler: *Drosophila melanogaster*, terpenler, ömür uzunluğu

Bu çalışma Atatürk Üniversitesi Bilimsel Araştırma Projeleri (BAP) Koordinasyon Birimi tarafından desteklenmiştir (FHD-2019-7000).

➢ **ORAL PRESENTATION**

Speedy/RINGO as a neuroprotector in spinal cord injury-based neurodegeneration

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Abstract

Endogenous or exogenous insults can cause spinal cord injury (SCI), often resulting in the loss of motor, autonomic, sensory and reflex functions. The pathogenesis of SCI comprises two stages. The primary injury stage occurs at the moment of trauma and is characterized by hemorrhage and rapid cell death. The secondary injury stage occurs due to progression of primary damage and is characterized by tissue loss and functional disorder. One of the most important cellular mechanisms underlying secondary injury is glutamate excitotoxicity, which overactivates the calpain protease via excessive Ca2+ influx and induces neuronal apoptosis via p53 induction. Furthermore, Ca2+ influx elicits apoptosis by inducing p53, thus negatively affecting two pathways: the mitogenic extracellular signal-regulated kinase/mitogen activated protein kinase (ERK/MAPK) pathway and the survival phosphoinositide 3-kinase/protein kinase B (PI3K/AKT) pathway. Speedy/rapid inducer of G2/M progression in oocytes (Speedy/RINGO) is a cell cycle regulatory protein that increases survival of p53-positive mitotic cells by inhibiting the apoptotic machinery. Moreover, this protein elicits p53- dependent anti-apoptotic effects on calpain-induced degeneration of primary hippocampal neurons, amyotrophic lateral sclerosis motor neurons, and astrocytes and microglia in spinal cord lesions. The pathophysiology of SCI has not been fully elucidated and this hinders the development of powerful therapeutic strategies. This paper focuses on the cellular mechanisms underlying the anti-apoptotic effects of Speedy/RINGO and discusses how this protective function can possibly be exploited to facilitate recovery from SCI. Particular attention is paid to reversal of the negative effects on the ERK/MAPK and PI3K/AKT pathways via induction of p53.

Keywords: Speedy/RINGO, calpain, p53, ERK/MAPK, PI3K/AKT, spinal cord injury

➢ **ORAL PRESENTATION**

The synergistic cytotoxic effect of DEBIO 1143 and Tamoxifen combination on breast cancer cell lines

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Abstract

The purpose of this study is to investigate the cytotoxic effect of increasing concentrations of Tamoxifen and DEBIO 1143 (AT-406) administered alone or in combination on cells in MCF-7 and BT-474 estrogen receptor positive (ER +) breast cancer cell lines. While the XTT test was used to determine the cytotoxic effect of increasing concentrations of Tamoxifen and DEBIO 1143 administered alone or in combination on cells in MCF-7 and BT-474 cell lines at the 48th and 72nd hours, the apoptosis test including multiple parameters was used to determine the type of cell death. The results were analyzed with the statistical analysis. The IC_{50} value of TAM was 3.8 ± 0.6 micromolar (µM) and 18.9 ± 6.7 µM in the MCF-7 and BT-474 cell lines respectively. The IC_{50} value of DEBIO 1143 was 15 ± 0.5 µM in the MCF-7 cell line. The effect of increasing doses of DEBIO 1143 in the BT-474 cell line was observed only when the dose was 20 µM. The results related to drug combination were statistically significant for both cell lines ($p < 0.001$). The cytotoxic effect was not associated with apoptosis. It was determined that in ER + breast cancer cell lines, the combination doses produced the cytotoxic effect, and that the doses of the chemotherapeutic drug and SMAC mimetic administered in combination produced the synergistic effect compared to their administration alone. Further investigations are needed to determine what type of cell death other than apoptosis causes the cytotoxic effect produced by the combined application.

Keywords: DEBIO 1143, ER + breast cancer, SMAC mimetic, Tamoxifen

➢ **ORAL PRESENTATION**

UnaG proteininin varyantına (R112/132Q) ait rekombinant DNA'nın geliştirilmesi

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Özet

Japon tatlı su yılanlarından (*Anguilla japonica*) izole edilen UnaG, omurgalılarda tanımlanan ilk floresan proteindir. Bilinen diğer proteinlere nazaran birçok avantaja sahip olan ve kendisine yağ asidi bağlayıcı proteinler arasında yer bulan UnaG, spesifik bir ligandla birleşerek UV ışık altında uyarılabilmektedir. Bu protein konjuge olmayan bilirubinle nonkovalent şekilde yüksek özgünlük ve afinitede florojenik ligand oluşturmak üzere bağlanır. Oluşan UnaG-BR kompleksi (holoUnaG), UV ışık altında yeşil floresan ışıma göstermektedir. Söz konusu olan çalışmada da polar rezidülerin yükü ortamdan kaldırılarak floresans ligandın çevresinin değiştirilmesi amaçlanmıştır. R112/R132'nin glutamine dönüştürülmesini içeren mutasyon SLIC yöntemi kullanılarak yapılmıştır. İlk adım olarak pTolT vektörü sequence ligation independent cloning (SLIC) yöntemine göre tasarlanan primerler ile PCR yapılıp doğrusallaştırılmıştır. Daha sonra vektör ve insert bir araya getirilerek oda sıcaklığında T4 DNA polimeraz ile inkübe edilmiştir. Reaksiyon karışımı buza koyularak işlem durdurulmuş ve kompetant *E. coli* C41 hücrelerine transforme edilmiştir. Gerçekleştirilen mutasyonun doğruluğu saflaştırılan plazmitin DNA dizileme sonucunda belirlenmiştir.

R112Q Sense Primer
GACGACGTATGTCCAAGAGATAAAGGAC 28 bp
R112Q Reverse Primer
TCCTTGCCGTCCCACTTTTGTACGTAC 27 bp
R132Q Sense Primer
GTCGTGGCTGTGCAAAGCTACCGGAG 28bp
R132Q Reverse Primer
GTCTCCCATCGTAAGTGTCACGACCAG 26 bp

Anahtar Kelimeler: UnaG, Floresans protein, SLIC, Primer

➢ **ORAL PRESENTATION**

Isolation, characterization and proteomic analysis of exosomes isolated from EG7 cells

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Abstract

Exosomes are specialized membranous vesicles with a size range of 30-150 nm and are derived from endocytic compartments. These extracellular nanovesicles can be virtually isolated from all possible bodily fluids as well as cell line supernatants. They are capable of transferring proteins, mRNA, and miRNA between cells, therefore, have an important role in intercellular communication. We aimed to describe a protocol for isolation of EG7 cell line (murine T cell lymphoma) derived exosomes and determine label-free protein identification by mass spectrometry. EG7 exosomes were isolated from culture supernatants by differential ultracentrifugation method. Exosome characterization was performed using flow cytometry and immunoblotting. Hydrated sizes of exosomes were analyzed by dynamic light scattering method using Malvern Zetasizer, NanoZS. LC-MS/MS analyses were performed using Bruker's trapped ion mobility spectrometry (TIMS) time-of-flight (TOF) mass spectrometer equipped with a Captive Spray nanoBooster source that was coupled to a Dionex Ultimate 3000 RSLC nano system. The raw data from mass spectrometry were analyzed by run in ProteinScape version 4.0 for peptide and protein identification. The Mascot search engine searched MS/MS data against the SwissProt database. The results revealed that EG7 exosomes were between 70 and 200 nm in diameter and expressed cardinal exosomal markers such as tumor susceptibility gene 101 and Alix. A total of 134 proteins were identified in EG7 derived exosomes. Mass spectrometry-based proteomic studies, both hardware and software, will contribute significantly to our understanding of the molecular composition of extracellular vesicles, coupled with improved purification methods for exosomes. The proteomic profiling of EG7 cell line derived exosomes provides insight into T-cell lymphoma types and the potential physiological impact of exosomes in cancer progress.

Keywords: Exosomes, isolation, protein profile, mass spectrometry, cancer phenotype.

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2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

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➢ **ORAL PRESENTATION**

Immobilization of AChE enzyme on functionalized 2AEPS microspheres and use in the determination of organophosphate pesticides

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Abstract

It is seen that polymer-supported compounds are useful and remarkable when considering their numerous applications in organic synthesis, in the immobilization of enzymes, in biological systems, in water treatment and in catalyst studies [1]. Among the Schiff based chelates containing polymeric support, polystyrene (PS) based ones continue to attract attention. Polystyrene has a porous structure and suitable groups for modification makes it special for immobilization. The immobilization of AChE on such a carrier is an effective method to find solutions to problems such as high cost, low stability, low temperature storage and only one time availability [2]. In this study, for the qualitative determination of Dichlorvos pesticide to the 2AEPS-5-XTio (X: H, NO_2) polymeric microspheres, the AChE enzyme was immobilized and its optimum parameters were determined. In particular 2AEPS-5-NO_2Tio support was found to be more relevant to the substrate of the immobilized enzyme (K_m: 12.86 mM). In the experimental results for the qualitative determination of pesticides, it was determined that in the addition of 100 µL of Dichlorvos, the relative activity of the AChE enzyme immobilized to the 2AEPS-5 -NO_2Tio ligand retained 54.26% of its initial activity.

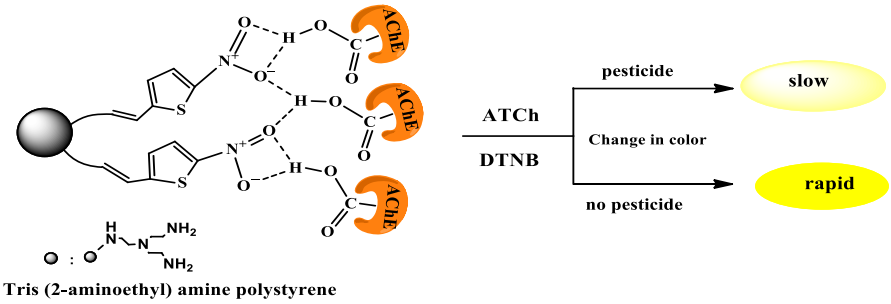

Figure 1. Change in solution color by addition of pesticide of 2AEPS-5-NO_2Tio-AChE enzyme solution

Keywords: Polystrene, immobilization, AChE, pesticide

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www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Synthesis, characterization, and antioxidant activities of novel bis-isatins carbohydrazones including schiff bases

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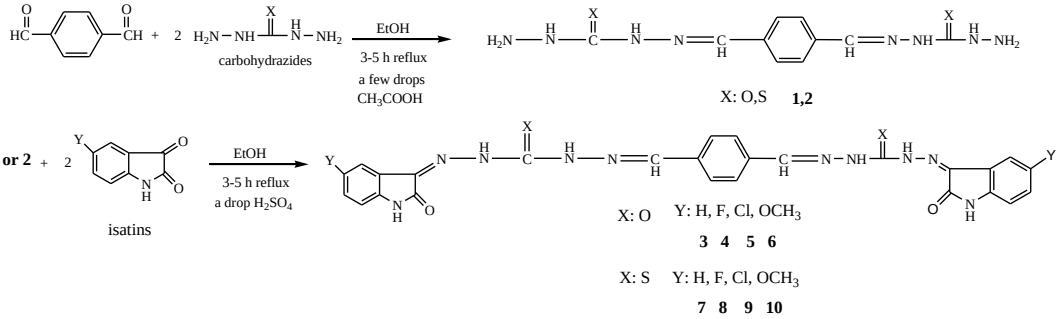
Abstract

Schiff bases of including isatins are known to have a broad range of pharmacological properties including anticonvulsant [1], antibacterial, antiviral [2-4], anti-HIV and antifungal activity [5]. Substituted isatin-thio/carbohydrazones based on Schiff Bases are commonly called as *β*-isatin aldehyde-*N*,*N*′-(thio)/carbohydrazones [3].

New bis-isatins (thio)/carbohydrazones based on Schiff bases were prepared from mono(thio)/carbohydrazones and 5-substituted isatins in the presence of a drop H_2SO_4 under reflux in ethanol. Mono(thio)/carbohydrazones were synthesized by the reaction (thio)/carbohydrazide and terephthalaldehyde in the presence of a few drops acetic acid under reflux in ethanol.

The structures of these synthesized compounds were determined using IR, ^{1}H NMR, ^{13}C NMR spectroscopy, elemental analysis. The *in vitro* antioxidant activity of all the compounds was determined by 1,1-Diphenyl-2-Picryl Hydrazyl (DPPH) free radical scavenging method. The results were given with calculated IC_{50} values.



Keywords: Schiff bases, carbohydrazones, isatin, DPPH, antioxidant activity, spectroscopic techniques**.**

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➢ **ORAL PRESENTATION**

Antioxidant activity, physical and chemical properties of different honeys from Turkey

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Abstract

Turkey is one of the richest regions of the world in terms of honey production and variety. It is home to a wide variety of nectar and honeydew honey types, both monofloral and multifloral. As monofloral honey is the most known chestnut honey. In our study, besides the chestnut honey, oak and less well-known parsley honey were studied. The aim of the study was to determine the physical properties, chemical properties and antioxidant activity of monoflaral Turkish honey. It was determined that it has high antioxidant activity in three honey. Fructose and glucose monosaccharide were identified as major constituents in all three honey.

Keywords: Monofloral, Chesnut, oak, parsley, honey, antioxidant

➢ **ORAL PRESENTATION**

The inhibitory role of chestnut honey on urease enzyme to the treatment of gastric diseases

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Abstract

Urease is an enzyme that catalyzes the hydrolysis of urea into carbon dioxide and ammonia. The high urease activity that causes gastroduodenal inflammation produces ammonia and neutralizes the stomach acid, which allows the survival of the pathogenesis of gastric and peptic ulcers and promotes inflammation. The use of urease inhibitors will be the most effective method for the treatment of gastric and urinary infections. In recent years, interest in natural products has increased.The study was determined that, chestnut honey have high antioxidant activity and it may be used as natural inhibitor of urease enzyme. There was determined a strong correlation between antioxidant activity and urease enzyme inhibition.

Keywords: Urease, Chesnut, honey, antioxidant, inhibition

➢ **ORAL PRESENTATION**

Production of bioactive peptides by enzymatic hydrolysis from bee larvae and their potential use in biological processes

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Abstract

Bioactive peptides are ubiquitous biomolecules widely abundant and easily obtained from food proteins. Bioactive peptides are inactive within the sequence of the parent protein and can be released by proteolytic enzymes during gastrointestinal digestion or during food processing. Once they are liberated in the body, bioactive peptides can affect numerous physiological functions of the organism such as antihypertensive agents or as opioid agonists or antagonists, immunomodulating, antithrombotic, antioxidative, anticancer and antimicrobial activity. In this study biological properties of bee larvae and their hydrolysates prepared by hydrolysis with trypsin and/ or neutrase were evaluated. The degree of hydrolysis (DH) was accurately monitored by trinitro benzene sulphonic acid reaction of α amino groups released after enzymatic hydrolysis. To obtain hydrolysates with high DH, E/S value and hydrolysis time were optimized after bee larvae homogenization and denaturation. Furthermore biological potential of the protein hydrolysate was investigated by means of their antioxidant, antimicrobial, trypsin inhibitory and prolyl oligopeptidase (POP) inhibitory activity. The findings of the study can be exploited in the development of bee larvae with special health claims as well as in identifying new applications in food.

Keywords: Bee larvae, Enzymatic hydrolysis, Bioactive peptide, POP inhibition and antimicrobial activity.

2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

28-29 June 2019, Ankara, Turkey
www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Synthesis of *L*-proline substitute super base carrying calix[4]arene derivative and their anti-proliferative effect in human cancer cells.

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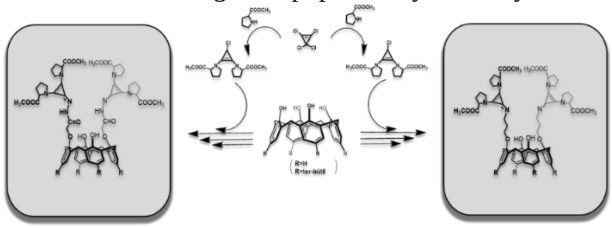
Abstract

Over the past several years, synthetic macrocycles have attracted great attention from the medicinal chemistry community due to their specific conformational features and the multifarious biological activities. The role of macrocycles in medicinal chemistry has been highlighted in many recent reviews [1]. The efforts are now being focused on functionalization of easily approachable macrocyclic scaffolds with established pharmacophoric groups in field of new drugs for increasingly challenging targets. One of the such macrocyclic scaffolds is calixarene. Calixarenes have many structural characteristics that are preferable for the design of new drugs. Low cytotoxic properties of calixarenes makes them a valuable candidate for biological studies as building blocks or molecular scaffolds, especially as anticancer agents[2]. The aim of this study is to synthesize calixarene derivatives carrying new super base groups such as cyclopropenimines, an anticancer agent, and investigate their cytotoxic potential in human carcinoma cells. The mechanism of cell death and cell cycle were also clarified. The calix[4]arene derivatives significantly inhibited proliferation of human cancerous cells and the IC_{50} values were calculated from sigmoidal plots obtained cell viability studies. In conclusions, calix[4]arene with Super base groups may be an important candidate for the anti-cancer drugs in the pharmaceutical chemistry area.

Keywords: Calixarenes, *L*-Proline , Anticancer Agent, Apoptosis, Cytotoxicity



Acknowledgement: We would like to thank the Scientific and Technological Research Council of Turkey (TUBITAK-Grant Number 116Z173)

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➢ **ORAL PRESENTATION**

Dikloro[1-(2-metil-2-propenil)-3-benzilbenzimidazol-2-iliden]piridin paladyum(II) bileşiğinin sitotoksik etkisinin incelenmesi

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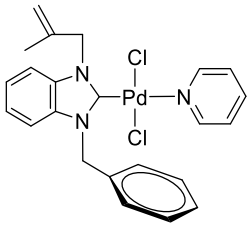
Özet

Kanser dünya genelinde kalp hastalıklarından sonra ikinci en önemli ölüm nedenidir. Cis-platin, nedaplatin, okzaliplatin, karboplatin ve lobaplatin gibi platin bileşikleri antitümör terapi için kullanılmakla birlikte bu bileşiklerin ciddi yan etkileri bulunmaktadır. Bu nedenle toksisisitesi düşük yeni anti-kanser ilaç adayı bileşiklerin elde edilmesi sağlık açısından büyük önem taşımaktadır ve yeni ilaç adayları üzerine araştırmalar devam etmektedir. Bu amaçla rutenyum, gümüş, paladyum, titanyum, demir, kobalt gibi farklı metal türevleri sentezlenmiş ve antiakanser aktiviteleri incelenmiştir. Bu bilgiler ışığında, bu çalışmada dikloro[1-(2-metil-2-propenil)-3-benzilbenzimidazol-2-iliden]piridin paladyum(II) bileşiği sentezlenerek farklı insan kanser hücre hatları üzerine sitotoksik etkisi incelendi. Bileşik ayrıca, sağlıklı hücrelere de uygulanarak kanserli ve sağlıklı hücreler arasında seçici davranıp davranmadığı da araştırıldı.



Kanser hücreleri % 10 FBS ve % 1 penisilin/streptomisin içeren DMEM besi ortamında içersinde ve nem, % 5 CO_2, 37 °C koşullarındaki inkübatörde büyütüldü. Hücreler % 80-90 büyüme oranına ulaştıklarında pasajlanarak 1 x 10^5 hücre/kuyu olacak şekilde 96 kuyulu plaklara ekildi. Hücrelerin plakala tutunup büyümeleri için plakalar bir gece boyunca karbondioksit inkübatörde bekletildi. Ertesi gün hücrelere, bileşiğin farklı derişimleri uygulanarak 48 saat inkübasyona bırakıldı. 48 saatin sonunda, herbir kuyuya 10 µL MTT eklenerek plakalar iki saat daha inkübe edildi. Zaman bitiminde besi yeri aspire edildi ve DMSO eklenerek 15 dk oda sıcaklığında karıştırıcı üzerinde beklendi. Örneklerin absorbansları 570 nm'de elisa okuyucu kullanılarak ölçüldü. IC_{50} derişimleri (kanser hücrelerinin % 50'sini öldüren ilaç derişimi olarak tanımlanmıştır) GraphPad Prism 7 (GraphPad Software, San Diego, CA, ABD) kullanılarak belirlendi. Bileşiğin, kanser hücrelerine karşı derişime bağlı olarak sitotoksik aktivite gösterdiği belirlenmiştir.

Anahtar Kelimeler: Sitotoksik aktivite, paladyum, MTT, benzimidazol, N-heterosiklik karben.

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28-29 June 2019, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Dikloro-[1-(2-metallil)benzimidazol]-(*p*-simen)rutenyum(II) kompleksinin antikanser aktivitesi

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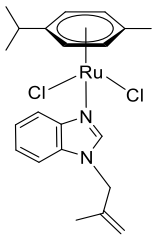
Özet

Benzimidazol türevleri, doğal olarak birçok üründe ve çeşitli ilaçlarda bulunan ilginç heterosiklik bileşiklerdir. Ayrıca modern ilaç keşiflerinde önemli bir farmakofor olup, antitümör, antifungal, anti-enflamatuar gibi çeşitli farmakolojik aktiviteye sahiptirler. Ayrıca, B_{12} vitamini veya metaloproteinler gibi çeşitli biyolojik aktif bileşikler, benzimidazollerin geçiş metali komplekslerdir. Bu nedenle, benzimidazol türevli geçiş metali kompleksleri, bazı önemli biyolojik moleküllerin model yapısını oluştururlar ve biyolojik açıdan bazen ligantların metal kompleksleri serbest ligantlardan daha etkindir. Yine bu bileşiklerin yüksek antitümör aktivite gösterdiği bilinmektedir. Ayrıca, organometalik bileşiklerin spesifik bir grubunu oluşturan rutenyum kompleksleri de, biyolojik aktiviteleri nedeniyle ilgi odağı haline gelmişlerdir.
Kanser tüm Dünya'da ve özellikle gelişmekte olan ülkelerde hala ölümle sonuçalanan hastalıkların başında gelmektedir. Bu nedenle, kanser tedavisi için yeni anti-kanser ilaç adayı terapötiklerin geliştirilmesine yönelik çalışmalara her zaman ilgi vardır. Bu çalışmada, dikloro-[1-(2-metallil)benzimidazol]-(p-simen)rutenyum(II) kompleksi sentezlenmiş ve farklı kanser hücre hatlarında olası *in vitro* antikanser aktiviteleri araştırılmıştır. Bileşik sağlıklı hücreler de uygulanarak sağlıklı ve kanserli hücreler arasındaki seçici antikanser aktivite de incelenmiştir.



Kompleksin antikanser aktivitesi 48 saat için 3-(4,5-dimetiltiyazol-2-il)-2,5-difeniltetrazolyum bromürü (MTT) yöntemi kullanılarak incelenmiştir. Kısaca; 10 FBS ve% 1 penisilin / streptomisin içeren DMEM besi yerinde büyütülen hücreler $1x10^5$hücre/mL olacak şekilde 96 kuyuku plakalarda ekilerek, bir gece boyunca nem, % 5 CO_2 ve 37 ^{0}C koşullarındaki karbondioksit inkübatörde bekletildi. Ertesi gün hücrelere farklı derişimlerde kompleks uygulandı. 48 saat sonra MTT ölçümü yapılarak kompleksin antikanser aktivitesi belirlendi. MTT, canlı hücrelerin varlığında mor renkli çözünmeyen formazan yapıya dönüşmektedir. Formazan yapı DMSO ile çözünür hale getirildi ve 570 nm dalga boyunda absorbanlar ölçülerek kompleksin herbir hücre hattı için IC_{50} değeri (kontrol hücrelerine kıyasla hücre canlılık oranını% 50 azaltan kompleks derişimi olarak tanımlanmıştır), GraphPad Prism 7 (GraphPad Software, San Diego, CA, ABD) kullanılarak hesaplanmıştır. Kompleksin, kanser hücrelerinde kontrollere kıyasla hücre canlılığında düşüşe neden olduğu gözlenmiştir.

Anahtar Kelimeler: Antikanser aktivite, rutenyum, MTT, *p*-simen

➢ **ORAL PRESENTATION**

The effect of boron mine on the essential oil ratio and components of yarrow (*Achillea millefolium* L.)

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Abstract

This study was carried out in Dumlupınar University, Gediz Vocational School, Medical and Aromatic Plants Department's application field in 2017 in order to determine the effect of different boron doses (0, pure and 1/8 kg/decare) on the rate and quality of volatile oil in yarrow (Achillea millefolium L.) species grown in Kütahya-Gediz conditions. Field experiments were repeated in 3 replicates according to randomized block design in 2017. Seedlings were planted in 20 cm row and 30 cm row spacing. The extract used in our study was prepared from the boron. The said boring was obtained from Emet region. The powdered boron mineral was weighed at 20 g and shaken in 100 ml of pure water and homogenized for 5 minutes. The boron, which was homeogen, was centrifuged at 3500 rpm for five minutes. The supernatant portion was stored in the refrigerator. This extract was used both in pure form and in 1/8 ratio which was diluted with pure water. This plant's volatile oil was obtained by hydrodistillation method (GC_MS/FID). In the analyzes carried out in 2017, the rate of essential oil was found to be 0.66% in the plant growing without boron, while it was 0.82% in the plant grown with pure boron. As a result of the cultivation made without using boron, 21 components were found in the volatile oil obtained from dry flowers and 18 components were found in the plant which was exposed to pure boron dose. Since there was no difference between the development of plants exposed to boron in 1/8 ratio and the development of plants exposed to pure dose boron, the plants grown at 1/8 ratio were not analyzed. The main components of the essential oil obtained from the dried flower of the plant growing without boron mine are as follows; α-pinene was found to be 16.99%, chrysanthenone 16.61%, cis-chrysanthenyl acetate 11.06%, filifolone 9.99%. The results in the use of pure dose are as follows; α-pinene 20.44%, chrysanthenone 19.65%, cis-chrysanthenyl acetate 15.30%, filifolone 11.47%. It has been observed that the pure boron dose use has a positive effect on the essential oil and its components of the yarrow plant.

Keywords: Boron, Essential oil, GC-MS/FID

➢ **ORAL PRESENTATION**

Phenolic compounds, antioxidant and antimicrobial activity of *Astragalus* honeys from Turkey

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Abstract

Honey has been reported to contain about 200 substances (complex mixture of sugars, but also small amounts of other constituents such as minerals, proteins, vitamins, organic acids, flavonoids, phenolic acids, enzymes and other phytochemicals) and is considered to be an important part of traditional medicine. The honey compounds phenolic and flavonoid so that is have high antioxidant and antimicrobial activity properties. In this study, Ten geven honey, which is a floral honey was determined that antioxidant, antimicrobial activity and phenolic composition. In geven honey, pinocembrin, chrysin and cape compound were detected in different ratios. And also, It was determined that the geven honey had high antioxidant and antimicrobial activity.

Keywords: *Astragalus*, honey, phenolic, antimicrobial, antioxidant

➢ **ORAL PRESENTATION**

In vitro toxicity potential and anti-angiogenic properties of Tryptophan-graft-p(HEMA) polymeric nanoparticles

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Abstract

Polymers are widely used in the pharmaceutical and biomedical fields of nanotechnology as polymeric nanoparticles due to their unique properties. Poly-2-hydroxyethyl methacrylate [p(HEMA)], a biocompatible polymer, has the most widespread use in many applications such as tissue engineering, production of contact lenses in ophtalmia and as an adhesive matter in dentistry. Synthesis and characterization of Tryptophan-graft-p(HEMA) [Trp-graft-p(HEMA)] polymer, which is planned to be used as a drug delivery system, has been carried out in our previous study. In this study, it was aimed to determine the *in vitro* toxicity potential and anti-angiogenic properties of this polymer.

In order to determine the *in vitro* cytotoxicity potential, 100-6.25 µg/mL a dose range of polymer was applied to HEK-293 (ATCC-CRL-1573) cell line and the MTT Assay was performed. It was determined that the nanoparticle has not been showed cytotoxic effect on healthy cell line. To measure hemolytic activity on rabbit erythrocytes of the polymer, hemolysis test was performed. The polymer did not exhibit hemolytic activity (a dose range of 160-20 µg/mL) and hemolytic effect was calculated as below 5% in all doses. In the HET-CAM (Hen's Egg Test-Chorioallantoic Membrane) test, the polymer was placed (a dose range of 5-1 mg/mL) in direct contact with chorioallantoic membrane of the hen's egg (with 5 days embryo) to determine the anti-angiogenic effect of the polymer. The membrane is scored for haemorrhage, vascular lysis and coagulation. Scores were calculated above 2 for all doses and the polymer was had anti-angiogenic properties.

In conclusion, further studies are planned to investigate *in vitro* genotoxicity and *in vivo* toxicity potential in addition to these results.

Keywords: Trp-graft-p(HEMA), Polymeric nanoparticle, Cytotoxicity, Hemolytic effect, HET-CAM, Anti-angiogenesis

➢ **ORAL PRESENTATION**

Antioxidant properties of isabella grape (*Vitis labrusca* L.) phenolic composition

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Abstract

Grapes known as rich in anthocyanins and resveratrol has been cultivated in different types in our country. Phenolic components and antioxidant rates of seeds and flesh of Isabella grapes that are endemic to East Black Sea Region and certain types of grapes grown in our country were compared in the research. Total Phenolic Material, Total Flavonoids Material Amount (TFM), Iron (III) Reduced / Antioxidant Capacity Indication (FRAP) and Phenolic components were analyzed in this study. 19 phenolic standards were used in the phenolic composition analysis carried out with reversed phase HPLC-UV. Study datas and analysis of some grapes types consumed in our country were compared. As a result of the study, it was detected that seed of all grapes were richer than their flesh in both phenolic composition and antioxidant capacity. It is also detected that the richest grapes types in phenolic composition were Alphonso, Isabella and Kardinal. Razaki and Red Globe were found to be the richest grapes types with regards to resveratrol. Particularly rind of Isabella scented grapes were detected to be richer in resveratrol.

Keywords: Isabella, Phenolic content, Flavonoid content, FRAP, HPLC, Reduction power.

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➢ **ORAL PRESENTATION**

Determination of secondary metabolite profile of *Prunus laurocerasus* and investigation of antiproliferative activity potential against some cancer cell lines

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Abstract

Cancer is a metabolic disease that the number of cases is rapidly increasing and threaten the lives of millions of people. Today, most types of cancer cannot be treated. The cost of those who can be treated is quite high. Most of the compounds used in cancer treatment are of plant origin. The potential of higher plants as a new drug source is gaining importance every day. The fruits and seeds of *Prunus laurocerasus* (*Laurocerasus officinalis* Roemer, taflan) are used for therapeutic purposes. It is known that this plant is effective against many diseases such as bronchitis, eczema, cancer, digestive system discomfort (Ayaz, 1997). The extraction processes of *Prunus laurocerasus* were carried out using two different methods. The plant was first boiled in water and then extracted with ethyl acetate to obtain the crude extract (Demirtas et al., 2013). As the second extraction method, the solvent system of chloroform: methanol [$CHCl_3$:MeOH (1:1)] was used to dissociate the plant cell membrane and pass all components to the organic solvent. Secondary metabolite profiles of these extracts were investigated by LC-MS/MS chromatography techniques. The antiproliferative properties of the extracts obtained from *Prunus laurocerasus* were investigated by a real-time cell analysis system (xCelligence RTCA, ACEABIO, USA) against HeLa, HT-29 and C6 cancer cells (Abay et. al., 2015). The extract of seeds fraction obtained by boiling and ethyl acetate extraction (SF1) showed the highest antiproliferative activity against C6 cells (Fig. 1). The antiproliferative activity of *Prunus laurocerasus* should also be investigated against other cancer cell lines. Thus, the potential of the antiproliferative activity of this plant will be strongly elucidated.

Keywords: *Prunus laurocerasus*, antiproliferative activity, HeLa, HT-29, C6, chromatography

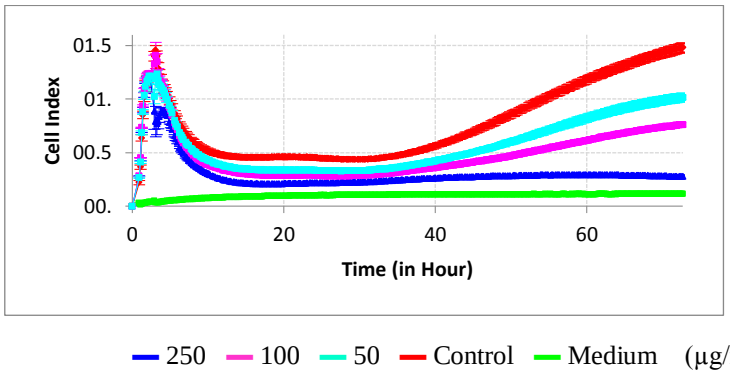

Fig 1. CI-Time graphic of antiproliferative activity of SF1 extract against C6 cells

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➢ **ORAL PRESENTATION**

Bir DFT/TDDFT çalışması: benzimidazolyum türevi moleküllerin reaktivite analizi

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Özet

Yapılan çalışmalar, benzimidazollerin antikanser, antimikrobiyal veya antifungal gibi birçok biyoaktivite özelliğinin bulunduğunu göstermektedir. Bununla birlikte benzimidazollerin; optik lazerler, optoelektroniklerdeki polimerik boyalar, biyomedikal tedavide kullanılan proteinler ya da DNA, RNA gibi biyolojik olarak önemli moleküllerin tayini için floresans problar, katyon ve anyon tayininde etkili ve seçici kemosensörler olmak üzere pek çok başka kullanım alanı da bulunmaktadır. Ayrıca, benzimidazol türevli metal-N-heterosiklik karben kompleksleri yüksek katalitik aktivite göstermektedirler.

Bilindiği üzere benzimidazoller gibi heterosiklik azolleri istendiği gibi dallandırmak nispeten kolaydır. Fakat aktiviteleri konusunda öngörü sahibi olmadan yapılan deneysel çalışmalar vakit ve para kaybına sebep olabilmektedir. Bu nedenle, son yıllarda teorik hesap programlarındaki gelişmeler bu sorunun çözümü için etkili bir yöntemdir. Bu çalışma kapsamında [1-(allil)-3-(3,4,5-trimetoksibenzil)benzimidazolyum]$^+$ ve [1-(metallil)-3-(3,4,5-trimetoksibenzil)benzimidazolyum]$^+$ moleküllerinin optimizasyonu ORCA paket programı ile yapılarak hesaplanan global ve lokal reaktivite kriterleri molekülün aktivite özellikleri ile karşılaştırılmıştır.

Anahtar Kelimeler: Benzimidazol, DFT/TDDFT, Global Reaktivite Kriterleri

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28-29 June 2019, Ankara, Turkey
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➢ **ORAL PRESENTATION**

1-(Allil)-3-(2-klorobenzil)benzimidazolyum tuzunun ve bu tuzun Ag(I)-NHC kompleksinin antiproliferatif aktivitesinin araştırılması

Neslihan Şahin[1*], Serap Şahin-Bölükbaşı[2]

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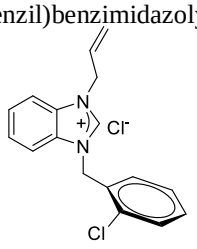
Özet

Evrensel bir sorun olan ve her yıl milyonlarca insanın yaşamını kaybetmesine neden olan kanser, kalp hastalıklarından sonra ölüm nedenleri arasında ikinci sırada yer almaktadır. Kanser tedavisinde kullanılan kemoterapötiklerin, toksik ölümler, lökosit azalması, solunum güçlüğü, halsizlik, felç, kan pıhtılaşması ve yorgunluk gibi ciddi yan etkileri bulunmaktadır. Bu yan etkilerin azaltılarak kanserin uzamış tedavisinde yaşam kalitesinin arttırılması amacıyla düşük toksisite ve daha az yan etkiye sahip olan yeni aday anti kanser bileşiklerin araştırılması önem kazanmaktadır. Son yıllarda organometalik bileşikler; özellikle N-heterosiklik karben (NHC) bileşiklerinin metal kompleksleri koordinasyon kimyasında yoğun olarak çalışılmaktadır. Memeli hücreleri için, metaller içinde en az toksititeye sahip olan birkaç metalden biri olan gümüş ile birlikte benzimidazol yapısı ilaç keşfi ve tıbbi biyokimyada önemli bir yapı olduğundan, benzimidazol içeren Ag(I)-NHC bileşiklerine olan ilgi artmaktadır. Bu çalışmada 1-(allil)-3-(2-klorobenzil)benzimidazolyum tuzu (**1**) ve bu tuzun Ag(I)-NHC kompleksi (**2**) sentezlenmiştir.



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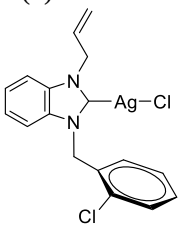

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Daha sonra farklı kanser hücre hatları kullanılarak 1-(allil)-3-(2-klorobenzil)benzimidazolyum tuzu ve bu tuzun Ag(I)-NHC kompleksinin antiproliferatif aktivitesi araştırılmıştır. MTT analiz sonuçlarına göre, tuz ve kompleksin kanser hücrelerinin canlılık oranlarını derişime bağlı olarak azalttığı yani derişimdeki artışla uyumlu olarak tuz ve kompleksin antiproliferatif aktivitesinin arttığı bulundu. Sonuçlarımız ayrıca tuzun (**1**) komplekse (**2**) göre daha düşük antiproliferatif aktiviteye sahip olduğunu göstermiştir.

Anahtar Kelimeler: N-heterosiklik karben, Gümüş, MTT, Antiproliferatif aktivite.

➢ **ORAL PRESENTATION**

Achillea nobilis subsp. *denissima* uçucu yağın kimyasal bileşenleri ve radikal giderim aktiviteleri

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Özet

Achillea cinsi Asteraceae familyasının bir üyesi olup, 140 türü ile dünyada doğal yayılış göstermektedir. Türkiye'de ise 24'ü endemik olmak üzere 48 türünün yayılış gösterdiği bilinmektedir. Achillea türleri Anadolu'da "civan perçemi, pire otu, yılan çiçeği, sarı çiçek, çetuğçe, kılıç otu, sarılık otu, ayvadene, tatarcı otu" yaygın isimleri ile halk arasında bilinmektedir. Achillea türleri Anadolu'da uzun yıllardır geleneksel tedavide kullanılmakta olup, sarılık, yara iyileştirme, iştah açıcı, diş ağrılarında, şeker hastalığına karşı, antiinflamatuar ve insektisit olarak kullanılmaktadır.

Bu çalışmada, Fethiye Çameli yolu üzerinde toplanan *Achillea nobilis* subsp. *denissima* toprak üstü kısımlarından hidrodestilasyon yöntemi ile elde ettiğimiz uçucu yağın kimyasal bileşenleri ve radikal giderim aktiviteleri araştırıldı. Gaz Kromatografisi ve Gaz Kromatografisi-Kütle Spektroskopisi ile yapılan çalışmalarda 45 bileşen tespit edildi bunlardan 43 tanesinin yapısı pik çakıştırma yöntemi, kütle analizleri ve kütüphane verileri kullanılarak aydınlatıldı. Elde edilen sonuçlar literatürlerle karşılaştırıldı. Buna göre uçucu yağda piperiton (%33,08), kamfor (%5,85), askaridol (%5,81), krisantenon (%5,62), trans-2,7-Dimethyl-4,6-octadien-2-ol (%5,14), ökaliptol (%4,87), terpinolen (%4,29), p-Simen (%3,89), α-Pinen (%3,05) ana bileşenlerdir. Uçucu yağın radikal giderim aktivitesi DPPH serbest radikal giderimi ve ABTS katyon radikali giderim aktivite yöntemleri ile belirlendi. Elde edilen sonuçlara göre, 100 µg/ml konsantrasyonda, ABTS katyon radikal giderimi %67,9 iken aynı konsantrasyonda DPPH serbest radikal gideriminin %64,3 olduğu belirlendi.

Anahtar kelimeler: *Achillea nobilis* subsp. *denissima*, uçucu yağ, piperiton, radikal gideri aktivitesi

➢ **ORAL PRESENTATION**

Monosodium glutamate

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Abstract

Monosodium glutamate, with abbreviated name MSG or code E621, is a sodium salt of glutamate amino acid, which is a flavor enhancer commonly used in fast food productions. By increasing saliva secretion, MSG strengthens the flavor properties of food and causes a desire to eat more often and faster. Currently, there are ongoing studies evaluating the possible effects of MSG on human health. Although there are different opinions on this issue, there is no scientific evidence that would require the prohibition of the MSG use. However, for many people, the fact that MSG might have harmful effects and that its harmlessness has not been fully proved is sufficient to cause hesitations in the use of MSG. It is known that it causes chest pain, headache, rash on the face, shortness of breath, edema and sweating when used as a flavor enhancer. This is called Chinese Restaurant Syndrome. Along with the data revealing its harmful effects on the nervous system, retina, kidneys in case of excessive use in the neonatal period, it is suggested that it causes disorders in learning and memory mechanism and in advanced ages it causes obesity, infertility, growth disorders and neurodegenerative conditions such as Alzheimer, Parkinson and epilepsy. It is stated that MSG causes obesity related complications and affects biochemical parameters. In conclusion, the aim of this review is to intensify scientific studies for the sake of knowledge regarding the harmful effects of MSG and to raise awareness on this topic.

Keyword: Monosodium glutamate, human health, fast food

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www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Lakkaz enziminin kovalent bağlanma ile Poli(vinil alkol)-kalsiyum aljinat ve Poli(N-izopropilakrilamit)-kalsiyum aljinat hidrojel kürelerine immobilizasyonuna aktifleştiricilerin etkisi

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Özet

Bu çalışmada, Lakkaz enzimi (EC 1.10.3.2), poli(vinil alkol)-kalsiyum aljinat (PVA-CaAlj) ve poli(N-izopropilakrilamit)-kalsiyum aljinat (P(NIPA)-CaAlj) kürelerine, karbodiimit (CDI), N-hidroksisüksinimit (NHS), karbodiimit ve N-hidroksisüksinimit (CDI-NHS) karışımı kullanılarak aktifleştirilip kovalent bağlanma yöntemiyle immobilize edildi. Serbest enzim ve farklı aktifleştiriciler kullanılarak immobilize edilen enzimler için pH, sıcaklık etkisi, depolama kararlılığı, tekrar kullanım, termal kararlılıkları ve kinetik parametreleri incelenerek karşılaştırıldı**.** Serbest enzim için optimum pH değeri 5,0 iken kovalent bağlanma ile immobilize edilen enzimler için optimum pH değerleri 6,0 olarak bulundu. Optimum sıcaklık değerleri serbest enzim için 40ºC iken immobilize enzimler için 45ºC olarak bulundu. Serbest enzim 30 gün sonunda aktifliğinin %60'ını korurken immobilize enzimlerinin ise aynı sürede aktifliklerini yaklaşık %80-87 aralığında koruduğu görüldü. İmmobilize enzimlerin 5 kez kullanım sonunda ve enzim aktifliklerini %86-92 aralığında koruduğu bulundu. , karbodiimit (CDI), N-hidroksisüksinimit (NHS), karbodiimit ve N-hidroksisüksinimit (CDI-NHS) karışımı kullanılarak aktifleştirilen ve kovalent bağlanma yöntemiyle poli(vinil alkol)-kalsiyum aljinat (PVA-CaAlj), poli(N-izopropilakrilamit)-kalsiyum aljinat (P(NIPA)-CaAlj) kürelerine immobilize edilen enzimlerin depolama ve termal kararlılıklarının arttığı görüldü. Serbest lakkaz ve CDI ile aktifleştirilmiş PVA-CaAlj, NHS ile aktifleştirilmiş PVA-CaAlj, CDI-NHS karışımı ile aktifleştirilmiş PVA-CaAlj, CDI ile aktifleştirilmiş P(NIPA)-CaAlj), NHS ile aktifleştirilmiş P(NIPA)-CaAlj), CDI-NHS karışımı ile aktifleştirilmiş P(NIPA)-CaAlj) hidrojellerine immobilize edilmiş lakkazlar için Kinetik parametreler; Maksimum reaksiyon hızı (Vmak) değerleri sırası ile $2.08x10^{-3}$ mM.dak^{-1} , $6.00x10^{-3}$ mM.dak^{-1}, $3,30x10^{-3}$ mM.dak^{-1} , $8,07x10^{-3}$ mM.dak^{-1} , $5,90x10^{-3}$ mM.dak^{-1} , $8,58x10^{-3}$ mM.dak^{-1} , $5,19x10^{-3}$ mM.dak^{-1} olarak bulundu. Km değerleri de sırasıyla $1.70x10^{-2}$ mM, $2,88x10^{-2}$ mM, $32,7x10^{-3}$ mM, 4,84 $x10^{-2}$ mM, $37x10^{-3}$ mM, $55,5x10^{-3}$ mM, 30,8 x 10^{-3} mM olarak bulundu.
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Anahtar Kelimeler: Lakkaz, poli(vinil alkol), kalsiyum-aljinat, enzim immobilizasyonu, kovalent bağlanma, N-izopropilakrilamit.

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➢ **ORAL PRESENTATION**

Synthesis of novel di/tri-methoxysubstituted azachalcones, *N*-alkyl derivatives and investigation of enzym inhibition activities

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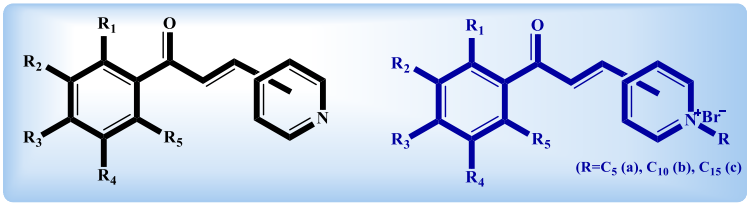
Abstract

(Aza)Chalcones (1,3-diaryl-2-propene-1-ones) are the most common compounds of the flavonoids present in nature from ferns to higher plants and very important precursors for many bioactive compounds. They exhibit impressive pharmacological activities such anticancer, antifungal, antioxidant, anti-inflammatory, antimicrobial, antiviral, antileshmanial, antimalarial, analgesic, antihyperglycemic, antitubercular and enzyme inhibition activities . The exhibited diverse biological activities of both natural and synthetic chalcones have drawn tremendous interest to them in recent years [1]. Many scientists have drawn tremendous interest to (aza)chalcones in recent years because of their structural and medicinal properties. By this way chalcones have gained important place in organic chemistry. On the other hand, *N*-alkyl substituted forms of heterocyclic compounds have acquired much attention for their comprehensive inclusion in chemistry,biology, and materials science [2-4]. The salt forms of these compounds have an especially important role in agriculture, the food processing industry, clinics and medicinal chemistry due to their high biological activity [2-4] because of the cation form of the synthesized organic compounds. Therefore, in this study, we synthesized novel di/tri-methoxysubstituted azachalcone derivatives (Figure 1) by the most widely used reaction ‘’Claisen-Schmidt’’ [2]. For synthesis we used di/tri-methoxy substituted acetophenones and 4-pyridinecarboxaldehyde. In the continuation of the study, enzym (α-glucosidase, tyrosinase and acetylcholinesterase) inhibition activities of novel compounds were investigated.



1/1a/1b/1c: R_1, R_5= -OCH_3; R_2, R_3, R_4= H; Ar_2= 4-pyridinyl
2/2a/2b/2c: R_1, R_3, R_4= -OCH_3; R_2, R_5= H; Ar_2= 3-pyridinyl
3/3a/3b/3c: R_1, R_3, R_4= -OCH_3; R_2, R_5= H; Ar_2= 4-pyridinyl

Figure 1. Structures of newly synthesized azachalcones and *N*-alkyl derivatives

*This study was supported by grant from Karadeniz Technical University.

Keywords: Azachalcone, *N*-alkyl derivative, Enzym inhibition, α-Glucosidase, Tyrosinase, Acetylcholinesterase.

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➢ **ORAL PRESENTATION**

Molecular docking studies of some quinazolin derivatives as an urease ınhibitor

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Abstract

Molecular docking studies of some quinazolinone derivatives containing triazole, thiadiazole and thiosemicarbazide functionalities and their evaluation for inhibitory activity against Jack bean urease were presented. Urease inhibitor is a very promising tool to control the damaging effects of ureolytic bacterial infections in humans. The inhibition of the enzymes by small organic molecules has fascinated the synthetic and medicinal chemists as a valuable strategy in drug discovery leading to the development of effective drugs. Five-membered nitrogen-containing heterocyclic compounds such as triazole and thiadiazole have a great importance in medicinal chemistry because of their wide range of biological activities like antimicrobial, antifungal, antibacterial, antitumor, antiurease and antilipase. It is known that quinazolinones are among the most important heterocyclic systems which have been extensively used in pharmaceutical chemistry due to their diverse biological activities such as antimicrobial, anti-inflammatory, anticonvulsant, antihypertensive, anticancer, antiviral, and antioxidant activities. Moreover, quinazolinone derivatives have been studied for their inhibitory effects on poly-(ADP-ribose) polymerase, tyrosine kinase, cholinesterase, phosphodiesterase, and topoisomerase. Recently, we have reported some quinazolinone derivatives as potent inhibitors of α-glucosidase and pancreatic lipase.The studied compounds were docked to the crystallographic structure of Jack bean urease (JBU) PDB ID: 3LA4 using induced fit docking approach. Their binding poses and energy calculations were analyzed using induced fit docking (IFD) and prime-MMGBSA tool. It is notable that most of the compounds have been more potent inhibitors of the jack bean urease enzyme compared to standard inhibitors (thiourea and acetohydroxamic acid).

Keywords: Quinazolinone, Urease, Docking, IFD, MMGBSA

➢ **ORAL PRESENTATION**

Lipofilik ve hidrofilik antioksidan bileşiklerinin nano-mangan dioksit esaslı aktivite ölçümü

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Özet

Serbest radikaller kanser, kardiyovasküler hastalık, katarakt, bağışıklık sistemi azalması, beyin fonksiyon bozukluğu gibi pek çok hastalıklara neden olacak potansiyele sahip olması nedeniyle son yıllarda tehlike arz eden bir konu haline gelmiştir. Günümüzde bir çok doku hasarı ve hastalıklara neden olan bu serbest radikallerin stabilize edilmesinde veya devre dışı bırakılmasında görev alan antioksidanlar büyük bir öneme sahiptir. Son yıllarda toplam antioksidan aktivite/kapasite tayini için birkaç yeni analitik yaklaşım denenmiştir ve genel olarak antioksidanların tayininde düşük maliyetleri, kolay kullanımları, analitin hızlı tayin edilebilmesi ve yüksek hassasiyet gibi avantajları nedeniyle nanoparçacık temelli sensörler kullanılmıştır. Bu nedenle bu tez çalışması kapsamında antioksidan bileşiklerin dolaylı aktivite ölçümü için mangan dioksit nanopartikül temelli spektrofotometrik bir yöntem geliştirilmiştir. Geliştirilen yöntemin prensibi; mangan dioksit nanopartiküller ile kromofor bir reaktif olan 3,3',5,5'-Tetrametilbenzidin (TMB) arasında meydana gelen redoks tepkimesi sonucu oluşan TMB^+ katyonunun (nano prob) hidrofilik ve lipofilik antioksidanlar varlığında renk şiddetinde (λmax= 650 nm) meydana gelen azalmanın ölçülmesine dayanmaktadır. Mangan dioksit nanopartiküller kolay, hızlı ve ucuz bir şekilde sentezlenebilmektedir. Geliştirilen yöntemin güvenilirliği ve hassasiyetini tanımlayan lineerlik, tekrarlanabilirlik ve geri kazanım parametreleri test edilerek yöntemin validasyonu yapılmıştır. Geliştirilen yöntem ile çalışılan antioksidanların tayin sınırları (LOD) $1{,}23\times10^{-9}$ mol L^{-1} ile $1{,}71\times10^{-7}$ mol L^{-1} değerleri arasındadır. Geliştirilen yöntemde çeşitli antioksidan bileşiklerin (C ve E vitaminleri, polifenolik bileşikler ve tiyollü antioksidanlar) troloks eşdeğeri antioksidan kapasite (TEAC) değerleri hesaplanılarak elde edilen sonuçlar orijinal ABTS yöntemi sonuçlarıyla Spearman korelasyon testi kullanılarak karşılaştırılmıştır. Hazırlanan ikili ve üçlü sentetik karışımlara geliştirilen nanoprob uygulanarak teorik olarak beklenen aktivite değerleri ile deneysel olarak bulunan değerler (mM TR) değerlendirilmiştir. Son olarak yeşil çay ve portakal suyu örneklerine saf antioksidan bileşiklerin uygun konsantrasyonlarda katkıları yapılarak geliştirilen yöntem ile antioksidan miktar tayinleri yapılmıştır.

Anahtar kelimeler: Mangan dioksit nanopartilül, antioksidan aktivite, kolorimetrik sensor, 3,3',5,5'-tetrametilbenzidin (TMB)

➢ **ORAL PRESENTATION**

Krom(III) varlığında peroksidisülfattan sülfat radikallerinin oluşturulması ve antioksidan kapasite tayininde kullanılması

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Özet

Peroksidisülfat ($S_2O_8^{2-}$) oldukça yüksek redoks potansiyeline sahip olup (E°=2.05 V) güçlü bir oksidan olarak çeşitli proseslerde reaksiyon başlatıcı olarak görev alır. Özellikle atık sularda çeşitli organik bileşenlerin bozundurulması işlemlerinde, çevresel kirliliğin bertaraf edilmesinde yaygın olarak kullanılmaktadır. Peroksidisülfat sıcaklık, UV ya da çeşitli metallerin varlığında sülfat anyon radikaline ($SO_4^{-\bullet}$) dönüşmektedir. Özellikle literatürde peroksidisülfat demir (II) iyonları ile aktive edilerek kullanılmış, bu şekilde sulardan çeşitli boyar maddelerin bozundurulması gerçekleştirilmiştir.

Bu çalışmada Krom (III) iyonları asidik ortamda peroksidisülfat ile Krom(VI)' ya yükseltgenmiş bu reaksiyon esnasında sülfat radikalleri üretilmiştir. Ardından oluşan Krom(VI) Difenilkarbazit ile asidik ortamda tayin edilmiştir. Yöntem optimizasyonu kapsamında Krom (III) konsantrasyonu, peroksidisülfat konsantrasyonu, sıcaklık ve süre gibi parametreler optimize edilmiştir.

Çalışmanın ikinci kısmında ise ortama katılan antioksidan bileşenler varlığında sülfat radikali oluşumu azaltılmış ve antioksidan konsantrasyonu ile bu azalmanın lineer olduğu saptanmıştır. Seçilen antioksidan bileşenlerin molar absorpsiyon katsayıları göz önüne alındığında. p-Kumarik Asit> Glutatyon >Troloks>Naringenin>Kafeik Asit>Epikateşin> Kuarsetin şeklinde bir sıralama elde edilmiştir. Standart antioksidanlar dışında gerçek antioksidan örneği olarak yeşil çay ve beyaz çay kullanılmış ve içeriği sırasıyla gram başına 0,187±0,011 ve 0,128±0,013 mmol Troloks eşdeğeri olarak bulunmuştur.

Anahtar Kelimeler: Sülfat Radikali, Antioksidan, Difenilkarbazit, Krom

➢ **ORAL PRESENTATION**

L-sistein modifiye edilmiş altın nanoparçacıklar yardımıyla melaminin 1,3,5-trinitrobenzen varlığında kolorimetrik tayini

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Özet

Melamin ve onun siyanürik asitle yoğun hidrojen bağları ile oluşturduğu suda çözünmeyen kompleksi, insan vücudunda böbrek taşı oluşumuna, böbrek fonksiyonu yetersizliklerine hatta ölüme neden olabilir. Nitekim yüksek azot içeriği (ağırlıkça %66) nedeni ile yasal olmayarak süt ve süt ürünlerine, hayvan yemlerine protein içeriğini yüksek göstermek amacı ile katılması sonucu Çin ve Amerika Birleşik Devletleri'nde binlerce çocuk ve hayvanın hastalanmalarına, hatta bir kısmının ölümlerine sebep olduğu bilinmektedir. Bu nedenle gıda örneklerindeki melamin miktarının takibi önemli bir konudur. Nano boyutlu materyallerin kendine özgü optik, manyetik, katalitik ve mekanik özellikleri kimyasal sensörler ve biyosensörler gibi yeni aletlerin ve uygulamaların geliştirilmesine izin vermektedir. Literatürde altın nanoparçacıklar ile melamin tayini için spektrofotometrik tayin yöntemleri mevcuttur ancak bu yöntemlerin tayin hassasiyeti ve seçimliliği tatmin edici değildir. Bu bağlamda önerilen nanoparçacık esaslı miktar tayin yönteminin bu açığı kapatmak anlamında son derece önemli olacağı düşünülmektedir. Mevcut olan bu eksikliği kapatmak amacıyla melamin tayini için oldukça hassas, kolay uygulanabilen ve düşük maliyetli bir spektrofotometrik sensör geliştirilmiştir. Bu doğrultuda –SH ve $–NH_2$ grubu içeren bir modifikasyon aracı (L-sistein) ile fonksiyonelleştirilmiş altın nanoparçacıkların 1,3,5-trinitrobenzen (TNB)'in $–NO_2$ grupları tarafından agregasyonu $–NH_2$ açısından zengin melamin varlığında ve yokluğunda incelenmiş ve TNB, etanol:su (2:1, v/v) ortamında tek başına AuNP'leri gözle görülebilir düzeyde agrege edemezken ortamda melamin konsantrasyonu arttıkça agregasyonunun arttığı kırmızıdan maviye bir renk değişimi ile gözlenmiştir. Önerilen sensörün melamin için tayin sınırı pikomolar düzeydedir.

Anahtar Kelimeler: Altın nanoparçacık (AuNP), melamin, kolorimetrik sensör

➢ **ORAL PRESENTATION**

İn vitro fertilizasyonda kriyopreservasyon yöntemleri

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Özet

İnsan oositlerinin, zigotların, bölünme aşamasındaki embriyoların ve blastokistlerin dondurularak saklanması, insan in vitro fertilizasyonu-embriyo transferi (IVF-ET) programının tamamlayıcı bir bölümü haline gelmiştir. Bu işlem oositler, spermler ve döllenmiş embriyolar üzerinde uygulanabilmekte ve tüm bu sayılan yapıların başarılı bir şekilde uzun süreler boyunca saklanmasını sağlayabilmektedir. Kriyopreservasyonda, kriyoprotektanlar denen bir grup bileşik kullanılmaktadır. Bunlar farklı içerikleri olan maddelerdir ve görevleri dondurma, saklama ve çözme esnasında hücreyi soğuk şok hasarından korumaktır. Oosit, sperm ve embriyo gibi farklı yapıların kriyopreservasyonunda birbirinden farklı kriyoprotektanlar kullanılmakta olup, hangisinin tercih edileceği dondurulmak istenen yapının özelliklerine bağlıdır. Kriyoprotektanlar; alkoller (etanol, propanol, metanol, 1,2 propanediol ve gliserol), dimetilsülfoksit (DMSO) ve şekerler (glikoz, laktoz, sükroz ve nişasta) olmak üzere üç grupta sınıflandırılabilirler. Kriyoprotektanlar intrasellüler ve ekstrasellüler ajanlar olmak üzere ikiye ayrılırlar. İntrasellüler ajanlar kutuplaşma ve lipofilik özellikleri hücre içine geçiş hızlarını etkileyen küçük moleküllerdir. Bu ajanlar ile hücre, solüsyonların zararlı etkilerinden korunabilmektedir. Ekstrasellüler ajanlar olarak monosakkaritler, disakkaritler ve trisakkaritler sayılabilir. Tek başlarına kullanılmamakla birlikte ozmotik farklılıklarının oluşturacağı zarara karşı koruyucudurlar. Bu çalışmanın amacı, IVF laboratuvarlarında uygulanan kriyopreservasyon işleminin sperm, oosit ve embriyo üzerinde uygulanma yollarının ve kullanılan kriyoprotektanların özelliklerinin ortaya konması, bu şekilde embriyoloji laboratuvarlarında uygulama basamaklarına ve yöntem seçimlerine ışık tutmaktır.

Anahtar Kelimeler: kriyopreservasyon, embriyo, oosit, sperm, kriyoprotektan

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➢ **ORAL PRESENTATION**

Protective effects of *Nigella sativa* oil against carboplatin-induced liver damage in rats

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Abstract

This study aimed to investigate the protective effects of *Nigella sativa* oil (NSO) against liver damage due to intraperitoneal (i.p.) usage of carboplatin.
Twenty four female Wistar-albino rats were divided into 4 groups. First group (n=6) was administered 4 ml/kg intraperitoneal (i.p.) saline 48 and 24 hours before. Second group (n=6) was i.p. administered 4 ml/kg NSO 48 hours before and 4 ml/kg saline 24 hours before. Third group (n=6) was i.p. administered 4 ml/kg saline 48 hours before and 80 mg/kg carboplatin 24 hours before. Fourth group (n=6) was i.p. administered 4 ml/kg NSO 48 hours before and 80 mg/kg carboplatin 24 hours before. At the end of 48 hours, all rats were sacrificed under anesthesia. The liver tissues were taken out and put into 10% neutral formalin. After routine tissue processing, the liver tissues were embedded into paraffin and 4 µm-thick slices were sampled from each paraffin block. The slides were stained with Hematoxylin-Eosin and Masson's Trichrome. Apoptotic index was determined with TUNEL staining. The histopathological changes and collagen fiber density were evaluated under light microscopy (Leica DM 4000B (Germany).
The degeneration in hepatocytes, fiber distribution and density around central vein and portal space was observed in the carboplatin group compared to the control and NSO groups, hepatocyte cords preserved integrity, partial degeneration in hepatocytes and decreased collagen fiber distribution around central vein was noted in the NSO-carboplatin group compared to the carboplatin group. The apoptosis was lower in the NSO-carboplatin group compare with the carboplatin group, but no statistically significant difference was found between the two groups.
NSO can provide a protective effect against carboplatin-induced liver damage.

Keywords: Apoptosis, Carboplatin, *Nigella sativa*, Gas Chromatography, Liver, Rat

➢ **ORAL PRESENTATION**

Determination of oxidative stress levels and some antioxidant enzyme activities in prostate cancer

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Abstract

In this study, the antioxidant enzyme activities such as (SOD, GSH, and CAT) and malondialdehyde (MDA) level which is the end product of lipid peroxidation, were determined from the serum samples taken from patients diagnosed with prostate cancer Yüzüncü Yıl University Medical Faculty of Educational Research and Training Hospital and İstanbul Bagcilar Education Research Hospital. The SOD ,GSH, and CAT activity of patient groups was found significantly lower than the healthy control group in patients with prostate cancer ($p<0.05$). Serum MDA level is found significantly high when compared to control groups. MDA levels increased in patients that suffer Prostate cancer disorder. Whereas, firstly antioxidant enzymes activity of SOD, GSH and CAT have been decreased in control groups. Thus, we concluded that the cause of development of prostate cancer may be the result of an imbalance between the antioxidants and oxidative stress. As a result, SOD, CAT, GSH and MDA may play an important role in the etiopathogenesis of prostate cancer.

Keywords: Prostate cancer, CAT, GSH, MDA, SOD.

➢ **ORAL PRESENTATION**

Parkinson hastalığı histopatolojisi

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Özet

Parkinson hastalığı ilk olarak 1817 yılında James Parkinson tarafından "titrek felç" olarak tanımlanmıştır.Genel olarak bakıldığında Parkinson hastalığı yaygın ve karmaşık bir nörolojik hastalıktır.Parkinsonizm tek bir hastalıktan ziyade substantia nigrayu bazal gangliona birleştiren dopaminerjik yolların bozukluğunun klinik belirtisidir. böyle bozukluklar bir çok dejenaratif hastalıkta bulunduğu gibi tramva, muayen toksik ajanlar, vasküler hastalıklar, ansefalitler ve birçok diğer şartlar nedeniyle de olabilir.
Belki parkinsonizmin en iyi bilinen formu Parkinson hastalığına eşlik edenidir.Bu idiyopatik parkinsonizm ve paraliji ajitans olarak da bilinir.Parkinson hastalığı locus cerileus ve substantia nigranın dopamin sekrete eden nöronlarına tutan dejeneratif bir hastalıktır.Erişkinlerin bir hastalığıdır.
Dört temel motor bulgusu vardır:dinlenme anında tremor,rijidite, akinezi(veya bradikinezi) ve postüral instabilite. Bunlara ek olarak fleksiyon postürü ve donma fenomeni en sık görülen motor bulgulardır.
Bradikinezi hareketlerin yavaşlamasıdır. En sık görülen klinik semptom olmasına rağmen depresyon dahil diğer hastalıklarda da görülebilir. Bradikinezi, bazal ganglion hastalıklarının ayırt edici özelliğidir ve hareketi planlama, başlatma ve yürütme ve sıralı ve eşzamanlı görevler gerçekleştirme konusundaki zorlukları kapsar. Tremor en kolay tanımlanan Parkinson hastalığı semptomudur.Tremor unilateraldir, frekansı 4–6 Hz'dir ve genellikle ekstremitelerin distal kısımlarında görülür. Karakteristik olarak istirahat tremoru eylemle ve uyku sırasında kaybolur.
Rijidite artan dirençle karakterizedir.Genellikle "dişli çark" şeklinde görülür.Boyun,omuz,kalça gibi proksimalde veya el bileği,ayak bileği gibi distalde görülebilir. Postüral instabilite, postüral refleks kaybına bağlı olarak ortaya çıkar. Genellikle Parkinson hastalığının geç evrelerinde ve diğer klinik özelliklerin başlamasından sonra ortaya çıkar.
Postüral instabilite(yürüyüşün donması ile birlikte) düşmelerin en sık nedenidir.Bu semptomlar beynin farklı bölgelerindeki değişikliklerden kaynaklanır.
Bu çalışmanın amacı, Parkinson hastalığının histopatolojik bulgularının ortaya konması ve klinik semptomların bu bulgularla ilişkisini tartışmaktır.

Anahtar Kelimeler: Parkinson Hastalığı, histopatoloji,

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➢ **ORAL PRESENTATION**

Integrated microfluidic chip development for the quantification of antibiotic permeability rates through bacteria cell wall

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Abstract

Microfluidic chips have gained a lot of interest of researchers due to their ease of fabrication, cost-effectiveness, durability, and portability and these are highly preferable to handle micro and nano particles because of their micro-sized structure and rapid detecting properties (Casquillas et al., 2015). In this study, we are investigating an integrated chip comprising of titanium electrodes and microfluidic channel networks for rapid detection of permeability of antibiotics across the bacteria cell wall. This chip enables us to recognize the concentration of antibiotics inside and outside of the model cell over time. Model cells that have been used for the experiments are Gaint unilamellar vesicles, which are produced by one of the liposomes generation methods, Electroformation. Giant unilamellar vesicles (GUV) are widely used to study the properties of biological membranes as they have a cell-like diameter and contain the same phospholipids that constitute cell membranes (Breton et al., 2015). The whole chip size is approximately 38*26 mm which is quite easy to handle. The figure 1a shows the fabricated integrated chip and figure 1b displays the image of GUVs has taken by an optical microscope (scale bar: 50 um). Here in this platform, detection is label-free due to the fact that the electrochemical principles are used to monitor the antibiotic concentration, thus allows the study of both fluorescent and non-florescent antibiotics. Depending on the antibiotic type, charge, chemical structure, the permeability will be different, and we envision that the differences can be monitored using the integrated chip. In summary, we have developed integrated LOC biosensors serve as a platform to measure the antibiotic permeability into the bacterial cell. In return, it is envisioned that it would provide an alternative way to screen permeability rates and thus give an opportunity for health-care companies to design better antibiotics.

(a) (b)

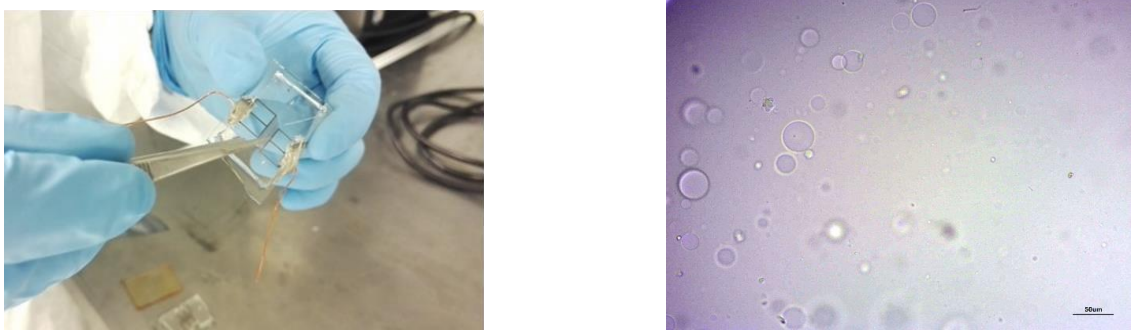

Figure 1: a) Fabricated LOC and b) Giant unilamellar vesicles.

Keywords: Microfluidics; Antibiotics; Impedance Measurement; Microfabrication; GUVs; Electroformation.

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➢ **ORAL PRESENTATION**

Prostat adenokarsinomlarında yeni derecelendirme sistemi: Grade Grup

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Özet

Prostat malignitelerinin büyük çoğunluğu prostat adenokarsinomlardır (PAK). PAK tanısında günümüzde hala histopatolojik inceleme kaçınılmazdır. PAK'ın histolojik tanısında temel olarak glandüler mimari değerlendirilir. Günümüzde PAK için en yaygın kullanılan histolojik derecelendirme şeması Gleason skorlama sistemidir. Tüm çalışmalarda bu sistem bağımsız ve güçlü bir prognostik faktör olarak bildirilmektedir. Bu sistem tamamen tümörün mimari yapısına dayanmakta olup, farklılaşma becerisine göre en iyi gland oluşturandan en kötüye doğru beş dereceye ayrılır. Sonra tümörde izlenen birincil ve ikincil en yaygın grade matematiksel olarak toplanır, 2'den 10'a kadar değişen bir değer bulunur, bu rakam Gleason skoru (GS) olarak adlandırılır. İğne biyopsisi ile radikal prostatektomi arasında GS uyumu makuldür, ancak iğne biyopsilerinde düşük derecelendirme nisbeten sıktır.

Orjinalinden sonra bu sistem bir kaç kez modifiye edilmiştir. Orjinal sistemde dokuda en fazla iki farklı patern raporlanabilmektedir. Ancak PAK'da görünüm bazen heterojen olabilmekte ve ikiden fazla patern bir arada görülebilmektedir. Modifiye Gleason sisteminde farklı paternleri içeren bir tümörde skor, en yaygın ve en ileri grade'in toplanması ile bulunur.

ISUP'un 2014 yılında gerçekleştirdiği toplantıda en güncel sistem oluşturulmuş ve DSÖ tarafından da onaylanmıştır. Bu sisteme göre PAK için GS skoruna göre 1 ile 5 arasında değişen bir Grade Gruplaması yapılmaktadır. Şöyle ki: Grade Grup 1=GS ≤6; Grade Grup 2=GS 3+4=7; Grade Grup 3=GS 4+3=7; Grade Grup 4=GS 8 (3+5, 5+3, 4+4); Grade Grup 5=GS 9 (4+5, 5+4) ve 10. Böylece farklı GS skorları beş kategoriye indirgenmiştir.

Bu sistemin prognostik değeri, bir dizi çalışmayla doğrulanmıştır olup moleküler destek ve genomik korelasyon da vardır. Bu sistem standart GS'ye göre daha iyi bir prognostik risk ayrımı ortaya koymaktadır ve skor tayininde gözlemciler arası uyum daha yüksektir. Ayrıca, standart GS'de orta derece gibi duran skor 6, bu sistemde en düşük kategoriye (1/5) yerleşmiştir. Böylece PAK'da GS 6'nın nispeten selim gidişini yansıtmak mümkün olmaktadır.

Anahtar Kelime: Prostat adenokarsinomu, Histolojik derecelendirme, Gleason skoru, Grade grup

➢ **ORAL PRESENTATION**

Resveratrol uygulanmış ratlarda kalp dokusunda mast hücrelerinin sayısal dağılımının incelenmesi

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Özet

Mast hücreleri, kemik iliği öncü hücrelerinden köken alır, granülsüz hücreler olarak kan dolaşımına ve oradan da bağ dokusuna göç edip burada kök hücre faktörü etkisi ile farklılaşarak karakteristik granüllü hücrelere dönüşürler. Genellikle yuvarlak veya oval olan bu hücreler, sitoplazmalarında çok sayıda, yuvarlak ve irili ufaklı salgı granülleri bulundururlar. Antikorlar, sitokinler, kemokinler ve nöropeptitler olmak üzere çeşitli uyaranlarla aktive olabilirler. Kalp dokusunda mast hücreleri çeşitli sitokinler, büyüme faktörleri, vazoaktif ajanlar ve aktif mediatörler üretir. Antioksidan, kanser önleyici, kan şekerini düşürücü, immum sistemi güçlendirici etkileri olan resveratrolün koroner kalp hastalıkları riskini düşürdüğü bilinmektedir. Ayrıca, akut ve kronik miyokardiyal iskemide ve miyokardiyal iskemik perfüzyonda kalp doku ve fonksiyonunda meydana gelebilecek hasarlara karşı koruyucu iyileştirici özelliği bulunduğu saptanmıştır. Resveratrolün kalp dokusunda mast hücreleri dağılımı ve boyanma özelliklerine etkisi üzerine yapılan araştırmalar kısıtlı sayıdadır. Yapılan bu çalışmada uygulanan intraperitoneal resveratrolün kalp dokusunda mast hücrelerinin sayısal olarak artışı ve morfolojik değişimine etkisi olup olmadığı araştırıldı. Çalışmada 10 adet erişkin dişi rat kullanıldı. Kontrol grubuna ilaç uygulanmadı. Deney grubuna 30 mg/kg intraperitoneal resveratrol uygulandı. Bütün gruplarda 24 saat takip sonrası ratlar sakrifiye edilerek kalp dokuları alındı. Ratlardan alınan dokular histolojik incelemeler için %10'luk formaldehid solusyonunda tespit edildi. Tespit edilen dokular rutin doku takibi prosedürlerinden geçirilerek parafinde bloklandı. Mc Ilvaine'nin sitrik asit disodyum tamponunda hazırlanan %0.5'lik Toluidin Blue boya solüsyonu ile bloklardan 30µ arayla 5µ kalınlığında alınan 10'ar adet seri kesit boyandı. Kontrol ve deney grubuna ait kalp dokularında toluidin blue ile metakromazik boyanan mast hücreleri belirgin şekilde ayırt edildi. Kalp dokusunda atriyum, ventrikulus ve epikartta saptanan mast hücrelerinin oval veya yuvarlak şekilli olduğu saptandı. Kontrol ve deney grubu karşılaştırıldığında, resveratrol uygulanmış grupta mast hücrelerinin sayısında belirgin artış olduğu görüldü. Sonuç olarak elde ettiğimiz bulguların resveratrol, mast hücre ilişkisine katkıda bulunacağı kanısına varılmış olup, yapılacak olan immunohistokimyasal araştırmalar ve farklı etken madde uygulamaları ile mast hücre fonksiyonunun daha ayrıntılı şekilde açıklığa kavuşturulacağını düşünmekteyiz.

Anahtar Kelimeler: Kalp, resveratrol, mast hücre.

➢ **ORAL PRESENTATION**

Serum oxidative stress biomarkers in rat models exposured acutely and chronically to electromagnetic fields

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Abstract

Low dose electromagnetic field (EMF) can leads to oxidative state by shifting oxidant/antioxidant balance in organism. In this study we observed the effect of EMF exposure period on oxidant/antioxidant balance in serum. Wistar albino rats were divided into sham-control (Group I), acutely EMF-exposed (Group II) and chronically EMF-exposed (Group III) groups (n=8 in each). Group II were exposed to 900 MHz EMF during 24 hours for one day. Group III were exposed to 900 MHz EMF for 60 minutes a day for 30 days. Group I were not applied EMF. Total Antioxidant Status (TAS), Total Oxidant Status (TOS), superoxide dismutase (SOD), malondialdehyde (MDA) and total thiol were measured in serum samples and Oxidative Stress Index (OSI) was calculated. No significant difference was found between groups in terms of TAS, TOS, SOD, MDA, total thiol levels. Group I was significantly lower than Group III in terms of OSI values.

Keywords: Electromagnetic field, Oxidative stress, Serum

➢ **ORAL PRESENTATION**

Alterations at epigenomic level due to BRAF V600E mutations in papillary thyroid carcinoma

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Abstract

Papillary carcinoma is the most common type of thyroid cancer, which accounts for approximately 85 percent of cases. The most frequent mutation in papillary thyroid carcinoma is BRAF V600E point mutation. Although several studies have indicated the clinical significance of BRAF V600E mutation, there are no studies up to date that investigate the epigenetic alterations they might induce within the cell. Therefore, this study aims to analyze the expression levels of histone variants and histone chaperons in papillary thyroid carcinoma in an attempt to understand the alterations within epigenomic landscape in relation to BRAF V600E mutations.

DNA sequencing and mRNA expression data for 415 thyroid carcinoma patients were acquired from The Cancer Genome Atlas (TCGA). BRAF V600E mutations within the study cohort were examined and the patients were separated into two groups according to their BRAF mutation status. In order to evaluate the expression levels of histone variants, heatmaps were generated by analyzing the mRNA expression data on CBioPortal interface. Correlations between the expression levels of the variants were determined by statistical analysis. Kaplan-Meier analysis was performed to generate survival curves.

We found that 249 patients (60%) carried BRAF V600E mutation. When we compared the two sub-groups that we formed according to the mutational status of BRAF, we found that histone H3 variant H3.3, H2A variants macroH2A and H2A.Z were significantly overexpressed in the samples bearing V600E mutation, whereas H2A.X was significantly downregulated ($p<0.05$). Furthermore, histone chaperons INO80, HJURP, SUPT16H and SSRP1 were significantly upregulated, while DAXX was significantly downregulated in the presence of BRAF V600E mutations. Altogether, these results indicate differential expression patterns for histone variants and chaperons, which strongly imply differential chromatin states and transcriptional regulation.

Keywords: Cancer, papillary thyroid carcinoma, epigenetic regulation, histone modifications, chromatin

➢ **ORAL PRESENTATION**

Role of epigenomics in endometrial cancer

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Abstract
Endometrial cancer is the most common gynecological malignancy in women. Carcinogenic mechanisms of endometrial cancer are not fully elucidated. Increasing evidence from recent molecular pathology studies show that the epigenetic regulation of gene expression is critical for initiation and progression of endometrial cancer. Epigenetic regulations are reversible modifications in gene expression without altering the primary DNA sequence and are caused by DNA methylation, histone modification, and post-transcriptional small non-coding microRNAs. In this study, the GSE17025 gene's microarray data were downloaded from the "Gene Expression OmniBus" database to investigate the association of endometrial cancer with epigenetic modifications. Differences in gene expression level were generated by re-analyzing the mRNA transcripts of the Affymetrix Human Genome U133 Plus 2.0 Array platform from tissues obtained from 79 endometrioid and 12 serous endometrial cancer patients which were examined in relation to 12 samples of atrophic endometrium from postmenopausal women. "Biobase", "Limma" and "Geoquery" libraries were obtained with bioinformatics analysis and R program. Moreover, Cytoscape with Search Tool for the Retrieval of Interacting Genes and Molecular Complex Detection plug-in was utilized to visualize protein-protein interaction of these differentially expressed genes. In comparing the expression profiles of transcripts, "log2 fold change> 1" and $P \leq 0.05$ were considered statistically significant. Statistically significant differences were found in genes related to DNA methylation and histone modifications (acetylation, methylation, phosphorylation, ubiquitination) by using the DAVID (Database for Annotation, Visualization and Integrated Discovery) functional annotation system. A greater understanding of the role of epigenetics in endometrial cancer will provide for improved therapeutic interventions against this devastating malignancy.
Keywords: Endometrial Cancer, Epigenomics, Molecular Pathology, Bioinformatics

➢ **ORAL PRESENTATION**

Anti-cancer activity of ZnO/TiO_2 nanomaterials in prostate cancer cells

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Abstract

Prostate cancer arises from uncontrolled growth of cells in the prostate gland. It is the second most common type of cancer in men, although it varies widely among countries in the world. The aim of this study was to determine the anti-cancer activity of ZnO and TiO_2 nanoparticles and ZnO/TiO_2 nanomaterials in human prostate cancer cell line (Du-145) and healthy mouse fibroblast cell line (L-929).

ZnO and TiO_2 nanoparticles and ZnO/TiO_2 nanomaterials were synthesized in our study. Characterization analysis of these synthesized molecules was performed. The anti-cancer activity of the nanomaterials and nanoparticles was then determined in the Du-145 and L-929 cell lines using the MTT method. Du-145 and L-929 cells were treated for 24, 48 and 72 hours at different concentrations of these nanomaterials and nanoparticles (0.5-100 g / ml). Spectrophotometric readings at 570 nm were then recorded and analyzed by Graphpad Prism7.

The effects of these nanomaterials and nanoparticles on Du-145 and L-929 cells were compared with the control group and IC 50 values were determined after 24, 48 and 72 hours. Then, the effects of these molecules on the Du-145 and L-929 cell lines were compared. It was determined that the most active ZnO/TiO_2 nanomaterial was present in the Du-145 cell line.

Keywords: Prostate cancer, Du-145, L-929, TiO_2, ZnO

Acknowledgment: This study was carried out at Cumhuriyet University's Advanced Technology Application and Research Center (CUTAM).

➢ **ORAL PRESENTATION**

Cytotoxic activity of the TiO_2-PEG-PTX nano carrier based drug system on L-929 cell line

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Abstract

The fact that the drug develops resistance against the drugs used in chemotherapy, the drug cannot reach the target tumor area and the cancer cells are very similar to normal healthy cells, and the drugs destroy the normal cells besides the cancer cells have led the scientists to do research on this subject. For this purpose; The first aim of this study is to synthesize the titanium dioxide (TiO_2) nanoparticle modified with polyethylene glycol (PEG) paclitaxel (PTX) drug and synthesize the TiO_2-PEG-PTX nanoparticle based drug system.

In our study, TiO_2 nanoparticles and TiO_2-PEG-PTX nanoparticle based drug system were synthesized first. Characterization analysis of these synthesized molecules was performed. Then, TiO_2-PEG-PTX and TiO_2-PEG-PTX nanoparticle based drug system cytotoxic activity of TiO_2 nanoparticles were determined in L-929 cell lines using MTT method. L-929 cells were treated for 24, 48 and 72 hours at different concentrations of these molecules (0.5-50 µg/ml). Then, spectrophotometric reading was performed at 570 nm and analyzed by Graphpad Prism7.

The cytotoxic activities of these synthesized molecules on L-929 cells were compared with the control group and IC 50 values were determined after 24, 48 and 72 hours. The most active TiO2 nanoparticles were detected in the L-929 cell line. Furthermore, it has been found that the synthesized TiO2-PEG-PTX nanotuber system is more than the cytoxic activity of the conventional PTX.

Key words: Healthy mouse fibroblast cell line, L-929, TiO_2, PTX, PEG

Acknowledgment: This study was carried out at Cumhuriyet University's Advanced Technology Application and Research Center (CUTAM).

➢ **ORAL PRESENTATION**

Kalp dokusunda rotenon maruziyetinin oksidatif stres ve inflamasyon üzerine etkileri

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Özet

Rotenon, pestisid olarak yaygın kullanılmasının yanında mitokondriyel elektron taşıma sisteminde yer alan kompleks I'i inhibe ederek hücre içi oksidatif stres oluşumuna neden olmaktadır. Rotenonun yol açtığı hücresel hasarlar genelde nöronal hücre araştırmalarında çalışılmasına rağmen, kalp gibi metabolizma hızı yüksek dokuda yapılan çalışma sayıları azdır. Rotenonun kalp dokusunda yağ asidi metabolizmasına etki ettiği daha önceki çalışmalarda belirtilmiştir. Bu çalışmada, kalp dokusunda oksidatif stres oluşumu için 4 hafta süresince 2 gün aralıklarla 2 mg/kg konsantrasyon olacak şekilde intraperitonal enjeksiyon ile zebra balıklarına rotenon uygulanmıştır. Rotenon ile oluşturulan oksidatif strese rifampisin antibiyotiğinin, kalp dokusunda oluşturacağı etkileri araştırmak için, bir grup zebra balığına da 2mg/kg rotenonla beraber 20mg/kg konsantrasyonda yağda çözünmüş rifampisin intraperitonal olarak uygulanmıştır. Uygulama sonrası anestezi altında kalp dokuları disekte edilip, nitrik oksit (NO), lipid peroksidasyon (LPO) düzeyleri, TLR4A, CYP27A1 ve TNFα gen ekspresyon düzeyleri incelenmiştir. LPO ve NO seviyelerinde kontrol grubuna göre azalma görülmüştür. Rifampisin antibiyotiğinin gen ekspresyon profilinde oluşturduğu farklılıklar arasında CYP27A1 ve TNFα özellikle dikkate değer düzeydedir. Sonuçlarımız rifamipisinin rotenon maruziyeti durumunda kalp dokusundaki etkileri üzerine daha detaylı çalışmaların gerekli olduğunu göstermektedir.

Anahtar Kelimeler: Rotenon, rifampisin, lipid metabolizması, kalp.

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➢ **ORAL PRESENTATION**

The effects of hemoglobin-based oxygen carriers (HBOC's) on endotoxemia – induced renal inflammation and damage

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Abstract

Sepsis is associated with inflammation, tissue damage and hypoxia. The present study was aim to investigated the effects of two HBOC's with low and high P50 on the renal inflammation and damage in a model of lipopolysaccharide (LPS) induced endotoxemia.
All experiments were performed on male Wistar-Albino rats. Endotoxemia was induced by lipopolysaccharide (LPS, *E. coli* serotype 0127:B8, 25 mg.kg^{-1} intravenously over 30 min). The animals were divided into 5 groups as LPS, LPS+RA+NE [30 ml.kg^{-1} Ringer acetate (RA) + 0.5 µg.kg^{-1}.min^{-1} norepinephrine (NE)], LPS+RA+HBOC1+NE [30 ml.kg^{-1} RA + 40 mg.ml^{-1} HBOC1 (P50 ≈ 12 mmHg) + 0.5 µg.kg^{-1}.min^{-1} NE], LPS+RA+HBOC2+NE (30 ml.kg^{-1} RA + 40 mg.ml^{-1} HBOC2 (P50≈36 mmHg) + 0.5 µg.kg^{-1}.min^{-1} NE] and time-control.
Histological and immunohistochemical analysis were performed on the renal tissue sections. To do so, renal sections were stained with endothelial nitric oxide synthase (eNOS), inducible nitric oxide synthase (iNOS), tumour necrosis factor-α (TNF-α), interleukin-6 (IL-6), neutrophil gelatinase-associated lipocalin (NGAL), myeloperoxidase (MPO) and scored both the intensity and the distribution of staining. The data were evaluated statistically.
The damage in renal tissue increased in the all LPS-treated groups in comparison to control group. iNOS, TNF-α, IL-6, NGAL and MPO reactions on kidney were not restored in the LPS groups-treated with RA and HBOC1 groups but further damage and inflammation were detected in HBOC2 group compared to the control, LPS, LPS received RA and HBOC1 groups. eNOS reaction decreased in the LPS groups, however increased in LPS+RA+HBOC2+NE compared with the control, LPS, LPS group received RA and HBOC1.
These results indicated that HBOC1 has similar effect with RA resuscitation on the inflammatory and renal damage markers but HBOC2 has overwhelming effect on inflammation and renal damage regardless of hemodynamic restoration provided by fluid and NE treatment.

Keywords: Lipopolysaccharide, Endotoxemia, Kidney, HBOC's.

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➢ **ORAL PRESENTATION**

Antiplatelet aggregation of the secondary metabolites isolated from the aerial parts of *Chrysophthalmum montanum* (DC.) Boiss.

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Abstract

Chrysophthalmum montanum (DC.) Boiss. distributed in the eastern and southeastern parts of Turkey, is traditionally used against flu and for wound healing [1]. In our study, we aimed to investigate on the constituents of *C. montanum* for the inhibitory activity on the platelet aggregation with collagen, thrombin and arachidonic acid. We isolated antiinflammatory constituents from the chloroform subextract of *C. montanum* by bioassay guided fractionation in our recent study [2]. Our ongoing studies on *C. montanum*, we isolated guaianolides and flavonoid on the chloroform subextract of *C. montanum* aerial parts. The structures of the isolates were identified using spectroscopic analysis. The inhibitory activities of the isolates on the platelet aggregation were proceeded by using platelet aggregation assay with turbidimetric method. We isolated five sesquiterpene lactones (**1**-**5**), namely 6*α*-acetoxy-4*α*-hydroxy-1*β*H-guaia-9.11(13)-dien-12.8*α*-olide **(1)**, 6*α*-acetoxy-4*α*-hydroxy-9*β*.10*β*-epoxy-1*β*H-guaia-11(13)-en-12.8*α*-olide **(2)**, 4*α*,6*α*-dihydroxy-1*β*,5*α*,7*α*H-guaia-9(10),11(13)-dien-12,8*α*-olide **(3)**, (4*α*,5*α*,8*β*,10*β*)-4,10-dihydroxy-1,11(13)-guaidien-12,8-olide (**4**), and (4*α*,5*α*,8*β*,10*α*)-4,10-dihydroxy-1,11(13)-guaiadien-12,8-olide (**5**), as well as a flavonoid, chrysosplenol C (**6**) from chloroform subextract. Among the isolates, the highest antiplatelet activity against collagen-induced (3 µg / mL) and thrombin-induced (0.1 U/ml) platelet aggregation was found in compound **6** with IC_{50} = 27.84 and 82.14 µM, respectively. In addition, compound **1** displayed high inhibitory activity with IC_{50} = 43.27 µM against collagen-induced platelet aggregation. Compound **6** also showed significant antiplatelet activity against arachidonic acid-induced platelet aggregation with 98.35 % inhibition at a concentration of 1 mM. We revealed that sesquiterpene lactones and flavonoid isolated from *C. montanum* have inhibitory effects on platelet aggregation using *in vitro* assays. Our data indicate that *C. montanum* can be natural source to discover novel antiplatelet agent in future.

Keywords: antiplatelet activity, arachidonic acid, *Chrysophthalmum montanum*, collagen, thrombin.

Acknowledgements: This study was supported by Gazi University Research Foundation [grant number 02/2017-11].

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➢ **ORAL PRESENTATION**

In vitro wound healing assessment of isolated constituents from *Sideritis germanicopolitana* Bornm. subsp. *germanicopolitana*

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Abstract

The genus *Sideritis* L. (Lamiaceae) is mainly distributed in Mediterranean region and commonly known as "Dağ çayı, Yayla çayı, Alanya adaçayı ve and Balbaşı" in Turkey. *Sideritis* genus has long been used for their anti-inflammatory, antiulcerogenic, antimicrobial, analgesic, digestive and wound healing properties in folk medicine. Amongst them, *S. germanicopolitana* Bornm. subsp. *germanicopolitana* is an endemic perennial plant mainly distributed in North and Central Anatolia. It is consumed as "Dağ çayı" to relief the symptoms of common cold in Anatolia. In our phytochemical studies on *S. germanicopolitana* subsp. *germanicopolitana*, eight constituents, two diterpenes as an isomeric mixture (**1**) [major: 7-epi-candicandiol (**1a**); minor: sideridiol (**1b**)] and a fatty acid derivative (**2**) from *n*-hexane subextract, and also two diterpenes as an isomeric mixture (**3**) [major: foliol (**3a**); minor: isofoliol (**3b**)], two flavones, penduletin 4'-methyl ether (**4**) and penduletin (**5**), and a diterpene, sinfernol (**6**) from chloroform subextract of the plant were identified on the basis of spectroscopic data. In the continuation of our studies on the plant, we now investigated wound healing activity of the methanol extract and its subextracts (*n*-hexane, chloroform, *n*-butanol and remaining H_2O subextracts), and the isolated compounds by evaluating *in vitro* anti-elastase, anti-collagenase, anti-hyaluronidase activities. The methanol extract, *n*-hexane and chloroform subextracts as well as compounds **4** and **5** displayed significant inhibitory effects with the value of 24.92, 21.08, 28.51, 35.44 and 31.81 % for elastase, 27.29, 15.41, 23.70, 25.73 and 21.96 % for collagenase enzymes, respectively. However, none of the extract, subextracts and isolated compounds showed any inhibitory activities on hyaluronidase enzyme. In this study, we disclose the first *in vitro* wound healing enzyme activity of *S. germanicopolitana* subsp. *germanicopolitana*.

Keywords: *Sideritis germanicopolitana*, Lamiaceae, Isolation, Elastase, Collagenase, Hyaluronidase

Acknowledgements: This study was supported by Gazi University Research Foundation (Grant number 02/2018-09)

➢ **ORAL PRESENTATION**

Single nucleotide polymorphisms: markers of disease susceptibility and drug response

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Abstract

Variations in the DNA sequence provide biological diversity which helps to living organisms adapt to varied circumstances and environments. In addition, genetic predisposition is related to individual differences which lead to differences in phenotype, disease susceptibility and altered response to drugs, chemicals and/or pathogens. Since these inter-individual differences have a substantial relation with the risk of diseases and impact on pharmacokinetics, identification of gene polymorphisms and medical applications of these markers have raised for over decades.

In the present conference paper, the definitions of several terms belong to polymorphisms and medical application of SNPs mainly discussed. Furthermore, the results of numerous studies conducted on the Division of Pharmacogenetics, Faculty of Pharmacy, Istanbul University were summarized. Hereby, various SNPs associated with the risk of colorectal cancer, breast cancer and pancreatitis as well as SNPs associated with the drug response in hypothyroidism patients in Turkish population were revealed.

Keywords: Genetic variations; single nucleotide polymorphisms; drug response; disease susceptibility.

➢ **ORAL PRESENTATION**

Isolation of lactic acid bacteria from traditional Turkish foods

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Abstract

Sourdough bread and Van herbed cheese samples are obtained from traditional producers in Aydın and Van. These foods are studied for their lactic acid bacteria content, and subjected to a series of biochemical and PCR-based molecular biology techniques for identification and typing purposes. The samples were studied for their Gram reaction, catalase activity, gas production, growth at 10ºC and 45ºC, 6% and 16% NaCl and pH4.4 and ph9.6 for the biochemical tests. For the molecular biology experiments, PCR-RFLP, sequencing and RAPD-PCR were performed to identify organisms at the species and strain level.

Keywords: Sourdough bread, Van herbed cheese, lactic acid bacteria, PCR, identification, typing

➢ **ORAL PRESENTATION**

Gastrik adenokarsinoma hücrelerinde *Helicobacter Pylori'*nin neden olduğu DNA hasarının ve DNA onarımının değerlendirilmesi

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Özet

Helicobacter pylori; midede kolonize olarak gastrit, ülser ve mide adenokarsinomasına neden olan gram negatif bir bakteridir. *Helicobacter pylori* enfeksiyonu Uluslararası Kanser Araştırma Ajansı (IARC) tarafından "Grup I karsinojen (insanda kesin karsinojen)" olarak sınıflandırılmıştır.

Araştırmalar, *Helicobacter pylori'*nin doğrudan DNA hasarı yaparak ve/veya epigenetik mekanizmalarla genetik instabiliteye neden olduğunu göstermektedir. Literatürde *Helicobacter pylori* enfeksiyonunun DNA hasarına neden olduğunu gösteren ve DNA onarım mekanizmalarını da etkileyebileceğini bildiren az sayıda mevcuttur. Ancak, bu çalışmalar kapsamlı ve mekanistik veriler sunmamaktadır.

Çalışmamızda, insan gastrik adenokarsinoma (AGS) hücrelerinin *Helicobacter pylori*'ye maruziyeti sonucu ortaya çıkabilecek olası DNA hasarı, DNA baz lezyonları (8-hidroksi-2-'deoksiguanozin, 8-OHdG) ve DNA onarım proteinlerindeki değişiklikler (8-okzoguanin glikosilaz, OGG1) değerlenmiştir. DNA hasarı Comet yöntemiyle, DNA baz lezyonları ve OGG1 düzeyleri ise ELISA yöntemiyle spektrofotometrik olarak ölçülmüştür. Diğer taraftan, çalışmaya DNA protein kinaz inhibitörü olan ve DNA onarımını inhibe eden 8-(4-dibenzotienil)-2-(4-morpholinil)-4H-1-benzopyran-4-on (Nu7441) eklenmiş ve ilgili parametreler Nu7441 varlığında da ölçülmüştür. Bu şekilde DNA hasarı baskılanmış ve/veya doğru çalışmayan hücrelerde *Helicobacter pylori*'nin neden olabileceği olası DNA hasarının değerlendirilmesi amaçlanmıştır.

Çalışma grupları: 1. Kontrol (AGS hücreleri); 2. Nu7441 grubu: 24 saat 10 µM Nu7441 uygulanan AGS hücreleri; 3. *Helicobacter pylori* grubu (HP): *Helicobacter pylori*'nin inhibitör konsantrasyon 30 (IC30, AGS hücrelerinin %30'unu öldüren bakteri miktarı, infeksiyon çokluğu (MOI): 138 bakteri/AGS hücresi) miktarında 24 saat uygulandığı hücreler; 4. *Helicobacter pylori*+Nu7441 grubu (HP+ Nu7441): 24 saat 10 µM Nu7441 ve MOI: 138 bakteri/AGS hücresi uygulama yapılan hücreler, olarak belirlenmiştir.

Comet analizlerinde, Nu7441 ve HP+ Nu7441 gruplarında DNA kuyruk uzunluğunun kontrole göre anlamlı derecede arttığı belirlenmiştir. HP+ Nu7441 grubunda tüm çalışma gruplarına göre OGG1 ve 8-OHdG düzeylerinin arttırdığı saptanmıştır ($p<0.05$). Bu veriler *Helicobacter pylori*'ye maruziyetin DNA baz lezyonlarına ve DNA onarımında sorunlara neden olduğunu doğrulamaktadır. Ayrıca, Nu7441 eklenen gruplardan elde edilen bulgular, DNA hasar onarımı baskılanmış/bozulmuş bireylerde *Helicobacter pylori'*nin neden olabileceği DNA hasarının sağlıklı bireylere oranla çok daha ciddi düzeylerde olabileceğini göstermektedir.

Anahtar Sözcükler: Helicobacter pylori, DNA hasarı, Comet, DNA onarımı

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➢ **ORAL PRESENTATION**

Chemical synthesis and quality control of a cardioactive substance

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Abstract

Phenytoin, an anti-arrhythmic and anti-epileptic substance, is synthetized by a direct process. Its quality is then determined by control of characters, identification by thermal analysis (differential scanning calorimetry DSC) and spectroscopic analysis (infrarouge IR and proton nuclear magnetic resonance ^{1}H NMR), its purity is tested by searching related substances with High Performance Liquid Chromatography HPLC and a dosage is realized by a volumetric titration assay in a non-aqueous medium. The control is realized by processes of the European Pharmacopoeia, then extended to other processes extra-pharmacopoeia such as ^{1}H NMR and DSC.

In the stemming of the laboratory tests, an impurity was isolated and identified by thermal and spectroscopic analysis. The results concluded that its structure corresponds to the impurity D entered in the monograph of the European pharmacopoeia, hence its usefulness as a standard substance in the purity control of phenytoin synthesized by HPLC.

The synthetic process of phenytoin has resulted in an active substance of comparable quality that meets current requirements for the production and control of the pharmaceutically active substances.

Keywords: Phenytoin, synthesis, analytical, control , impurity, quality.

➢ **ORAL PRESENTATION**

The effects of myriocin on blood pressure and vascular reactivity in DOCA-salt hypertensive rats

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Abstract

Hypertension is one of the most prevalent cardiovascular disease with high mortality. Studies to clarify the pathogenesis of hypertension and to develop new therapeutic approaches still remain important. Ceramide is a sphingolipid that mediates many cellular functions such as proliferation, differentiation, apoptosis and inflammation. This study was set out to examine the effects of ceramide inhibitor myriocin on blood pressure and vascular responses in hypertension.

Eight-weeks old, Wistar albino male rats were used in this study. Deoxycorticosterone acetate (DOCA)-salt hypertension model was induced through unilateral nephrectomy, DOCA pellet implantation and adding NaCl+KCl in drinking water for 12 weeks. Myriocin administration (0.3 mg/kg, 3 day/week) was performed for the final eight weeks. Blood pressures were measured by tail-cuff method. At the end of the experiment, thoracic aortas were isolated and vascular relaxation and contraction responses were recorded.

DOCA-salt application lead to an increase in the systolic pressure and impairment in the vasorelaxation. Myriocin did not affect systolic blood pressure in the both normotensive and hypertensive rats. Myriocin-treated hypertensive rats exhibit a worsened endothelium dependent relaxation response compared to control and DOCA-salt groups. In addition, myriocin lead to reduced endothelium independent vasorelaxations in the hypertensive animals. Phenylephrine induced contractions response did not change but KCl induced vasocontractions were enhanced in the DOCA-salt group. Myriocin did not alter contraction responses in the hypertensive rats. These results indicate that ceramide inhibition does not have a positive effect on hypertension and further worsens vascular relaxation responses.

Keywords: hypertension, myriocin, ceramide, endothelial function, DOCA-salt.

➢ **ORAL PRESENTATION**

Levels of metabolic markers in the liver of rats with metabolic syndrome

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Abstract

The metabolic syndrome (MetS) is characterized with increases in body mass index, hyperlipidemia, hyperglycemia and hyperinsulinemia in current modern life (1). It is a multifactorial syndrome constellation of abnormalities generally include abdominal obesity, impaired glucose tolerance, and high blood pressure occurred individually and/or combination of them (2). However, the underlying mechanisms of how these factors are affecting are not known very well. Therefore, herein, we aimed to investigate the possible association between MetS and the altered metabolic markers of liver in an animal model induced with a high-carbohydrated diet. MetS was induced in 2-mo old male Wistar rats with supplementation of 32% (w/v) sucrose besides their standard diet (3). Following MetS confirmation, livers were collected and freezed for analysis and characterization. Activities of catalase (CAT), glutathione S-transferase (GST), glutathione reductase (GR) and superoxide dismutase (SOD), and levels of malondialdehyde (MDA) and 3-nitrotyrosine (3-NT) were determined by spectrophotometrically. The levels of either macro elements (such as P, Fe, Mg, Ca) or trace elements (Zn, Cu, Mn) were measured using inductively coupled plasma optical emission spectrometry. Our data demonstrated that CAT and GST activities were significantly decreased in the MetS-group as the levels of 15% and 29%, respectively, compared to that of controls. However, GR activity, MDA and 3-NT levels were found to be increase in MetS-groups as the levels of 78%, 26% and 67% compared to that of controls, respectively. The levels of Fe, Cu and Mn were significantly increased in the MetS-group compared to those of the controls. Light microscopy analysis of livers demonstrated that there were no significantly changes in the structure of the tissues from both groups. Consequently, our results showed that MetS induced significant alterations in the antioxidant defence system of the liver as well as marked changes in both macro- and trace-element levels.

Key words: Metabolic syndrome, sucrose, liver, antioxidant enzymes, malondialdehyde, macro- and trace- elements

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➢ **ORAL PRESENTATION**

Identification and phylogenetic analysis of Staphylococcaceae and Enterococcaceae members obtained from cheese samples

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Abstract

Milk and dairy products including cheese are one of the most significant food commodities in terms of the food industry. However, contaminated products could lead to food-borne bacterial infections. Although Staphylococaceae family members such as *Staphylococcus carnosus* and *Macrococcus caseolyticus* are significant for the food processing industry, some of *Staphylococcus aureus* strains are responsible for the food intoxications. Enterococcaceae members including *Enterococcus faecalis* is inhabiting of gastrointestinal tracts of mammals and they can be also recovered from foods. And they are responsible for variety of human infections. Therefore, identification and investigation phylogenetic relationship is important to understand their clonal relatedness and transmission sources to the human. A total of four (n=4) white cheese were collected from various markets in Istanbul. All cheese samples were evaluated quantitatively by homogenising 25 g cheese and 225 ml peptone water. The 10-fold serial dilutions were spread on Baird-Parker agar. Typical colonies were selected and counted for further identification analysis followed by the 24-h for 37ºC incubation. Phenotypic identification tests such as Gram staining, oxidase, catalase, mannitol, coagulase, and DNase were performed. Presumptive Staphylococaceae and Enterococcaceae members were identified by 16S rRNA PCR analysis and sequencing. The resulting sequence reads were aligned and trimmed with the SILVA. The sequences (n=15) were deposited into the GenBank database followed by removing all ambiguously aligned regions and gaps. The phylogenetic analysis was performed by SILVA alignment and phylogenetic tree service. The 16S rRNA sequences of related reference strains were withdrawn from SILVA sequence collection in order to obtain phylogenetic relationship. A total of 15 Staphylococaceae and Enterococcaceae members including *Staphylococcus aureus (*n=1), *Enterococcus faecalis* (n=12), *Staphylococcus carnosus* (n=1), and *Macrococcus caseolyticus* (n=1) out of 4 cheese samples were identified. Phylogenetic analysis showed a close relatedness among reference strains, Staphylococaceae, *and* Enterococcaceae members.

Keywords: Staphylococaceae, Enterococcaceae, phylogenetic, 16S rRNA, cheese

➢ **ORAL PRESENTATION**

Effect of sodium dodecyl benzenesulfonate on the biosorption of reactive black 5 by yeast cells

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Abstract

Reactive Black 5 (RB5) is a reactive textile dye and usage of RB5 creates serious environmental problems. Biosorption of the textile dyes is a cheap and effective alternative to physical or chemical removal methods. Additionally using microorganisms and surfactants together can significantly improve the biosorption capacity via changing the surface tension. Therefore in this study we investigated the RB5 biosorption by *Candida tropicalis* in the presence of sodium dodecyl benzenesulfonate (DBS). Important parameters on biosorption such as pH (2, 4, 6, 8, 10), surfactant concentration (0.05 mM, 0.5 mM and 5 mM) were tested. When DBS and *C. tropicalis* were used together, the maximum biosorption was calculated as 98.2% in the presence of 0.05 mM surfactant and 100 mg/L initial RB5 concentration at pH 2. It was also observed that increasing surfactant concentrations caused lower biosorption rates.

Keywords: *Candida tropicalis*, DBS, surfactant, Reactive Black 5, biosorption.

➢ **ORAL PRESENTATION**

Bioethanol production from turnip juice discards as a raw material by an osmotolerant yeast

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Abstract

Environmental concerns that derived from fossil fuel consumption, force the researchers to investigate renewable alternative energy sources. Among them bioethanol considered as the most promising one because of its cheapness, renewable and eco-friendly properties. Therefore, in this present study bioethanol production capacity of turnip juice discards, which are abundant by-products of beverage industry of Turkey, was determined. In all experiments an osmotolerant yeast, *Kluyveromyces marxianus*, was used. In order to optimize the bioethanol production, effects of different pretreatment methods, initial biomass loading, nitrogen sources, mineral salts and carbon sources on the bioethanol production were investigated. The highest ethanol concentration was obtained as 7.25 g/L in the presence of 100 g/L turnip juice discards that supplemented with 0.3 g/L $MgSO_4.7H_2O$, 0.5 g/L KH_2PO_4, 1 g/L $(NH_4)_2SO_4$, 1 g/L yeast extract and 24 g/L molasses solution at pH 5. Under these conditions, *K. marxianus* reached the 64% of the theoretical ethanol yield. These results shows that turnip juice discards are suitable raw materials for renewable energy sources and *K. marxianus* is a promising agent for ethanol production.

Keywords: Turnip Juice Discards, Yeast, Bioethanol, Second generation biofuel

➢ **ORAL PRESENTATION**

Şeftali (*Prunus persica* (L.) Batsch) bitkisinin organogenezle çoğaltımı

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Özet
Şeftalinin geleneksel vejetatif çoğaltma yöntemleri genellikle zaman alıcıdır ve mevsime bağlı olarak düşük çoğalma hızına sahiptir. Bu durum değerli bitki materyallerinin sınırlı kullanımını sağlar. Son yıllarda meyve fidan yetiştiriciliği "in vitro" kültür yöntemlerini kapsayan yüksek miktarlarda verim ve hastalıksız bitki üretimine olanak tanıyan "biyoteknolojik" yöntemlerle yapılmaktadır. Bu çalışmada şeftali bitkisinin mikroçoğaltımı için bir protokol geliştirmek amacıyla, nodal eksplantlar kullanılarak sterilizasyon, sürgün oluşturma, köklendirme ve aklimatizasyon çalışmaları yapılmıştır. Besin ortamı olarak Murashige Skoog besiyerinin kullanıldığı araştırmamızda en iyi Sürgün oluşturma yeteneği 1 mg/L BAP+1 mg/L NAA içeren besiyerinde gözlemlenmiştir. Picloram içeren besi yerlerinde sürgün oluşumu gözlemlenmezken sadece kallus oluşumları gözlemlenmiştir. En az sürgün oluşumu ise, 2,4-D içeren besi yerlerinde kaydedilmiştir.
Anahtar kelimeler: Şeftali, *Prunus persica* (L.) Batsch, in vitro, organogenez

➢ **ORAL PRESENTATION**

In Vitro sürgün ucu yöntemiyle erik (*Prunus domestica* L.) anacının klonal çoğaltımı

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Özet
Eriğinin kültür tarihinin günümüzden 2000 yıl öncesine kadar gittiği ve daha o zamanlarda çok güzel ve çeşitli kültür çeşitlerinin bulunduğu bilinmektedir. Bu seçkin türlerin özelliklerini kaybetmeden üretilebilmesi için klonal çoğaltım yapılmadı gerekmektedir. Bir bitkinin genetik yapısının korunarak eşeysiz olarak üretimi anlamına gelen klonal çoğaltım için kullanılan tekniklerden biride in vitro ortamda gerçekleştirilen mikroçoğaltımdır. Bu çalışmada farklı sitokinin ve oksin kombinasyonları kullanılarak erik bitkisinin mikroçoğaltımı için bir protokol geliştirmek amaçlanmıştır. Sürgün oluşumunun en fazla görüldüğü besin ortamı 0,5 mg/L BAP + 0,25 mg/L IBA dir. Köklenmenin en fazla gerçekleştiği besiyeri ise ½ MS+ ½ sükroz içeren 1 mg/ L IBA içeren ortamdır.
Anahtar Kelimeler: Erik, *Prunus Domestica* L., klonal, sürgün

➢ **ORAL PRESENTATION**

Real-time cell analysis improves the quality of natural product-based drug screening studies

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Abstract

Natural products are a great source of drug discovery research within their bioactive components. Studies in natural products begin with chemical characterization, biological and pharmacological activity analyses. Use of mammalian cell culture system is a major milestone of determination of biological activity of a natural product/drug candidate. During the last decade, development of novel biomedical technologies resulted in high-throughput processing and sensitive cell analysis systems. xCELLigence real-time cell analysis systems (RTCA) provide real-time cell analysis without additional labelling of cells. The impedance-based measurement of cellular activities is monitored with system-specific gold microelectrode containing plates and software. By using RTCA platform, our team investigated the cellular effects of many bioactive natural products in time and dose-dependent manner (PubMed Ids: 29864137, 30216791, 29448090, 28289386, 28242543; DOI: 10.12991/mpj.2018.54). During the design of these studies, in order to eliminate false-positive results, it is important to choose appropriate cell line, cell number, time-point of addition of the drug/natural compound. The proliferation kinetics of the cells and effects of the compounds can be monitored live during the assay. The difference between each dose can be monitored in real time. For material-dependent parameters, we observed that the fractions obtained from different extraction techniques of the same product had significantly different cytotoxic effects. To our experience, different genera of the same species were found to display significantly different anti-cancer or cytotoxic effects. As a result, in bioactive natural product-based drug screening studies, RTCA reveal significant differences in the determination of cytotoxic/anti-proliferative profiles of products.

Keywords: Natural Products, Compound, Drug, xCELLigence, Cytotoxicity

➢ **ORAL PRESENTATION**

The association of *Pseudomonas putida* with *in vitro* cultures of two different model plants

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Abstract

Plant growth-promoting rhizobacterium (PGPR) *Pseudomonas putida* (*P. putida*) is a soil bacterium that can colonize the rhizosphere of plants in a variety of soils including agricultural and contaminated ones. It can metabolize different organic compounds, and is thereby a suitable candidate for many applications including phytoremediation. Previously, its ability to adhere to monocot seeds and colonize the rhizosphere of the crop plants has been shown in monocot species. However, there is no detailed information about its effect on dicot seeds and plant growth in *in vitro* conditions. In this study, the effect of *P. putida* on the germination and seedling growth of two different dicots was evaluated. Furthermore, the influence of the bacterium on the root morphology of both plants was observed and rhizospheric localization of GFP-tagged *P. putida* was also determined by microscopy analysis. The results obtained from this *in vitro* study show that *P. putida* has positive interactions with both dicot models and hence, it has an important potential for use in agriculture.

Keywords: *In vitro* culture, *Pseudomonas putida*, plant-bacteria interactions

➢ **ORAL PRESENTATION**

Investigation of the antimicrobial effects of red beet root (*Beta vulgaris* L.) wastes from Turkey

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Abstract

Natural antimicrobials have gained interest to inhibit pathogenic microorganisms and to control food borne diseases. In recent years there has been a growing interest in positive effects of red beet root (*Beta vulgaris* L.) in addition to its coloring effects. Studies on antimicrobial effects are limited when there is evidence of antioxidant effects. In this study, antimicrobial activity of *Beta vulgaris* wastes from Duzce province of Turkey were tested against Gram positive (*Staphylococcus aureus* and *Enterococcus faecalis)*, Gram negative bacteria (*Pseudomonas aeroginosa* and *Escherichia coli)* and *Candida albicans* and *Candida krusei* with common antimicrobial testing method disk diffusion method. Present study has demonstrated that beet root wastes has antimicrobial activity especially against Gram positive microorganisms.

Keywords: *Beta vulgaris* L., hydrosol, antimicrobial activity.

➢ **ORAL PRESENTATION**

Türkiye kökenli *Salmonella* serovaryetelerinde biyofilm morfotiplerinin belirlenmesi ve pelikül yapılarının özelliklerinin tanımlanması

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Özet

Bu çalışmada Türkiye kökenli *Salmonella* serovaryetelerinin oluşturduğu biyofilmlerin morfotipi; agar ortamlarında Kongo Red boyaması yanında, indikatör boyalar kullanılarak biyofilm yapılarında kıvrımlı fimbriya ve selülöz içerip içermedikleri de tespit edilerek tanımlanmıştır. Bu testler sonucunda denemeye alınan suşlardan *S.* Virchow DMC16 suşunun PDAR, diğer 14 suşun ise RDAR biyofilm morfolojisi içerdiği saptanmıştır. Bu çalışmalar, morfotip tanısı için literatürde genellikle önerilen agar ortamlarında Kongo Kırmızısı boyamasının tek başına yeterli olmadığını ve yanıltıcı sonuçlar verdiğini göstermiştir. Bu nedenle çalışmamız sonucunda kıvrımlı fimbriya ve selülöz belirleme çalışmalarının morfotiplendirmede mutlaka kullanılması önerilmektedir. Diğer yandan özellikle klinik uygulamalar ve gıda endüstrisi açısından önem taşıyan pelikül oluşturma özellikleri, *Salmonella* biyofilmlerinin detaylı tanısı için büyük önem taşımaktadır. Bu nedenle çalışmamızda ayrıca pelikül yapılarının tanımlanmasına esas teşkil eden; halka yapısı, pelikülün stabilitesi ve sıvı ortamda agregasyon ve sesil hücre dağılımları gibi özelliklerin belirlenmesi testleri tanımlanmıştır.

Anahtar Kelimeler: *Salmonella*, Biyofilm, Pelikül, Morfotip, PDAR, RDAR

➢ **ORAL PRESENTATION**

DNA metilasyonu ve tecridinin (sequestration) *Salmonella* serovaryetelerinde biyofilm üretimi ve virülanslik üzerine etkisi

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Özet

Salmonella biyofilmleri, özellikle gıda endüstrisi ve sağlık alanında ciddi sorunlara neden olmaktadır. Biyofilm yapılarının çevresel stres faktörlerine karşı planktonik formlardan çok daha yüksek dirençlilik özelliklerine sahip olması, bu yapılarla mücadeleyi çok zorlaştırmaktadır. Sürekli kontaminasyonların ve inatçı enfeksiyonların kaynağını teşkil eden biyofilm formları ile etkin mücadele biçimleri, bu yapıların regülatör sistemleri üzerinde yoğunlaşmıştır. Bu sistemlerin tanımlanması sayesinde alternatif mücadele ajanlarının geliştirilmesi mümkün olacaktır. Bu alternative yaklaşımlardan biri de DNA metilasyonu ve tecridinde rol alan regülatörlerin biyofilm yapılarındaki etkinliğinin belirlenmesidir. Bu derleme makalede, bu alanda yürütülen son çalışmalar özetlenerek konunun öneminin vurgulanması amaçlanmıştır.

Anahtar Kelimeler: *Salmonella*, Biyofilm, Dam, SeqA, Regülasyon

➢ **ORAL PRESENTATION**

Ocimum basilicum L. (Fesleğen) kallus kültürlerinin antioksidan kapasitesinin belirlenmesi

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Özet
Fesleğen (*Ocimum basilicum* L.) baharat ve ilaç olarak kullanılan tek yıllık aromatik ve hoş kokulu bir bitkidir. Ürettiği sekonder metabolitler bakımından değerli bir bitki olan bu bitkinin farklı bitki büyüme düzenleyicileriyle yetiştirilen kalluslarının antioksidan kapasitesinin belirlenmesinin amaçlandığı bu araştırmada kallus geliştirme ortamı olarak Murashige Skoog besiyeri kullanılmıştır. Kalluslarının üretiminde beş farklı bitki büyüme düzenleyicisinin farklı kombinasyon ve konsantrasyonları kullanılmıştır (NAA, 2,4-D, BAP, IBA ve KIN). İklim odasında kontrollü şartlar altında geliştirilen kallusların etanol ekstrelerinin antioksidan madde miktarının 2.826±0.141 – 5.736±0.201 mmol/g TEAC arasında olduğu, metanol ekstrelerinin antioksidan madde miktarının ise 1.050±0.211 – 4.180±0.394 mmol/g TEAC arasında olduğu saptanmıştır.
Anahtar Kelimeler: *Ocimum basilicum* L., Kallus, antioksidan

➢ **ORAL PRESENTATION**

Fesleğen (*Ocimum basilicum* L.) bitkisi kallus kültürlerinin toplam fenolik ve flavonoid miktarını tespiti

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Özet

Anavatanı Hindistan olan ve Ülkemizde fesleğen olarak bilinen *Ocimum basilicum* L. türü, dünyanın önemli uçucu yağ içeren bitkilerinden biri olup, birçok ülkede ticari şekilde ekimi yapılmaktadır. Lamiaceae familyasının bir üyesi olan Ocimum türleri fenolik bileşikler, flavonoidler ve antosiyaninler gibi polifenoller de dahil olmak üzere çeşitli metabolitler içerir. Araştırmamızda farklı bitki büyüme düzenleyiciler (Naftalin Asetik Asit, 2,4 Dichloro phenoxyacedic acid, Benzil amino pürin, İndol Bütirik Asit ve Kinetin) farklı konsantrasyon ve kombinasyonları kullanılarak kontrollü şartlarda in vitro olarak üretilen kallusların etenolik ve metanolik ekstraktlarının toplam fenolik ve flavonoid miktarını tespit etmek amaçlanmıştır. Kalluslarının etanol ekstrelerinin toplam fenolik madde miktarının 1.044±0.188 – 0.417±0.049 mg GAE/g arasında olduğu, metanol ekstrelerinin toplam fenolik madde miktarının ise 2.547±0.110 – 0.701±0.095 mg GAE/g arasında olduğu saptanmıştır. Flavonoid madde tayini için; etanol ekstrelerinin toplam flavonoid madde miktarının 2.058±0.122 – 0.446±0.063 mg kuersetin/g arasında olduğu, metanol ekstrelerinin toplam flavonoid madde miktarının ise 3.010±0.336 – 0.341±0.041 mg kuersetin/g arasında olduğu saptanmıştır.

Anahtar Kelimeler: *Ocimum basilicum* L., Kallus, Fenolik, Flavonoid

➢ **ORAL PRESENTATION**

Sülfatlanmış polisakkarit fucoidan'ın antioksidan özelliklerinin değerlendirilmesi

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Özet

Fucoidan; kahverengi markroalglerde (*Phaeophyceae*) hücreler arası bölümlerde yada matrikste bulunan kahverengi renge sahip, molekül ağırlığı 20.000 Dalton olan bir sülfatlanmış polisakkarittir. Fucoidan isminin yanı sıra fucan, fucosan veya sülfatlanmış fucan olarak da adlandırılan biyoaktif bir moleküldür. Fucoidan *Macrocystis pyrifera, Ascophyllum nodosum, Ecklonia cava, Turbinaria decurrens, Fucus vesiculosus, Fucus evanescens, Fucus serratus, Pelvetia canaliculata, Cladosiphon okamuranus, Hizikia fusiforme, Laminaria japonica, Sargassum horneri, Padina gymnospora* ve *Laminaria hyperborea* türlerinden elde edilmektedir. Kaynağına ve mevsimlere göre farklı kompozisosyonda bulunur ve bu farklı kompozisyonların biyoaktif özellikleri de farklılık göstermektedir. Fucoidan; kurşun hidroksit kompleksi halinde saflaştırma ve alkol ilavesi ile çöktürme sonucu saflaştırma ile kahverengi makroalg türlerinden saf olarak edilebilmektedir. α-L-(1-3), (1-4) bağlı fruktopiranoz rezidülerinden oluşan fucoidan homopolisakkarit yapıdadır ancak farklı miktarlarda galaktoz, glikoz, glukuronikasit, mannoz ve ksiloz içerebildiği için parçalanma ürünleri heteropolisakkarit olarak sınıflandırılmaktadır. Fucoidanın anti-tümör, anti-koagülan, anti-inflamatuar, anti-viral etkilerinin yanı sıra antioksidan etkisinin olduğu da bildirilmektedir. Serbest radikal temizleme kapasitesi ile güçlü antioksidan özelliğe sahip olduğu *in vivo* ve *in vitro* çalışmalar ile ortaya konmuştur. Antioksidan kapasitenin düşük moleküler ağırlıklı ve sülfat içeriği yüksek olan türlerde daha yüksek olduğu bildirilmektedir. Genel olarak suda çözünüyor olması, diğer biyoaktif özellikleri ile birlikte antioksidan kapasitesinin yüksek olması, doğadan fazla miktarlarda ve kolay elde edilebiliyor olması nedeniyle fucoidan son yıllarda Biyoteknolojik ve Farmakolojik araştırmalarda araştırmacıların üzerinde çalıştığı önemli bir bileşik olmuştur.

Anahtar Kelimeler: Sülfatlanmış polisakkarit, fucoidan, biyoaktif özellik, antioksidan.

➢ **ORAL PRESENTATION**

Aydın ilinden izole edilmiş termofilik bakterilerde selülaz enzim aktivitelerinin tayini

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Özet

Günümüzde termofilik mikroorganizmalardan üretilen enzimler esktrem koşullardaki uygulamalar için oldukça önemlidir. Bu enzimlerden biri olan Sellülaz, selülozu hidrolize edebilen bir enzimdir ve endüstride; deterjan katkısında, toner uzaklaştırmada, biyotaşlamada, yem sanayinde, biyodizel ve biyoetanol üretiminde ve gıda endüstrisinde kullanılır. Selüloz β-1,4 bağlarıyla birbirlerine bağlı glikoz ünitelerinden oluşmaktadır. Sellülaz enzimleri üç ana enzim tipinden oluşmaktadır: Endoglukanazlar, Sellobiyohidrolazlar, β Glikozidazlar. Bu çalışmada, Aydın ilinden izole edilmiş termofilik, endospor oluşturan bakterilerde bir sellülaz enzimi olan β-1,4 endoglukanazın nitel ve nicel olarak aktivite tayini yapılmıştır. Substrat olarak CMC (karboksimetil selüloz) kullanılmıştır.

Agar spot yöntemi kullanılarak kolleksiyonumuzda bulunan 102 termofilik bakteri izolatında selülaz aktivitesi CMCli besiyerinde kalitatif olarak tayin edilmiştir. Zon oluşumu görülen 49 pozitif izolat Triptik Soy Broth'a ekilerek 50℃'de bir gece inkübasyona bırakılmıştır. Petride en büyük zon oluşturan 30 izolatın selülaz enzim aktivitesine Dinitrosalisilik Asit(DNS) yöntemi ile bakılmıştır. 50 C'de yarım saat boyunca birlikte inkübe edilen süpernatantlar ve %2 lik CMC örneklerinin 540nm'de absorbansları ölçülmüştür. Enzim aktivitesi ile ilgili ölçülen değerlerin pozitife yakın ve pozitif değerin üstünde olduğu saptanmıştır.

Sonuç olarak çalışmamızda kullandığımız termofilik bakteriler farklı aktivitelere sahip ekstrasellüler selülaz enzimi üretimine sahiptir ve endüstriyel kullanım için potansiyel taşımaktadırlar.

Anahtar Kelimeler: Termofilik bakteri, Selülaz, β-1,4 endoglukanaz, Karboksimetil selüloz(CMC)

➢ **ORAL PRESENTATION**

Kanser hastalığının tedavisinde kullanılan bazı bitkiler ve bunların etnobotanik olarak kullanımları

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Özet

Bitkilerin bir kısmının veya tamamı binlerce yıldır tedavi amacıyla kullanılması (fitoterapi) kanser hastalığı için düzenlenen ilaçlara öncüllük etmiştir. Bitkilerin yanında mikroorganizmalar ve deniz kaynaklı ürünler de antikanser ilaçlar geliştirmek amacıyla kullanılmaktadır. Bitki içeriğinde bulunan fitokimyasallardan alkoloidler ve fenolik bileşikler anti-kanser veya anti-tümör aktiviteye sahip olup, alkoloidler ise iğ ipliklerine etki ederek kanserli hücrelerin döngüsü boyunca ilerlemelerini engelleyerek etki gösterirler. Karotenoidler ise farklı bir etki mekanizması göstererek kanseri engelleyici etkileri ile ön plana çıkmaktadır. Yani her bitki içeriğinde bulunan etken madde ile bağlantılı olarak etki göstermektedir. Antikanser özelliği olan bu bitkilerin çoğu günlük hayatta kullanılan besinlerden örnek verilebilir. Bitki içerisinde bulunan etken madde ile bağlantılı olarak birden fazla kanser çeşidini etkileyebilmektedir. Tıbbi bitkilerin ön plana çıkması ve araştırılmasının artmasının sebebi ise kanserin beslenme, karsinojen maddeler, hormonal düzensizlikler ve genetik faktörler gibi birçok etmeni bir arada bulundurmasından kaynaklanmaktadır. Sunulan bu çalışmada, kanser hastalığının tedavisinde kullanılan bazı bitkiler ve fitokimyasal bileşenleri ile bunların etnobotanik kullanımları hakkında bilgiler verilmiştir.

Anahtar Kelimler: Kanser, tıbbi bitki, etnobotanik

➢ **ORAL PRESENTATION**

Kitosan bazlı enjekte edilebilir kemik greftlerinin sentezi ve karakterizasyonu

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Özet

Kemik vaskülarize bir dokudur ve önemli bir rejeneratif kapasiteye sahiptir. Buna rağmen, kemik defektleri, tümör rezeksiyonları ve ciddi kırıklardan sonra oluşan belirli bir büyüklükten daha büyük defektler gibi kemir hasarlarında, kemik dokusunun yenilenmesi problemlidir. Kemik rejenerasyonu konusunda biyomalzemeye dayalı tedaviler, klinik ihtiyaçların bir sonucu olarak büyüyen bir alandır. Kemik yapısındaki bileşenlerden olan çok çeşitli biyoaktif biyomalzemeler, klinik çalışmaların ilgi konusudur.

Bu çalışmada yeni bir enjekte edilebilir jel formunda kemik greft formülasyonu sentezlendi ve karakterize edildi. İlk olarak, kitosan-g-stearik asit (Ch-Sa) polimeri sentezlendi. Enjekte edilebilir jeller daha sonra nanohidroksi apatitin polimer çözeltisine dahil edilmesiyle sentezlendi. ATR-FTIR sonuçlarına göre, kitosan-g-stearik asit polimeri başarıyla sentezlendi. Sentezlenen jelin THP-1 ve MC3T3 hücre hatlarında sitotoksik olmadığı ortaya konmuşturdu. Farklı konsantrasyonlarda sentezlenen jellerin oksidant özellikleri belirlendi. Sentezlenen jeller, THP-1 hücrelerinin IL1 ekspresyonunu indüklemedi. Bu çalışma sonucunda, % 80 (ağırlık / hacim) hidroksiapatit içeren% 1 kitosan-g-stearik asit polimerinin kemik dokusu rejenerasyonu için yüksek bir potansiyele sahip olduğu bulundu.

Anahtar Kelimeler: Kitosan-g-stearik asit, nanohidroksi apetit, kemik grefti, enjekte edilebilir

➢ **ORAL PRESENTATION**

Ardıç (*Juniperus* L.) türlerinin halk arasında ve modern tıpta hastalıkların tedavisinde kullanımı

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Özet

Bu çalışma ile Ardıç ağaçlarının hastalıkların tedavilerinde kullanımı ile ilgili yapılan çalışmalar güncel literatür taraması ile bir araya getirilmiştir. *Juniperus* L. (Cupressaceae) türleri içinde bulunduğumuz Kuzey yarımkürede; yaklaşık 70 tür ile Ülkemizde ise 2 bölüm 7 tür olarak bulunmaktadır. Genel olarak halk arasında Ardıç ağacı olarak bilinmektedir. Tedaviler için kullanılan meyvelerinin içeriğinde; Flavonoidler, glikozit, invert şeker (%15-30), Kateşin (%3-5), organik asitler, uçucu yağ (%0,5), terpenik asitler, lökoantosiyanidin ile besin maddeleri (Bakır, krom, kalsiyum, demir, fosfor, magnezyum, potasyum, C vitamini) bulunur. Ardıç meyvelerinin içermiş olduğu uçucu yağlar, meyvelere acı bir tat ve terebentin benzeri bir koku verir. Ardıç ekstralarındaki önemli fenolik bileşenler lignanlar, kumarinler, sesquiterpenes, abietan, labdane, ve pimaran diterpenleri, flavonidler, biflavonoller, flavon glikozitleri ve taninler olarak saptanmıştır.

Ardıç türlerin halk arasında kullanımı eski Mısır'lılara kadar dayanmaktadır. Yaprak ve meyveleri kaynatılarak elde edilen özlerden soğuk algınlığı, enfeksiyon, ürtiker, dizanteri, tüberküloz,sarılık, romatizmal hastalıkların tedavisinde kullanılmak- tadır. Özütün toksik etkisi nedeniyle bazı insanlarda ciddi alerjik reaksiyonlara neden olmaktadır. Günümüzde modern Tıp'ta ise bitkiden elde edilen sekonder metabolitlerin; Kan basıncı ve kan insülin seviyesinin düşürülmesi, mide rahatsızlıkları, bazı kanser türlerinin tedavi denemelerinde kullanılmaktadır.

Anahtar Kelimeler: Ardıç, Juniperus, Sekonder Metabolit,

➢ **ORAL PRESENTATION**

Halofilik bakterilerde ekzopolisakkarit (EPS) üretimi

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Özet

Halofilik bakteriler tarafından üretilen ve olumsuz çevre şartlarına karşı korucu özelliği olan ekzopolisakkaritler (EPS) geniş kullanım alanlarına sahiptirler. Bu çalışmada, halofilik bakterilerden *Halomonas aquamarina* (NB2) ve *Halobacillus trueperi* (NB7, NB8, NB9, NB10, NB11) suşlarının kültür ortamlarındaki EPS üretimleri belirlenmiştir. Kültür ortamında en iyi EPS üretim kapasitesine sahip olan halofilik bakteri suşu seçilerek (NB7), farklı tuz konsantrasyonları (%5, %10, %15, %17,5, %20, %25 ve %30) ve farklı karbon kaynaklarının (sükroz, glikoz, galaktoz, mannoz) EPS üretimine etkisi tespit edilmiştir. Ayrıca suşların kültür ortamındaki biyofilm aktivitesi araştırılmıştır. Son olarak, kültür ortamından saflaştırılıp liyofilize edilen EPS'lerin (l-EPS) emülsifikasyonu, l-EPS ve protein miktarları belirlenmiştir.

Suşların EPS üretimi miktarları 15-55 mg/L arasında değiştiği tespit edilmiştir. Bakteriler arasından iyi gelişim gösteren ve yüksek EPS üretim kapasitesine sahip NB7 (47 mg/L) suşu bundan sonra yapılan çalışmalar için seçilmiştir. Farklı tuz konsantrasyonlarında NB7 suşunda EPS üretiminin konsantrasyon değişikliğine bağlı olarak değiştiği (0-40 mg/L) tespit edilmiştir. Farklı karbon kaynaklarının EPS üretimine etkisinin belirlendiği çalışmada, NB7 suşu sukrozlu ortamda en yüksek (488 mg/L), galaktozlu ortamda ise en düşük (144 mg/L) EPS üretimi göstermiştir. NB2, NB7, NB8, NB9 ve NB10 suşlarının güçlü biyofilm üreticisi, NB11 suşunun orta düzey biyofilm üreticisi olduğu bulunmuştur. Tüm suşlara ait l-EPS'lerin emülsifikasyon aktivitesinin belirlendiği çalışmada, NB10 suşundan izole edilen l-EPS' nin ksilol, benzen ve toluen hidrokarbonunu en yüksek, NB2 suşundan izole edilen l-EPS' nin zeytinyağı ve izopropil miristat yağlarını en düşük düzeyde emülsifiye ettiği bulunmuştur. l-EPS' lerin EPS miktarının kültür ortamındaki EPS üretim kapasitesinden yüksek oldukları tespit edilmiştir (448-841 mg/L).

Bu çalışmada kullanılan halofilik bakterilerden elde edilen liyofilize EPS'lerin çevre uygulama alanında; yapıştırıcı, emici madde, yağlayıcı madde ve emülgatörler gibi kullanım potansiyeli bulunmaktadır.

Anahtar Kelimeler: Halofilik bakteri, Ekzopolisakkarit, Emülsifikasyon, Biyofilm

2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

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➢ **ORAL PRESENTATION**

Investigation of the cytotoxic effect of AKT-IV inhibitor on human ovarian cancer cell line

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Abstract
Cancer, which has become a growing health problem, is a group of diseases characterized by the deterioration of many different physiological mechanisms. In addition, cancer cases vary according to cell characterization and emerges in different tissues. Although significant improvements have been made in cancer treatment over the last 50 years, this disease continues to be an important health problem. Because of the high rates of cancer-related mortality and the side effects of chemotherapy, alternative complementary methods are still required. Anti-cancer drugs, using different signalling pathways, lead to death of cancer cells by apoptosis. The aim of this study was to determine the cytotoxic activity of AKT-IV inhibitor on human ovarian (A2780) cancer cell line.

In the study, AKT-IV inhibitor (5-(2-benzothiazolyl)-3-ethyl-2-[2-(methylphenylamino)ethenyl]-1-phenyl-1H-benzimidazolium iodide) was applied to the ovarian cancer cell line. The concentrations of 0.1, 1, 5, 10, 17.5, 25, 50, 100 µM of the test agent on the ovarian cancer cell line were applied. After 24 hours of incubation, the cytotoxic effect of the test compound on human ovarian cancer cell line was determined by MTT (3- (4,5-dimethylthiazol-2-yl) -diphenyl tetrazolium bromide). The result were displayed as % vitality.

It was determined that AKT-IV inhibitor significantly decreased cell viability in ovarian cancer cell line ($p < 0.05$) and the IC_{50} values of the test compound on ovarian cancer cell lines were determined. As a result, it can be suggested that AKT-IV inhibitor is an emerging therapeutic agent due to its strong *in vitro* cytotoxic activity.
Keywords: AKT-IV inhibitor, Ovarian cancer, Cytotoxicity, Cell Culture

➢ **ORAL PRESENTATION**

Bioremoval of commonly used textile dyes by *Aspergillus sp*.

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Abstract

Synthetic dyes are used in textile industry frequently. Exceeding usage of these dyes has a negative impact on the environment. Therefore, in this study bioremoval of common textile dyes with different chemical structures (Reactive Black 5, Reactive Red 120, Reactive Orange 14, Brillant Blue R and Remazol Brillant Blue) were investigated in molasses medium by newly isolated *Aspergillus sp*. Some important parameters such as pH, incubation time, initial dye type and concentration, inoculum amount were optimized. The bioremoval rate was obtained as 92.92% in the presence of 286.95 mg/L Reactive Black 5 at the end of the four day incubation period at pH 5. When the inoculum amount was increased the highest removal yield and maximum specific dye uptake values were 93.98% and 41.73 mg/g, respectively. According to these results fungal biomass that used in the study is a promising bioremoval agent for textile dyes.

Keywords: Fungus, Reactive Black 5, Bioremoval, *Aspergillus sp*.

➢ **ORAL PRESENTATION**

Investigation of Brilliant Blue R bioremoval capacity of *Trichoderma* sp.

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Abstract

Textile industry creates millions of tons wastewater, which are contained textile dye. Bioremoval is an effective and cheap alternative to eliminate these toxic substances. In the current study bioremoval of the dyes namely Brilliant Blue R, Remazol Brilliant Blue R, Reactive Red 120, Reactive Black 5 and Reactive Orange 14 by *Trichoderma sp.* were studied. It was clearly seen that the fungus showed high removal yields for all the tested dyes when the initial dye concentration was about 300 mg/L. The bioremoval yields were 90.63%, 97.35%, 73.56%, 99.82% and 88.0% for Reactive Black 5, Reactive Red 120, Reactive Orange 14, Brilliant Blue R and Remazol Brilliant Blue R, respectively. Because the highest removal yield was obtained in the presence of Brilliant Blue R, this dye was used for further studies and some important parameters for bioremoval (pH, initial dye amount, incubation period, initial inoculum amount, maximum specific dye uptake values) were investigated. *Trichoderma sp.* showed 99.24% removal yield in the presence of 315.23 mg/L dye when the inoculum amount was increased. According to the results obtained from this study *Trichoderma sp.* is a suitable microorganism for the bioremoval of textile dyes with different chemical structures.

Keywords: Fungi, *Trcihoderma sp*., Textile dye, Bioremoval.

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➢ **ORAL PRESENTATION**

The impact of Zeatin doses on *in vitro* microprogation of *Hygrophila polysperma* (Roxb.) T. Anderson

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Abstract

Plant tissue culture is an important technique that allows the propagation of many important plant species regardless of the season and external conditions. In this study, *Hygrophila polysperma* (Roxb.) T. Anderson was incubated for *in vitro* multiple shoot regeneration in Murashige and Skoog (1962) (MS) nutrient media containing Zeatin (ZEA) at different concentrations (0, 15, 30, 60, 90 and 120 mg/L) for six weeks. Shoot tip was used as explants in the experiments. Shoot regeneration frequencies ranged between 44.44-77.77%. The highest shoot regeneration frequency (77.77%) was obtained in MS nutrient medium supplemented with 30 mg/L ZEA. The maximum shoot per explant was determined in culture medium containing 30 mg/L ZEA with 12.58 shoots/explant. Use of ZEA higher than 30 mg/L reduced the number of shoots. The lowest number of shoots was recorded in culture medium supplemented with 120 mg/L ZEA, except for the control group. When the shoot lengths were compared, the longest shoots were obtained in MS nutrient medium with 15 mg / L ZEA added. Increased ZEA concentrations had a negative effect on shoot lengths. The elongated and growing shoots were transferred to culture medium with 0.25 mg/L Indole-3-Acetic Acid (IAA) added for *in vitro* rooting. Rooted shoots at the end of four weeks were transferred to aquariums with water to adjust to external conditions. At the end of two weeks, a rapid growth was observed in the height and leaves of the plants. After four weeks, the plants were successfully acclimated to *ex vitro* conditions.

Keywords: *In vitro* propagation, shoot regeneration, shoot tip explant, tissue culture

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➢ **ORAL PRESENTATION**

Activity of Kinetin on whole plant regeneration from nodal explants of *Lysimachia nummularia* L. in liquid culture media

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Abstract

Lysimachia nummularia L. is an important medicinal plant thanks to its valuable biochemicals. The aim of this study was to investigate the efficacy of Kinetin (KIN) on production of *L. nummularia* by tissue culture techniques in liquid culture media. Nodal explants of *L. nummularia* were cultured in liquid Murashige and Skoog (MS) medium containing 0.10-1.60 mg/L KIN for eight weeks. The rate of shoot regeneration ranged between 83.33-100.00%. 100% shoots were obtained in MS medium with 0.20, 0.40 and 0.80 mg/L KIN. The number of shoots per explant in culture media ranged from 2.67 to 8.17 and shoot lengths ranged from 0.85 to 3.16 cm. The maximum number of shoots (8.17) and the longest shoots (3.16 cm) were detected in MS medium containing 1.60 mg/L KIN. The minimum number of shoots (2.67) and the shortest shoots (0.85 cm) were obtained in MS medium containing 0.05 mg/L KIN. When the media were compared, it was found that high use of KIN was more effective for the number and length of shoots. Since the regenerated shoots form dense root in the propagation media, no rooting study was performed. The rooted plants were successfully accustomed to external conditions.

Keywords: Kinetin, nodal explant, shoot regeneration, tissue culture

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➢ **ORAL PRESENTATION**

Estimation of natural radioactivity of some medicinal or herbal plants used in Kars, Turkey

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Abstract

Natural radioactive materials may be existing in the environmental substances that have uses in pharmacy and medicine as health supplements. In this study, natural radionuclides such as ^{226}Ra, ^{232}Th, and ^{40}K were measured in seven medicinal or herbal plants collected from the local market in Kars, Turkey were analyzed. All samples were analyzed by means of gamma-ray spectrometer using NaI(Tl) detector. Based on the radioactivity concentrations of in plants the total annual committed effective doses by human beings were determined.

Keywords: Kars**,** Medicinal Plants, Natural radionuclides, Activity concentration , Gamma Spectroscopy

2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

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➢ **ORAL PRESENTATION**

Capparis spinosa bitkisinin farklı polaritedeki çözücülerle hazırlanan ekstraktlarının antioksidan aktivitelerinin karşılaştırılması

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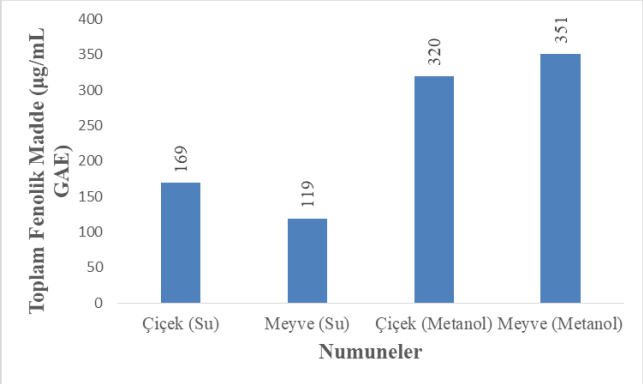
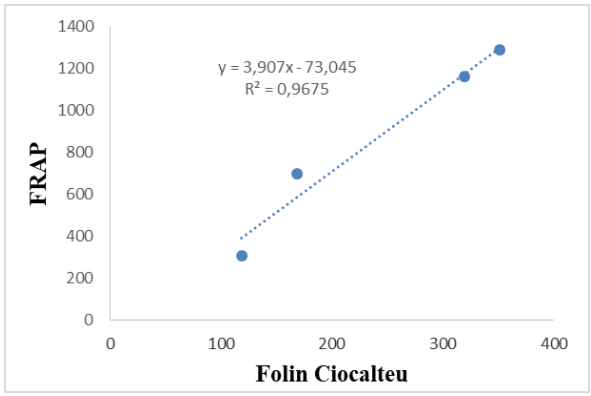
Özet

Bitkiler, hem sağlık açısından olumlu etkileri hem de içerdikleri biyoaktif bileşenler sayesinde geleneksel ilaçların keşfi için yüzyıllar boyunca verimli bir ilham kaynağı olmuştur. Ege bölgesi başta olmak üzere ülkemizin pek çok yerinde yetişebilen kapari (*Capparis spinosa*), tomurcukları ve meyveleri besin maddesi olarak kullanılan bir bitki türüdür. Halk arasında "kedi tırnağı", "menginik", "keper", "kepere" ve "gebereotu" olarakta bilinen bu bitki yüksek vitamin içeriğine sahiptir. Bitkiler gösterdikleri etki mekanizmasına göre farklı gruplara ayrılmaktadır. Fenolik bileşikler, doğal antioksidan özellik gösteren bileşikler arasında olup serbest radikallerin neden olduğu zararlı reaksiyonları önleyerek kanser başta olmak üzere pek çok hastalığın oluşumuna engel olmaktadır. Bu olumlu etkiler dikkate alındığında araştırmacıların doğal kaynaklardan elde edilebilen yüksek antioksidan aktiviteli ekstraktları, sağlık açısından risk oluşturan sentetik antioksidanların yerine kullanmayı hedefledikleri açıkça anlaşılmaktadır. Son yıllarda bu kapsamda antioksidan aktiviteleri göz önüne alınarak birçok bitki ekstraktı çalışılmakta ve bunlar sentetik antioksidanlarla kıyaslanmaktadır. Yapılan bu çalışmada *Capparis spinosa* türüne ait meyve ve çiçek kısmının su ve metanollü ekstraktları hazırlanarak farklı polaritedeki çözücülerde sergilemiş oldukları antioksidan aktiviteleri tespit edildi. Hazırlanan ekstraktlarda antioksidan aktiviteyi belirlemek üzere DPPH• radikal temizleme aktivitesi, Demir (III) indirgeme/antioksidan kuvvet (FRAP) aktivitesi ve Folin-Ciocalteu toplam fenolik madde tayin yöntemi olmak üzere üç farklı yöntem kullanıldı. Yapılan üç testin sonuçlarına göre bütün numunelerin önemli ölçüde aktiviteye sahip olduğu ve bu testler arasında genel olarak doğrusal bir ilişki olduğu belirlendi. Ayrıca metanollü ekstratların sulu ekstraktlara kıyasla çok daha yüksek antioksidan aktivite gösterdiği görüldü.



Şekil: Folin Ciocalteu Yöntemine Göre Gallik Asit Eşdeğeri



Şekil: FRAP-Folin Ciocalteu arasındaki korelasyon cinsinden Toplam Fenolik Madde Değerleri

Bu sonuçlara bakılarak *Capparis spinosa* bitkisinin sentetik antioksidanlara alternatif oluşturabilecek doğal bir antioksidan kaynağı olabileceği tespit edildi.

Anahtar Kelimeler: *Capparis spinosa*, Antioksidan aktivite, FRAP, Folin-Ciocalteu, DPPH•

➢ **ORAL PRESENTATION**

Cymbopogon spp. ve *Helianthemum spp*. bitki ekstraktlarının i*n-vitro* antibakteriyal aktivitelerinin araştırılması

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Özet

Patojen mikroorganizmalara karşı kullanılan antibakteriyal maddelere direncin artması ve gıda katkı maddelerinin istenmeyen yan etkileri nedeniyle, son yıllarda yeni bitki kaynaklı antibakteriyal madde arayışını arttırmıştır.
Bu çalışmada, Türkiye'de yetişen *Cymbopogon jwarancusa*, Hindistan'da yetişen *Cymbopogon citratus*, Güney Afrika'da yetişen *Cymbopogon nardus* türleri ile;Mısır'da yetişen *Helianthemum kahiricum* ve Suriye'de yetişen *Helianthemum lippi* türü bitki ekstraktlarının hastane enfeksiyonlarının etiyolojisinde yer alan *Staphylococcus aureus, Klebsiella pneumonia, Pseudomonas aureginosa* patojen türleri ile enteropatojenlerden; *Salmonella typhi, Escherichia clochae, Escherichia coli, Escherichia faecalis* türlerinin antibakteriyal aktivitelerinin disk difüzyon yöntemiyle araştırılması amaçlandı.
Disk diffüzyon sonuçlarına göre, yalnızca *E.coli ve S.aureus'a* karşı tüm bitki ekstraktlarının (20µg/disk) farklı düzeylerde zon çapı oluşturduğu (16-38 mm) belirlendi. bitki türleri içerisinde en yüksek antibakteriyal aktivite *C .citratus* ekstraktında tespit edildi.
Sonuç olarak, başta *C.citratus* türü ekstraktı olmak üzere, araştırılan bitki ekstraktlarının sağlık, farmasötik, kozmetik ve gıda endüstrisi gibi birçok alanda mikroorganizmalara karşı etkili olduğu ve bu konuda daha ileri düzeyde invitro ve in vivo çalışmaların yapılması gerektiği düşünülmektedir.

Anahtar kelimeler: Antibakteriyal aktivite, Disk difüzyon, , Hastane infeksiyonu

➢ **ORAL PRESENTATION**

Polivinilklorür/perlit nanokompozit filmlerin hazırlanması ve uçucu organik bileşen metanolün pervaporasyon ile sudan giderilmesinde kullanılması

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Özet

Endüstriyel atık sulardan uçucu organik bileşenlerin giderilmesi, çevresel kirliliğin önlenmesi için oldukça önemlidir. Bu çalışmada polivinilklorür/perlit nanokompozit filmler hazırlanarak uçucu organik bileşen metanolün pervaporasyon prosesi ile sudan giderilmesi incelenmiştir. Hazırlanan polivinilklorür/perlit nanokompozit filmler FTIR, TGA ve SEM ile karakterize edilmiştir. Polivinilklorür film içindeki perlit konsantrasyonunun, operasyon sıcaklığının, beslemedeki metanol konsantrasyonu gibi proses parametrelerinin pervaporasyon prosesi ile sudan metanolü uzaklaştırmadaki etkisi incelenmiştir. Polivinilklorür/perlit nanokompozit filmlerdeki perlit miktarı arttıkça ayırma faktörünün arttığı, geçiş hızının ise azaldığı görülmüştür. Sıcaklık ve besleme konsantrasyonundaki artış ise geçiş hızının artması ve ayırma faktörünün azalması ile sonuçlanmıştır. Ağırlıkça %2 metanol besleme konsantrasyonunda, 30^{o}C'de, %8 perlit konsantrasyonunda 0.16 kg/m^{2}.h akı ve 87 ayırma faktörü değeri elde edilmiştir. Elde edilen bu değerler literatürdeki çalışmalarla kıyaslandığında sulu çözeltilerden metanolün gideriminde PVC/perlit nanokompozit filmlerin oldukça başarılı ayırma performansı sergilediğini göstermiştir.

Anahtar Kelimeler: Metanol, nanokompozit, perlit, pervaporasyon, polivinilklorür.

➢ **ORAL PRESENTATION**

Yüksek su adsorpsiyon kapasitesine sahip MOF dolgusu içeren karma matris sodyum alginat membran ile bütanol dehidrasyonu

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Özet

Kömür, ham petrol, doğalgaz gibi yakıtların kullanımı birçok tehdit yaratmakta ve çevre kirliliğine yol açmaktadır. Kimya endüstrisi çevre ve insan sağlığını korumak için yakıt maddelerini ve yakıt maddesi üretim yöntemlerini değiştirme zorluğuyla karşı karşıyadır. Son yıllarda yakıtların biyolojik üretimi büyük önem kazanmıştır. Biyoetanol, biyobütanol ve biyodizel gibi yakıtlar artan enerji talebi, tükenen fosil yakıt kaynakları ve küresel sera gazı emisyonlarını azaltma ihtiyacından dolayı geleneksel yakıtlara cazip bir alternatif oluşturmaktadır. Üstün bir yakıt adayı olan biyobütanol, benzine benzer özelliklere sahiptir. Etanol gibi geleneksel biyoyakıtlarla karşılaştırıldığında bütanol, daha yüksek enerji içeriği ve daha düşük uçuculuk gibi avantajlara sahiptir. Daha da önemlisi herhangi bir modifikasyon gerektirmeden mevcut içten yanmalı motorlarda yakıt katkısı olarak ya da benzine alternatif bir yakıt olarak doğrudan kullanımı mümkündür. Biyobütanolün yakıt olarak kullanılabilmesi için üretim sonucunda saf olarak elde edilmesi önemlidir. Bütanol çoğunlukla şeker, gliserol veya lignoselülozik atıklardan fermantasyon yolu ile üretilir. Fermantasyon sonucunda %3'ten daha az konsantrasyonda elde edilen bütanol distilasyonla konsantre edilerek %80 bütanol içeren çözeltiler elde edilir. %80 bütanol içeren bu ortamda suyun varlığı büyük ölçüde beklenmektedir ve bu nedenle bütanolden suyu uzaklaştırmak için etkili ve enerji tasarrufu sağlayan tekniklerin geliştirilmesi önemlidir. Membran destekli ayırma prosesi olan pervaporasyon ile %80 bütanol içeren sulu çözeltinin %99.5 saflıkta elde edilmesi mümkündür. Bu çalışmada da katkısız sodyum alginat membran ve MOF dolgusu içeren karma matris sodyum alginat membran kullanılarak pervaporasyon ile bütanolün dehidrasyonu gerçekleştirilmiştir. Katkılı ve katkısız membranların ayırma performansları incelenmiştir. Yüksek su adsorpsiyon kapasitesine sahip MOF dolgusu içeren karma matris sodyum alginat membran ile daha yüksek oranda, başarılı bir dehidrasyon işleminin gerçekleştiği görülmüştür.

Anahtar Kelimeler: Bütanol, dehidrasyon, MOF, sodyum alginat, pervaporasyon

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➢ **ORAL PRESENTATION**

Enhancement of optical oxygen sensing properties of $[Ru(bpy)_3]^{2+}$- based composites along with maghemit and ionic liquid

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Abstract:

Oxygen gas has great importance in terms of both environmental, biomedical analysis and also industrial processes. Because it presents as either reactants or products in many chemical and biochemical reactions [1]. Optical sensors based on chemically sensitive matrices/dyes have been used for accurate measurements of oxygen levels. In this study we measured oxygen-induced intensity changes of tris(2,20-bipyridyl) ruthenium(II) chloride $[Ru(bpy)_3]^{2+}$ dye in the presence of additives; iron oxide polymorph (γ-Fe_2O_3) and 1-butyl-3-methylimidazolium tetrafluoroborate ($[BMIM^+][BF_4^-]$). The fluorescent dye and additives were embedded in ethyl cellulose (EC) matrix that used as supporting material in a form of thin film and nanofiber.The synthesized γ-Fe_2O_3 nanoparticles were used to enhance the linear working range and the oxygen sensitivity of the dye. Related nanoparticles were characterized by using X-ray diffraction (XRD), scanning electron microscopy (SEM) and X-ray photoelectron spectroscopy (XPS). IL was used to increase the stability and sensitivity of the sensing fluophore. Together with the additives $[Ru(bpy)_3]^{2+}$ based composites yielded higher Stren-Volmer constant (K_{SV}) and larger linear response range when compared with the additive-free form under the concentration range of 0-100% [O_2]. According to the results, the K_{SV} values of thin film and nanofiber were found 1.61×10^{-2} and 2.17×10^{-2}, and, the relative signal changes were calculated as 2.64 and 3.21, respectively.To the best of our knowledge, there is no previous work about the utilization of both maghemite and ionic liquid additives together for enhancement of oxygen sensitivity of the ruthenium dye.

Keywords: Fluorescence, Ionic liquid, Oxygen sensor, Ruthenium complex, Maghemite

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➢ **ORAL PRESENTATION**

Electrochemistry: past and present

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Abstract

The term of electrochemistry was used to describe an electrical phenomenon in the late 19th and 20th centuries. Particularly in the 20th century, electrochemistry was established as a special branch of science and technology and today it plays a significant role in many areas, such as electrolysis, electroanalytical chemistry, electroorganic chemistry, electrosynthesis, electrochemical kinetics, electrochemical thermodynamics, corrosion of metals, electrocoatings, electrocoagulation, electropolymerization, electrophores, sonoelectrochemistry, nanoelectrochemistry as well as fuel cells. Modern electrochemistry was invented by an Italian chemist, Luigi V. Brugneteli, in 1805. Michael Faraday began to investigate the effects of electrochemical decomposition and founded two laws of electrochemistry in 1832. In 1888, Nernst developed the theory of electromotive force of the voltaic cell. In 1875, William Ostwald (1909 Nobel Laureate) started his experimental works with special emphasis on electrochemistry and chemical dynamics. He gave the first modern definition of a catalyst and is especially renowned for his contributions to the electrical conductivity and electrolytic dissociation of organic acids in 1894. In 1922, the 'polarography' was born. Heyrovski and his Japanese colleague Mazuso Shikata developed the first instrument for the automatic recording of polarographic curves. The beginning of voltammetry was facilitated for everyday use in analytical chemistry. Belgian chemist M. Pourbaix invented in 1959 the potential/pH diagram known as Pourbaix diagram, used in corrosion researches. The 1960s and 1970s saw many advances in theory and instrumentation, introduction of computer, and control systems were also included. These advancements improved sensitivity and created new analytical methods. With its importance increasing day by day, nanochemistry in the field of electrochemistry is subject to numerous researches in recent years. Advances in electrochemistry lately add important data into today's technology.

Keywords: electrochemistry, history, science.

➢ **ORAL PRESENTATION**

Atmosferik korozyon

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Özet

Korozyon metal ve alaşımların çevreleriyle kimyasal ve elektrokimyasal etkileşimleri sonucu bozunmalarıdır. Çevremize baktığımızda korozyonun pek çok örneğini görürüz. Demir üzerinde oluşan pas, gümüş yüzeyindeki kararma, bakır ve pirinç üzerindeki yeşil renkli patina oluşumu korozyon olayının sadece bir kaçıdır. Atmosferik korozyon, korozyon olayının pek çok çeşidinden biridir. Atmosferik korozyon diğer korozyon çeşitlerinden gerek harcanan para gerekse kaybedilen malzeme bakımından en etkin olanıdır. Çevremizi saran hava bütün metal ve alaşımlar için az ya da çok koroziftir. Atmosferik korozyonu oluşturan en önemli etken havadaki nem ve oksijendir. Bunun yanı sıra iklim koşulları, yerel koşullar ve mevsimlere göre havadaki miktarları değişen kükürt dioksit (SO_2), karbon dioksit, hidrojen sülfür, amonyak ve çeşitli katı parçacıklar korozyon hızına etki ederler. Atmosfer; kırsal, endüstri ve deniz atmosferi olarak sınıflandırılırsa atmosferik korozyonun derecesi daha iyi anlaşılabilir. Bunlardan en az korozif olan kırsal atmosferdir. Endüstri atmosferindeki korozyon kırsal atmosferdekinden 50–100 kat fazladır. Deniz atmosferi için bu oran 400–500 dolayındadır. Deniz atmosferinde sodyum klorür (tuz), endüstri bölgeleri ve kömürle ısınmanın yoğun olduğu yerleşim alanlarında kükürt bileşikleri havayı kirleten en önemli koroziflerdir. Havayı en tehlikeli biçimde kirleten madde SO_2 gazıdır. SO_2, kömür ve yağların yanmasıyla baca gazlarından havaya karışır. Yakıt harcanması soğuk havalarda daha çok olduğundan havadaki SO_2 miktarı ve dolayısıyla korozyon hızı sonbahar ve kış aylarında daha fazladır. Havadaki nem miktarı korozyona etki eden bir diğer faktördür. Atmosferik korozyonda nemin etkili olmaması için bağıl nemin % 50–70 değerinin altında tutulması gerekir.

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Anahtar kelimeler: korozyon, atmosfer, nem, zararlı gazlar.

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➢ **ORAL PRESENTATION**

Farklı şartlarda destek materyalsiz polipirol elektrotların hazırlanması

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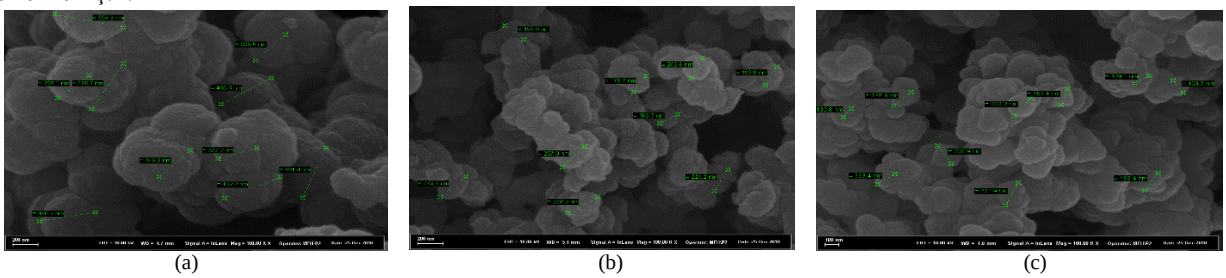
Özet

İletken polimerler (polianilin, polipirol, politiyofen vs.) yüksek iletkenliği, optik ve elektrokimyasal özellikleri sayesinde çeşitli tepkimelerde elektrokatalizör olarak kullanılabilmektedir. Bu amaçla hazırlanan bir iletken polimer elektrot, genellikle bir metal (Pt, Au, Cu vs.) üzerine elektrokimyasal olarak sentezlenerek hazırlanmaktadır. Literatürde bu elektrotlar, oksijen indirgenme reaksiyonu, oksijen çıkış reaksiyonu, CO_2 indirgenmesi, formik asit ve metanol yükseltgenmesi gibi elektrokimyada yaygın olarak incelenen katodik ve anodik reaksiyonlarda yüksek katalitik aktivite sergilemektedirler.

Bu çalışmada, elektrokimyasal reaksiyonlarda katalitik olarak daha etkin bir elektrot hazırlayabilmek amacıyla, $FeCl_3$ oksidant ortamında farklı dopantlar (sodyum dodesil benzen sülfonik asit (NDSA), sodyum dodesil sülfat (NDS), p-toluen sülfonik asit (PTS)) kullanılarak kimyasal yolla destek materyalsiz polipirol (PPy) sentezlenmiştir. Çamur halindeki PPy, kalıplanarak elektrot haline getirilmiştir. Hazırlanan polipirol elektrotların, iletkenlikleri ölçülmüş ve Taramalı Elektron Mikroskobu (SEM) ile görüntüleri alınarak boyut analizi gerçekleştirilmiştir (Şekil 1). İncelemeler sonucunda, farklı dopant ortamında sentezlenmiş 3 farklı PPy elektrotun tanecik boyutunun 90 nm-500 nm aralığında değiştiği gözlemlenmiş ve en iyi iletkenlik değerine sahip PPy elektrotun (17,2 S/cm), NADS dopant ortamındaki sentez sonucunda elde edildiği belirlenmiştir (Tablo 1). 0,1 M $HClO_4$ çözelti ortamında PPy elektrotların hidrojen çıkış reaksiyonundaki katalitik aktiviteleri dönüşümlü voltametri tekniğiyle kullanılarak karşılaştırılmıştır. Şekil 2 incelendiğinde, en iyi katodik akım NADS dopant ortamında sentezlenmiş PPy (PPy/NADS) elektrotta gözlemlemiştir.

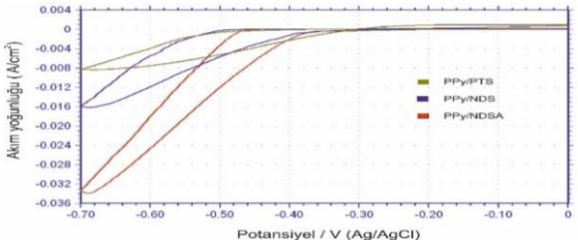


(a) (b) (c)

Şekil 1. Farklı dopant a) PTS b) NDS c) NADS ortamında sentezlenmiş polipirol elektrotların SEM görüntüleri.

Tablo 1. Farklı dopant ortamında sentezlenmiş polpirol elektrotların iletkenlikleri

PPy /Dopant	İletkenlik (S/cm)
PPy/ PTS	2,1
PPy/ NDS	6,3
PPy/ NADS	17,2



Şekil 2. 0,5 M $HClO_4$ elektrolit ortamında Farklı dopant ortamında sentezlenmiş polipirol elektrotların dönüşümlü voltamogramları .

Anahtar Kelimeler: Polipirol, Dopant, Elektrokatalizör, Hidrojen çıkışı

NOT: 2019-1-TP2-3446 nolu çalışmamız Mersin Üniversitesi BAP birimi tarafından desteklenmektedir

➢ **ORAL PRESENTATION**

Investigation of swelling behaviors of MAm/HEMA/PAA semi-IPN cryogels in different environments

Semiha Kundakci

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Abstract

In this study, methacrylamide/2-hydroxyethyl methacrylate/poly(acrylic acid) (MAm/HEMA/PAA) semi-IPN cryogel discs were fabricated to develop a new polymeric material for examining swelling behavior in different environments such as pH, temperature, physiological fluid. For this purpose, crosslinked MAm/HEMA/PAA cryogel discs were synthesized by free-radical copolymerization under cryogenic condition. The prepared macroporous polymeric samples were characterized by swelling tests, fourier transform infrared spectroscopy (FTIR) and scanning electron microscope (SEM). Swelling studies were carried out in different environments such as temperature, pH and biofluids. When the swelling results are evaluated; It was observed that all polymeric samples showed different swelling and diffusion properties depending on their composition and the natue of the medium they were present. Swelling performances of cryogels were fitted in Fickian diffusion.

Keywords: Methacrylamide, swelling behavior, hydrogel/cryogel, semi-IPN

2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

28-29 June 2019, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Farklı zincir uzunluklarina sahip alkilleyici ajanlarla Poli(4-Vinilpiridin-ko-N-Vinil Pirolidon) kopolimerlerinin kuarternizasyonu ve antibakteriyel uygulamaları

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Özet

Modern toplumlarda mikrobiyal enfeksiyonların kontrolü, üzerinde durulması gereken önemli bir sağlık sorunudur. Antibakteriyel polimerik malzemeler bakteriyel enfeksiyonlarla mücadelede kullanılabilecek yeni yaklaşımların en önemlilerinden birisidir [1]. Kuarterner amonyum gruplarına sahip pozitif yük taşıyan polikatyonlar, antibakteriyel polimerik malzemeler içinde oldukça büyük bir öneme sahiptir [2]. Bu polimerler bakteri membranıyla etkileşime girerek hücre ölümüne sebep olmaktadır. Polikatyonun yapısında gerçekleştirilen modifikasyonlarla (pozitif yük yoğunluğu ve hidrofobik zincirler gibi) polimerin antibakteriyel etkinliği arttırılabilmektedir.

Bu çalışmada, farklı zincir uzunluklarına sahip alkilbromürlerle, poli(4-vinilpiridin-*ko*-N-vinilpirolidon) P(4VP-*ko*-NVP) kopolimeri artan oranlarda kuarternize edilerek birçok pozitif yüklü kopolimer elde edilmiştir. Zincir uzunlukları farklı 4 adet alkilbromürle P(4VP-ko-NVP) kopolimerinin 4 farklı oranda kuarternizasyonu sonucunda pozitif yükleri ile hidrofobik yan zincir miktarları değişen 16 adet P(4VP-ko-NVP) kopolimeri hazırlanmıştır. Bu polimerlerin antibakteriyel etkinliklerine pozitif yük yoğunluğu ve hidrofobik grup sayısının etkisi incelenmiştir.

Üretilen kopolimerlerin kimyasal yapıları FTIR ve ^{1}H-NMR spektroskopisi, boyut ve zeta potansiyel gibi fizikokimyasal özellikleri ise DLS spektrometresi ile belirlenmiştir. Kopolimerlerin zeta potansiyel değerlerinin (+10)-(+32) mV, hidrodinamik çaplarının ise 5-15 nm arasında değiştiği tespit edilmiştir. Elde edilen kopolimerlerin antibakteriyel etkinlikleri, *E.coli* ve *S. Aeraus* bakterilerine karşı broth mikrodilüsyon ve standart "plate" sayımı yöntemleriyle test edilmiştir. Kopolimerlerin *E. coli*'ye karşı antibakteriyel aktiviteye sahip oldukları ve kuarternerleşme derecesine göre bu aktivitenin değiştiği saptanmıştır.
Anahtar Kelimeler: 4-vinilpiridin, N-vinilpirolidon, kuarternizasyon, antibakteriyel

Teşekkür: Bu çalışma, Marmara Üniversitesi'nin BAPKO-FEN-C-YLP-130319-0070 no'lu projesi ile desteklenmiştir.

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2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

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➢ **ORAL PRESENTATION**

Synthesis and antitubercular evaluation of new spirothiazolidinones

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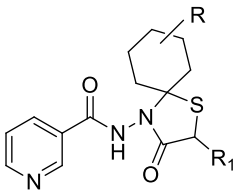
Abstract

Tuberculosis (TB) is a highly infectious disease caused by the bacillus *Mycobacterium tuberculosis***.** Major problems associated with the currently available TB treatment include long treatment duration, inadequate compliance and increasing incidence of multidrug-resistant (MDR-TB) and extensively drug-resistant (XDR-TB) tuberculosis. This emergence of difficult to treat strains necessitates the discovery and development of novel antitubercular drugs. We have previously identified the indolecarboxamide-spirothiazolidinone system as a promising scaffold against the *Mycobacterium tuberculosis* H37Rv strain. On this basis, we have designed and synthesized a series of *N*-((non)substituted-3-oxo-1-thia-4-azaspiro[4.5]decan-4-yl)pyridine-3-carboxamides by introduction of a 3-pyridinecarboxamide (nicotinamide) residue to the spirothiazolidinone scaffold. The new compounds were evaluated for *in vitro* antitubercular activity against drug-sensitive and drug-resistant Mtb strains, including MDR-TB variants obtained from clinical isolates.

Keywords: nicotinamide; spirothiazolidinone; antitubercular activity



2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

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➢ **ORAL PRESENTATION**

Modified agricultural biomass for the adsorption of Methylene blue from aqueous solution

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Abstract

Pollution of water, air and soil with contaminants is the result of the development of the industry which is necessary to meet modern humanitarian needs. Therefore, one of the most serious problems is the development of methods to reduce environmental pollution levels. The paint industry effluents show a high degree of colouration and release to the environment without treatment can affect the ecosystem due to toxicological effects and by the mutagenic character of the dyes and the penetration of sunlight and photosynthetic activity.[1] In addition, dyes can accumulate in sediment and soils, and cause various problems for the ecological balance of the environment. Synthetic dyes present a complex aromatic structure with high stability to aerobic digestion, light, temperature, detergent and microbial attack which makes them stable and resistant to biodegradation methods present in the environment, and to different chemical treatments.[2,3]

Methylene blue dye is a cationic (basic) dye. Cationic dyes are known to be toxic.[4] Methylene blue can be used in different fields, including colouring paper, temporary hair colourant, dyeing cotton and wools. Therefore, the removal of methylene blue from aqueous media before its discharge is crucial. Recently, the use of agricultural and forestry wastes as biosorbents for dye removal has attracted great attention due to their abundance and low prices.[5] In this study, agricultural waste obtained after oil extraction is used as an adsorbent for the removal of methylene blue dye from aqueous solutions after their modification. Adsorption studies were carried out using a batch method. The determination of methylene blue dye is carried out by UV-Vis spectrophotometer. The effects of experimental parameters such as pH, adsorbent dose, contact time and initial dye concentration were examined. Isothermal, thermodynamic and kinetic parameters were also evaluated.

This study was supported by Ege University Scientific Research Projects Coordination, Project No. 2017 FEN 074.

Keywords: Methylene blue, adsorption, agricultural waste.

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➢ **ORAL PRESENTATION**

Dispersive liquid phase microextraction of copper and cobalt using imidazolium based deep eutectic solvent

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Abstract

Deep eutectic solvents (DES) are new generation synthesized green solvent that is used for LPME instead of traditional organic and toxic solvents. A DES is generally formed by mixing a hydrogen bond acceptor and a hydrogen bond donor, which can be associated with each other according to hydrogen bond interaction [1]. DES has been used many of extraction processes such as, catalysis, electrochemistry, and substance dissolution [2]. However DES has been used as potential solvents for inorganic pre-concentration.

Therefore, the goal of this study is preconcentration of copper and cobalt by imidazolium based deep eutectic solvent dispersive liquid phase microextraction (DES-DLPME) before spectrophotometric determination. 1-(2-pyridylazo)-2-naphthol (PAN) was used as chelating agent for the determination. For DES-DLPME, 1-allyl-3-methylimidazolium chloride/oleic acid (AMIM-Cl/OA) was prepared as water immiscible extractant. Extraction parameters were optimized such as effect of pH (pH 5 for Co and pH 6 for Cu), effect of DES composition and volume, effect of methanol as dispersive solvent and its volume, effect of PAN amount, effect of surfactant and effect of extraction time to get best recovery. The developed method was applied for determination and preconcentration of copper and cobalt in environmental samples.

Keywords: preconcentration, DES, DLLME

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➢ **ORAL PRESENTATION**

NADH ve H_2O_2'nin eş zamanlı tayini için yeni elektrokimyasal biyosensör sisteminin geliştirilmesi

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Özet

Enzim temelli biyosensörlerin geliştirilmesinde büyük oranda, dehidrojenaz veya oksidaz enzimleri kullanılmaktadır. Dehidrojenaz temelli biyosensörlerde analit konsantrasyonu ile orantılı olarak üretilen elektroaktif tür NADH koenzimidir. Oksidaz temelli biyosensörlerde analit konsantrasyonu ile orantılı olarak üretilen elektroaktif tür ise H_2O_2'dir. Bu nedenle dehidrojenaz ve oksidaz temelli biyosensörlerin geliştirilmesinde NADH ve H_2O_2'nin etkili bir şekilde amperometrik tayini oldukça önemlidir (Gorton, 1986). Bu çalışmada indirgenmiş grafen oksit modifiyeli ikili yüzey baskılı elektrotlar (RGO-YBDE), polinötral kırmız (PNR) ve altın nanopartikül (AuNP) ile modifiye edilmiş ve NADH ve H_2O_2'nin eş zamanlı elektrokimyasal tayininde kullanılmıştır. NADH ve H_2O_2'nin eş zamanlı tayini için optimum çalışma koşulları (optimum pH ve optimum çalışma potansiyelleri) belirlenmiş ve analitiksel karakterizasyonları (tekrarlanabilirlik, tespit sınırı, tayin sınırı, lineer aralık) yapılmıştır. Geliştirilen elektrokimyasal biyosensör sistemi kan serumu numunesindeki NADH ve H_2O_2'nin eş zamanlı tayini için kullanılmıştır.

Anahtar Kelimeler: NADH, H_2O_2, indirgenmiş grafen oksit, polinötral kırmızı, biyosensör, ikili yüzey baskılı elektrotlar

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➢ **ORAL PRESENTATION**

Synthesis of novel gallium(III) and indium(III) phthalocyanines for photodynamic therapy of cancer cell lines

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Abstract

Various studies continue for the treatment of cancer disease. One of these studies is photodynamic therapy (PDT) that doesn't have some badly drug resistance effects that has low side effects, can be targeted to tissue, is a cheaper therapy, it has an easy application and it allows real-time dosage adjustment for cancer treatments [1]. One of the groups of the compounds that can be used in PDT for cancer treatment is called phthalocyanine compounds that known as a second generation photosensitizers. Phthalocyanine compounds are very important photosensitizers for PDT applications to cancer treatment because they can effectively create singlet oxygen when illuminated with light at a specific wavelength.

In this study, novel peripheral tetra 4-mercaptopyridine substituted phthalocyanine compounds (2 and 3) were synthesized that contain gallium (III) or indium (III) metals in their cavity. These phthalocyanines were converted to their water soluble derivatives (4 and 5) by quaternization for investigation their PDT applications. The structures of these novel phthalocyanines were characterized by different spectroscopic techniques such as FT-IR, UV-Vis, NMR and mass.

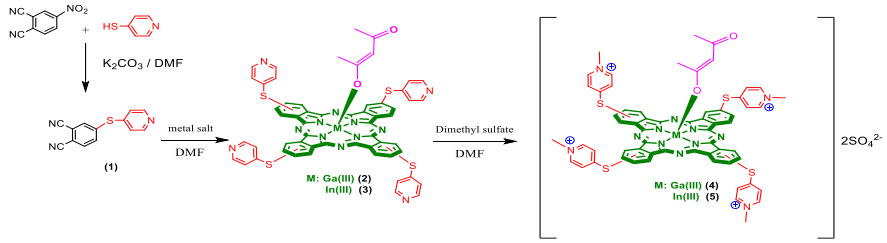

Figure 1: Synthesis route of two novel phthalocyanine compounds.

Keywords: Photodynamic Therapy, Gallium(III) Phthalocyanines, Indium(III) Phthalocyanines, Cancer.

We would like to thanks Tübitak for financial support (Project Number: 118Z204)

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➢ **ORAL PRESENTATION**

Adsorptive removal of methyl tertiary butyl ether (MTBE) from water on hydrophobic metal-organic frameworks (MOFs)

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Abstract

MTBE is extensively used as a gasoline additive to increase the octane number and ptomote more complete combustion. MTBE has suitable blending characteristics and also has economic advantageous. MTBE is very mobile in the soil solution and hardly sorbs to soil particles. Due to its high water solubility compared with other fuel additives, its low soil adsorption coefficient, leakages from storage facilities cause immediate ground water contamination. Potential point sources of MTBE leaking from the fuel storage tanks, pipe leakage from transmission, distribution and spill over to the tank can be sorted in various car and truck accidents. Also unburned MTBE that released to the environment from the exhaust of motor vehicle, passes into the atmosphere, soil and groundwater. The main purpose of this study is to remove MTBE that causes various environmental and health problems via leaking to the groundwater/natural water resources. Adsorption is the most conventional and economic technology for the removal of MTBE from contaminated water. The adsorbents that used in MTBE adsorption from groundwater/natural water resources should be hydrophobic and have high surface areas. Metal−Organic Frameworks (MOFs) have attracted much attention because of their large surface areas, surface functionalities and high adsorption affinities. MIL-101, one of the most widely studied MOFs, is used as an adsorbent in the presented study. Adsorption studies was performed at different MTBE concentration in 10 ml closed glass vials at room temperature for 24 h. MTBE concentration in aqueous phase was analyzed by GC–MS (gas chromatography/mass spectrometry system) equipped with a capillary column. MIL-101 adsorbents showed good performance (40 mg MTBE/g adsorbent) in the experiments. Due to the high surface area, high adsorption capacity and fast uptake time, MIL-101 adsorbents could be considered as an alternative adsorbent for removal of MTBE from groundwater/natural water resources.

Keywords: MTBE, adsorption, MOFs, water pollution.

➢ ORAL PRESENTATION

Siyah çayda bulunan eser Fe(III), Cu(II), Ni (II), Zn(II), Pb(II) and Se(IV) elementlerin diferansiyel puls polarografisi ile tayini

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Özet

Bu çalışmada çayda bulunan eser elementlerin tespiti için yeni ve basit bir polarografik yöntem kurulmuştur. Asitlerle sindirimden sonra çay numuneleri, EDTA varlığında veya yokluğunda farklı pH değerlerinde asetat ve amonyak gibi çeşitli elektrolitler kullanılarak analiz edildi. Böylece, bir çay numunesindeki 6 iz elementin belirlenmesi için en iyi ortamın seçilmesi mümkün olmuştur. Polarografik bakır ve demir tepe noktaları, EDC varlığında HAc'da yaklaşık pH = 7'de ayrılabilir ve miktarları belirlenir. Ni ve Zn tepe noktaları yaklaşık pH = 10'da amonyak tamponunda ayrılabilir ve belirlenebilir. Kurşun pH = 2 HAc elektrolitinde belirlenebilir.

Selenit, KCl'deki hidrojen katalitik pikinden, Mo (VI) varlığında pH = 2 ortamdan belirlendi. Siyah çay içindeki eser element aralıkları Fe 35 µg / g, Cu 45 µg / g, Ni 19 µg / g, Zn 22 µg / g, Pb 28 µg / g ve Se 77 µg / g olarak bulunmuştur.

Anahtar Kelimeler: Kurutulmuş siyah çay, element tayini, eser elementler, DP polarografisi

➢ **ORAL PRESENTATION**

Determination of iodide and fluoride in black tea with iodide and fluoride selective electrodes

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Abstract

In the Black Seç region, widely grown tea is consumed as food. Goiter disease, which is common in this region, is caused by iodide deficiency. Fluoride is important for the health of teeth. For this reason, we wanted to measure iodide and fluoride, iodide and fluoride selective electrodes in tea consumed in this region.

Tea samples taken from the Black Sea region were dried up to a constant weight. It was solubilized by wet burning method. Iodide and fluoride ions were determined by dilution. Our electrode consisting of ion exchanger, PVC and plasticizer shows a sensitivity of 59 mV against 10^{-5} - 10^{-1} M iodide. Our electrode consisting of calcium fluoride and less soluble silver salts shows a sensitivity of 28 mV against 10^{-5} - 10^{-1} M fluoride. No other anion and cation-sensitive electrodes can be used to measure iodide and fluoride.

Keywords: Determination, fluoride, iodide, selective electrode, black tea.

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➢ **ORAL PRESENTATION**

Yeni periferal tetra sübstitüe silisyum ftalosiyanin sentezi ve fotofizikokimyasal özelliklerinin incelenmesi

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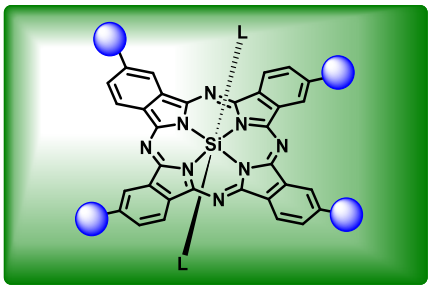
Özet

Ftalosiyaninler kimyasal kararlılığı ve ısıya dayanıklılıkları nedeniyle pek çok uygulama için önemli bileşiklerdir. Ftalosiyaninler organik çözücüler ve sudaki çözünürlüklerinin az olması nedeniyle birçok uygulamada kullanımları sıkıntı yaratmaktadır. Ayrıca, ftalosiyaninler düzlemsel halkalardır ve bunlar arasındaki π-π etkileşimi, genellikle ftalosiyanin halkalarının üst üste yığılmaları ile sonuçlanır. Bu da çözelti içinde agregasyona neden olmaktadır. Agregasyon oluşumu, ftalosiyaninlerin çözünürlüğünün azalmasına yol açar bu durum ftalosiyanin bileşikleri ile çalışmakta bir dezavantaj oluşturur. [1] Eksenel pozisyondan sübstitüe edilebilen metalli ftalosiyaninler (metal örnekleri Si, Ge, Ga, In vb) çözünürlüğü arttırmanın yanı sıra, spektral ve elektrokimyasal özellikleri kuvvetle etkilemektedir.[2] Bu metalli ftalosiyanin bileşikleri çeşitli uygulama alanlarında özellikle de fotodinamik terapi (PDT) uygulamalarında kullanılabilirlik olasılığı artmaktadır.

PDT, tümör hücrelerini öldürmek için ışığa duyarlı bir maddenin (Photosensitizer: PS) ve reaktif oksijen türlerinin (singlet oksijen "$^1O_2$", hidrojen peroksit "H_2O_2" vb.) uygun bir ışık ile etkileşmesini kullanan alternatif kanser tedavisi yöntemidir. Üçüncü nesil yeni ışığa duyarlı maddeler görüntüleme veya seçimli kanser tedavisi gibi birçok ek özelliğe sahip olacak şekilde tasarlanmaktadır. [3]



Şekil 1: Hedef Sübstütie Silisyum(IV) Ftalosiyanin Gösterimi

Bu çalışma ile yeni eksenel sübstitüe silisyum(IV) ftalosiyanin bileşiğinin sentezlemesi amaçlanmıştır. Sentezlenen bu hedef bileşiğin karakterisazyona ek olarak fotofizikokimyasal özellikleri incelenmiş ve fotodinamik terapide uygulanabilirlikleri araştırılmıştır.

Anahtar Kelimeler: Fotofizikokimyasal, PDT, Silisyum Ftalosiyanin.

- *Bu çalışma **11Z395** Tübitak projesi tarafından desteklenmektedir.*

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➢ **ORAL PRESENTATION**

Oksiklozanidin voltametrik yöntemlerle elektrokimyasal özelliklerinin incelenmesi ve analitik uygulaması

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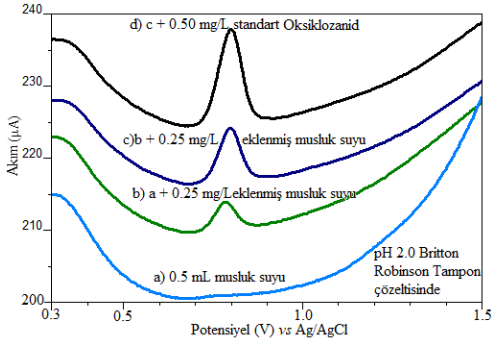
Özet

Oksiklozanid koyunlarda *Fasciola* spp'ye karşı etkili olan halojenli salisililanilitler türü bir veteriner ilaç etken maddesidir. Bu halojenli salisililanilitler gruba ait ilaçların toksik özelliğe sahip olduğu bilinmektedir. Özellikle küçük ruminantlarda aşırı dozda uygulandığında geçici ya da kalıcı körlüğü içeren CNS belirtilerine neden olabilmektedir. Fakat uygun şekilde uygulandığı takdirde ise düşük toksisite özelliği göstermektedir. Böyle önemli bir ilacın analizlerine literatürde çok az rastlanmıştır. Yapılan çalışmaların büyük bir kısmında spektrofotometrik ve kromatografik yöntemler kullanılmıştır. Bu çalışmanın amacı, yaygın bir şekilde kullanılan oksiklozanidin ilk defa voltametrik yöntemler kullanılarak kalitatif ve kantitatif tayini için yeni bir analitik yöntem geliştirmektir. Çalışmamızda dönüşümlü voltametri (DV) ve kare dalga sıyırma voltametri (KDSV) teknikleri kullanılmıştır. Çalışmada karbon pasta elektrot (KPE) indikatör elektrot olarak seçilmiştir. DV ile oksiklozanid maddesinin elektrokimyasal davranışları incelenmiş ve 780 mV potansiyelinde tersinmez yükseltgenme piki elde edilmiştir. KDSV yöntemi ile ise oksiklozanidin analizi ticari ilaçlarında gerçekleştirilmiştir. İlk olarak biriktirme süresi, basamak potansiyeli ve frekans gibi parametreler optimize edilmiştir. Optimum koşullar altında çalışma aralığını 0.1 mg/L – 4.0 mg/L olarak bulunmuştur. Ayrıca tayin ve gözlenebilen sınır değerleri sırasıyla 17.42 µg/L ve 58.07 µg/L olarak hesaplanmıştır. Geliştirilen yöntemin seçiciliğini göstermek için Gentamicin, Florfenicole, Levamisole, Oxfendazole gibi ilaçların ve Cu (II), Zn (II), Pb (II) , Fe (III) katyonlarının pH 2.0 Britton Robinson tampon çözeltisinde 1 mg/L oksiklozanid varlığında girişim etkileri incelenmiştir. Ayrıca Oxfendazole ile oksiklozanid maddelerinin eş zamanlı tayinleri gerçekleştirilmiştir. Son olarak oksiklozanid tayini için önerilen KDSV yönteminin doğruluk ve kesinlik testleri ticari ilaçlarında ve musluk sularında analitik uygulaması gerçekleştirilmiştir. Düşük bağıl hata ve yüksek geri kazanımlarla Oksiklozanid tayini başarılı bir şekilde gerçekleştirilmiştir.

Anahtar Kelimeler: Oksiklozanid, Voltametri, Karbon pasta elektrot, Elektroanalitik kimya



➢ **ORAL PRESENTATION**

Diklofenak sodyumun subkritik su oksidasyon yöntemi ile bozunmasının incelenmesi

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Özet

Tıbbi ilaçlar insan metabolizmasından, hiç değişmeden veya metabolitleri şeklinde atılmakta ve çeşitli yollarla da sucul sistemlere ulaşmaktadırlar. Kısmen veya hiç arıtılamadan alıcı ortama verilen bu atık sular; nehirlerin, göllerin, denizlerin, yeraltı sularının ve hatta içme sularının kirlenmesine neden olmaktadır. Ağrı kesici olarak yaygın kullanılan ilaçların etken maddelerinden biri olan diklofenak ve türevlerinin yüzey sularında, atık sularda ve içme sularında sıklıkla karşımıza çıkması, son zamanlarda bu konuyla ilgili yapılan çalışmaların yoğunluk kazanmasını sağlamıştır. Literatürde, diklofenakın UV/Persülfat oksidasyonu ile ilgli çalışmalar bulunmasına rağmen, subkritik su oksidasyon yöntemi ile bozunumuna ait herhangi bir çalışma bulunmamaktadır. Subkritik su, düşük dielektrik sabiti, düşük yüzey gerilimi, düşük viskozite, ortalama polarite ve uygun çözücü özellikleri gibi karekteristik fizikokimyasal özelliklere sahip olan, 100-374 °C sıcaklıkta bulunan ve bu sıcaklıktaki suyu sıvı halde tutmak için gerekli olan basınca sahip olan suyu tanımlar. Subkritik su oksidasyonu organik bileşiklerin yüksek sıcaklık ve basınç altında sulu fazda oksidasyon işlemine dayanır. Mevcut çalışmada diklofenakın subkritik su ortamında oksidant olarak hidrojen peroksit kullanılarak bozunumu gerçekleştirilmiş ve bozunma miktarları Toplam Organik Karbon (TOK) analizi ile belirlenmiştir. Bununla birlikte deneysel parametreler olan sıcaklık, oksidant derişimi ve deney süresinin tek tek ve sinerjetik etkileri matematiksel ve istatiksel bir program olan Cevap Yüzey Yönteminden (CYM) elde edilen matematiksel denklemler ve üç boyutlu grafikler yardımıyla ortaya konmuştur.

Anahtar Kelimeler: Diklofenak, Subkritik Su Oksidasyonu, Cevap Yüzey Yöntemi

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➢ **ORAL PRESENTATION**

Soil protective composites with natural ingredients

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Abstract

In areas where industry is developed and where urbanization is high, agricultural land is polluted and soil fertility decreases due to various gases, acid rain, heavy metals and other pollutants. In addition, due to the loss of water in the soil at high temperatures and frost in cold weather, agricultural producers face loss of product or a drop in product quality.
In the proposed system, biocompatible and biodegradable natural polymers commonly used in food and composite coatings are also functionalized with natural materials; to prevent the contact of agricultural land with pollutants; partially refining contaminants from irrigation and rainwater; reduce moisture loss of soil in hot weather; In cold weather, it is aimed to prevent the freezing event and to contribute to increase the productivity of farmers.

The materials we use in our study do not contain toxic composition, they are biocompatible and biodegradable in the class of green polymeric materials, environmentally friendly and renewable sources can be obtained from our reasons. As a result of our experiments, 5% Na-Alginate gel structure, 20% $CaCl_2$ solution was added to the cross-linking was decided to be done. Before the cross-linking process, different types of Ca-Montmorillon (Ca-Mont) and TiO_2 were added to the structures and 6 types of composite coatings were prepared and their morphological properties were evaluated. The composites we prepared were subjected to various tests and applied as coverings in soil samples; the samples were compared to each other and to the control group; highly successful results were obtained.

Considering that most of our country's income sources are derived from agricultural activities; instead of using expensive and chemical protective materials, especially in the field of organic farming, to prevent the problems listed above; natural, biocompatible, economical and self-degradation in nature after the harvest time of the product will be the choice of agricultural producers to use soil protectors that will make the soil useful.

Keywords: Biodegradable natural polymers ,soil protective composites**,** aljinat, montmorillant

➢ **ORAL PRESENTATION**

Paint removal from effluent textile water with sericin degummed from silk cocoon; big scaled design suggestions for factories

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Abstract

72-81% of raw silk fiber is fibroin, the remaining 19-28% is sericine. Since sericin is a protective layer surrounding the fibroin, it is useful for protecting the fiber from mechanical effects during spinning, weaving and knitting. However sericin is a gummy structure that silk fabric manufacturers don't want and remove from silk. Although the glue feature of serisin adds strength to the silk by wrapping its fibroins, this glue structure reduces the brightness of the silk because it binds the pollutants and paints to its structure and changes its color. For this reason, silk fabric factories remove sericin from silk fibers and factories have plenty of sericin in their waste waters.

Dye materials in the aquatic environment change the color of the water, even if they are very low concentrations. Accordingly, light permeability is reduced and primary producers' oxygen production is effected. This cause the dissolved oxygen level in the environment to decrease. Considering that 70% of the land on earth belongs to the sea and oceans, with the development of industry and the increase of the human population, combating pollution of the waters is a matter more important than many environmental problems. There are high amounts of azo dyes in waste water of textile factories and physical/chemical/biological purification methods are used for their purification. Also called white biotechnology, various types of purification made using natural biopolymers(such as na-alginate,polyacrylamide) are the most preferred and the most environmentally friendly purification methods. However, the percentage of the purification is not as high as the chemical treatment's.

The limiting value of azo dyes in wastewater is 30 ppm. In this study, orange 12 dye solution was prepared in 100ppm concentration. As a result of our experimental studies, a maximum of 72% of the purification was provided which reached to the limit value of azo dye concentration.This purification is quite sufficient for the pre-treatment of azo dyes in waste water of textile factories. Finally, in our study, two different design suggestions were presented to make it faster/easier, increase purification%, make a more economical treatment, recover azo dyes from water with "reverse treatment", extend the life of the material we use, and make the treatment system suitable for the factory scale, such as "giving magnetic properties to spheres" and "designing column systems"

Keywords: Sericin, silkworm, azo dye, water purification

➢ **ORAL PRESENTATION**

Yeni bir schiff bazı ligandı ile metal komplekslerinin sentezi, karakterizasyonu ve bunların biyolojik aktivitelerinin incelenmesi

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Özet

Schiff bazları, ilk olarak aminlerle (R-NH_2) aldehit ve ketonların reaksiyonundan 1864 yılında H. Schiff tarafından sentezlenmiş ve ilk defa ligand olarak 1933 yılında kullanılmıştır. O zamandan beri azometin bileşiklerinin mekanizmaları, sentez reaksiyonları, ligand olarak davranışları ve bunların kompleks oluşturma özellikleri epeyce incelenmiştir. Schiff bazları, yapısal ve biyolojik özelliklerinden dolayı yaygın olarak kullanılan ligandlar arasında yer almaktadır ve önemi de gün geçtikçe artmaktadır. Schiff bazları ve kompleksleri bazı ilaçların hazırlanmasında, tıpta ve eczacılıkta, biyolojik sistemlerde, kozmetikte, boyar maddelerin üretiminde, elektronik endüstrisinde, plastik sanayinde, tarım alanında, kozmetik ve polimer üretiminde, analitik kimyada ve sıvı kristal teknolojisi gibi çeşitli dallarda gittikçe artan öneme sahip maddelerdir. Göstermiş olduğu biyolojik aktiviteden dolayı tıp dünyasındaki önemi giderek artmaktadır. Bazı Schiff bazları ve geçiş metal komplekslerinin antibakteriyel, antifungal, antimikrobiyal, antiülser, antikanser, antitümör, antioksidan özelliklere sahip olduğu da bilinmektedir. Ayrıca bu ligand ve kompleksler, özellikle kanser tedavisinde ve kemoterapi de ilaç olarak kullanılmaktadır.
Bu çalışmada, 5-metoksisalisiliden-*o*-aminofenol ligandı; *o*-aminofenol ve 5-metoksisalisilaldehit'in mutlak etil alkol içinde 60 ºC'de p-toluen sülfonik asit katalizörlüğünde gerçekleştirilen reaksiyonundan elde edildi. Bu ligandın EtOH çözücü ortamında Co(II), Ni(II), Cu(II), Zn(II) iyonları ile M:L oranı 1:2 olan kompleksleri hazırlandı. Sentezlenen ligand ve komplekslerin yapıları elementel analiz, IR, ^{1}H-NMR, ^{13}C-NMR, UV-Vis, manyetik süsseptibilite ve termogravimetrik analiz yöntemleri ile aydınlatıldı. Hazırlanan komplekslerin antiproliferatif aktiviteleri XTT metodu ile insan meme kanseri MCF-7 ve MDA-MB-453 hücre hatları üzerinde *in vitro* olarak araştırıldı. Elde edilen veriler ligandın ve komplekslerin test edilen hücre hatları üzerinde doz bağımlı ve hücre seçici olarak anti-proliferatif aktivite sergilediklerini gösterdi. Özellikle, kompleksler içerisinde Ni(II) kompleksinin en yüksek aktiviteyi sergilediği gözlendi. Sonuç olarak, elde edilen veriler sentezlenen komplekslerin, özellikle Ni(II), meme kanseri tedavisinde kemoterapötik ajan adayı olarak *in vitro* çalışmalarda değerlendirilebileceğini düşündürmektedir.

Anahtar Kelimeler: Schiff bazları, ligand, *o*-aminofenol, spekroskopik teknikler, antiproliferatif aktivite

➢ **ORAL PRESENTATION**

Manyetik aljinat-polyanetanolsülfonikasit mikroküreleri̇nin sentezi ve karakterizasyonu

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Özet

Hızla gelişen teknoloji ve sanayileşme sonucunda meydana gelen çeşitli atıklar deniz, göl nehir gibi su kaynaklarının her geçen gün kirlenmesine neden olmaktadır. Son yıllarda ağır metal iyonlarının uzaklaştırılmasında kullanılan en ekonomik yöntemlerden biri de biyopolimerden elde edilen mikrokürėlerin adsorbent olarak kullanıldığı adsorbsiyon işlemidir. Aljinat-polyanetanolsülfonikasit esaslı mikroküreler/boncuklar ağır metal iyonlarını adsorplama kapasitesine sahip olmalarına karşın bu mikrokürėlerin ortamdan hızlı ve kolay bir şekilde uzaklaştırılmasında yaşanan zorluklar, kullanılan biyopolimerlerin zayıf mekanik ve kimyasal dirençleri, bu malzemelerin endüstriyel ölçekte kullanımını sınırlamaktadır. Bu problemin çözümü için kullanılan yeni yaklaşımlardan biri de manyetik özelliğe sahip kompozit mikrokürėlerin biyoadsorbent olarak kullanılmasıdır.
Bu çalışmada, manyetik özellikteki, Aljinat-polyanetanolsülfonikasit temelli yeni bir manyetik mikroküre hazırlanarak boyar maddelerin sulu ortamdan uzaklaştırılmasında kullanılabilirliği araştırıldı. Bu doğrultuda, hazırlanan mikrokürėlerin, FTIR, SEM, DSC gibi enstrümantal yöntemler kullanılarak yapısal ve morfolojik özellikleri belirlenmiştir. Mikrokürėlerin boya uzaklaştırma kapasitelerine pH, adsorbent miktarı, zaman, başlangıç boya derişimi ve sıcaklık gibi parametrelerin etkisi incelendi.

Anahtar Kelimeler: Manyetik adsorbent, PESA, Aljinat, Boya adsorpsiyonu

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➢ **ORAL PRESENTATION**

The development of copper based nanocatalysts for the catalytic hydrolysis of hydrazine-borane

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Abstract

Hydrazine borane compounds have recently been used as B-N based hydrogen storage material. Hydrazine-borane has a high hydrogen concentration (15.4 wt%) which is the most important criterion for the storage of hydrogen. [1] When HB is hydrolyzed together with a suitable catalyst, 3.0 equivalents of hydrogen are released at room temperature. This shows that it is quite suitable as hydrogen storage material. [2]. The most important reasons for using hydrazine-borane as hydrogen storage / provider are; The fact that it is solid in room conditions is not toxic to the environment, it is soluble in water and it is stable against self-hydrolysis.[3]

$$N_2H_4HBH_3\,(aq) + 2H_2O \xrightarrow{\text{catalyst}} N_2H_5BO_2\,(aq) + 3H_2(g) \quad (1)$$

Copper based nanocatalysts within nano-sized solid support (graphene oxide) were prepared via a simple wet-impregnation method and characterized by TEM, EDX, XRD, ICP-OES and XPS methods. The prepared and characterized samples were tested for the room temperature catalytic hydrolysis of hydrazine-borane.

Keywords: Nanoparticles, hydrazine-borane, hydrogen, hydrolytic dehydrogenation

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➢ **ORAL PRESENTATION**

Glucose effect on biofilm formations of *S. aureus* strains

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Abstract

Biofilm formations of 25 *S.aureus* strains isolated from raw milk samples were investigated on microtitration plates using TSB and TSB supplemented with glucose media at the final concentration of 0.25%, 1.0%, or 2.0% (w/v). The biofilm formations were monitored media for 48 hours. The biofilm formations of *S.aureus* isolates incubated in TSB media were generally moderate (84%). The majority of strong biofilm formations (84-96%) were determined by *S.aureus* strains incubated in the presence of glucose. It was shown that the presence of glucose had positive effect on biofilm formations.

Keywords: *S.aureus*, biofilm formation, D-glucose, polystyrene, microtitration plates.

➢ **ORAL PRESENTATION**

Etkin biyoetanol üretimi için immobilizasyonda $CaCl_2$ solüsyonun etkisi

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Özet

Bu çalışmada kalsiyum aljinat yöntemi ile immobilize edilen *E.coli* FBR5 suşunun biyoetanol üretimi incelenmiştir. Etanol üretiminde immobilizasyonun etkisini incelemek için ise iki farklı $CaCl_2$ solüsyonu konsantrasyonu (Ca2; %2 ve Ca3; %3, w/v) kullanılmıştır. Ca3 ile immobilize edilen FBR5 suşunun 48 saat süre sonunda üretilen etanol miktarı 19.14 g/L olarak belirlenmiştir. Elde edilen bu etanol miktarı serbest hücreye göre %26 daha fazla olduğu belirlenmiştir. Elde edilen sonuçlar ile etanol üretiminde immobilizasyonun olumlu etkisinin olduğu bulunmuştur. Ayrıca, immobilizasyon yönteminde kullanılan $CaCl_2$ solüsyonu konsantrasyonunun önemli bir parametre olduğunu göstermektedir.

Anahtar Kelimeler: Biyoetanol, immobilizasyon, kalsiyum klorid

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➢ **ORAL PRESENTATION**

Coumarin based functional fluorescent organic materials: Syntheses and applications

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Abstract

Fluorescent materials continue to attract commercial and scientific interest since they can be easily designed and synthesis to be used in many fields.[1] These materials bearing donor–acceptor group have been established as a promising class of compounds that exhibit a great potential to be employed in advanced materials such as laser dyes, optical or electro-optical devices or sensor materials due to their excellent optical-electronic properties.[2] Compounds containing coumarin core represent one of the most important chemical classes of organic fluorescent materials. Many dyes, based on coumarin ring system, have been particularly used in the field of medical diagnostic, optoelectronics, optical whitening, cellular imaging, fluorescent probes for proteins, amino acids, and for sensing anions/cations.[3] The most widely used commercial coumarin dyes are contained an electron releasing group such as diethylamino group in the 7-position of the ring, and in the 3-position, a heterocyclic ring as an electron acceptor group. In this design, many coumarin-based fluorescent dyes have been syntheses, determined photophysical properties and used as a chemosensor for determination or selectivity of anions, cations, and biomolecules (Figure 1).

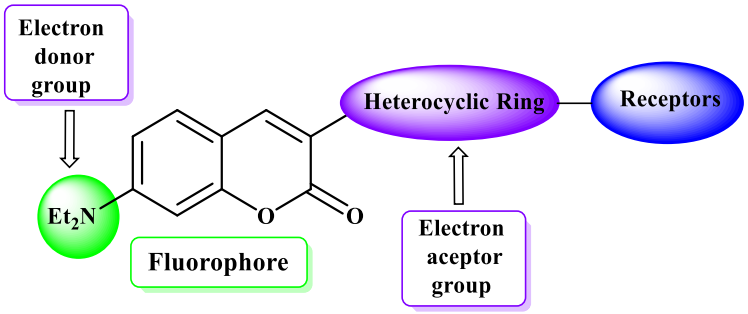

Figure 1. Design of coumarin based fluorescent chemosensor

Keywords: Fluorescent dyes, Coumarins, Chemosensors

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➢ **ORAL PRESENTATION**

Fermentasyon endüstrisi ve biyodizel üretimi

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Özet

Bilinen en eski biyoteknoloji uygulamalarından biri olan fermentasyon teknolojisi; etil alkol, laktik asit, asetik asit fermantasyonu gibi çeşitli uygulamalara sahiptir. Büyük moleküllü organik bileşiklerin mikroorganizmalar tarafından daha küçük moleküllü organik bileşiklere parçalanması olarak tanımlanan fermentasyon işlemi fermentör adı verilen biyoreaktörlerde gerçekleşmektedir. Fermentasyonun temelini standart bir mikroorganizmayla başlayıp, uygun ortamlar sağlayıp, biyolojik değişime uğratıp istenilen ürünün elde edilmesi oluşturur. Oluşan ürüne göre fermentasyon çeşitleri etil alkol fermentasyonu, laktik asit fermentasyonu, asetik asit fermentasyonu ve bütürik asit fermentasyonu olarak adlandırılır. Bir fermentasyon ürünü olan etil alkol, başta maya olmak üzere bazı mikroorganizmalar tarafından şekerin parçalanması sonucu meydana gelir. Alkol fermentasyonu uzun ve karmaşık biyokimyasal olaydır. Açığa çıkan ürünler, fermentasyon ana ürünleri ve fermentasyon yan ürünleri olarak iki grupta toplanabilir. Alkol fermentasyonun ana ürünleri etil alkol ve karbondioksittir. Alkol fermentasyonu sırasında, fermentasyon koşullarına bağlı olarak az miktarda da olsa, diğer bazı ürünler (gliserin, asetaldehit, yüksek alkoller, asit, esterler, metil alkol) de oluşur ve bunlara fermentasyon yan ürünleri denir. Başlangıçta yalnızca içki üretiminde kullanılan etil alkol, üretiminin artması ve teknik gelişmelerle birlikte ucuz ve kolayca elde edilmesi sonucunda çok geniş ve farklı alanlarda kullanılmaktadır. Özellikle melastan fermentasyon işlemi ile üretilen etil alkol yakıt veya yakıt katkı maddesi olarak biyodizel üretiminde kullanılmaktadır. Üretimi ve bileşenleri açısından yenilenebilir ve sürdürülebilir kaynaklar arasında gösterilen biyodizel, hayvansal veya bitkisel yağların bir katalizör eşliğinde etil alkol gibi kısa zincirli bir alkol ile reaksiyonu sonucunda oluşan üründür. Biyodizel saf olarak veya istenilen oranda petrol kökenli dizelle karıştırılarak kullanılabilir. Biyodizel, sahip olduğu özelliklerden dolayı geniş kullanım alanına sahiptir ve dizel yakıtla karşılaştırıldığında oldukça önemli avantajlara sahiptir.

Anahtar Kelimeler: Fermentasyon, Etil Alkol Fermentasyonu, Biyodizel.

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➢ **ORAL PRESENTATION**

İleri oksidasyon yöntemlerinin endüstride kullanımı

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Özet

Endüstrileşmenin artış göstermesi sonucu artan üretim faaliyetlerinin çevre üzerindeki olumsuz etkileri temiz bir çevreyi tehdit eder duruma getirmiştir. Bununla birlikte, su kaynaklarının sonsuz olmaması, endüstrilerde alternatif su kullanım yollarının aranmasını gerekli kılmıştır. Bu nedenle, endüstriyel üretim sonucunda oluşan atık suların çevreye zararsız hale getirilecek düzeyde arıtılması ve geri kazanılarak endüstride tekrar kullanılması konularında araştırmalar hızlanmıştır. Son yıllarda geleneksel arıtma yöntemlerinin atık sulardaki kirlilikleri gidermede yetersiz kalması ve endüstriyel atık suyun uzaklaştırılması ile artan maliyetler, işletmeleri ileri arıtma teknolojileri kullanmaya yöneltmiştir. İleri arıtma yöntemleri arasında, daha az işletim problemlerine sahip ve diğer ileri arıtma yöntemlerine nazaran daha yüksek arıtma verimini sağlayan ileri oksidasyon prosesleri, son yıllarda endüstriyel atık suların arıtımında kullanılan yöntemler arasında ön plana çıkmıştır. İleri oksidasyon prosesleri, atık su veya içme suyu içerisindeki biyolojik olarak zor parçalanabilen organikleri okside etmek amacıyla kullanılır. İleri oksidasyon prosesleri, verimli olmaları, seçici olmamaları ve geniş kullanıma sahip olmaları nedeniyle tercih edilen arıtma yöntemleridir. İleri oksidasyon prosesleri, kirleticileri, CO_2 ve H_2O'ya veya biyolojik olarak parçalanması ve adsorplamayla giderimi kolay ara ürünlere dönüştürmek için kullanılır. En yaygın ileri oksidasyon prosesleri; Ozonlama (O_3), Ozon/H_2O_2 prosesi, Ozon/UV prosesi, Fenton (H_2O_2/Fe^{+2}) prosesi ile Foto-Fenton ($UV/H_2O_2/Fe^{+2}$) oksidasyonudur.

Anahtar Kelimeler: Atık Su Arıtımı, İleri Oksidasyon, Fenton, Ozonlama

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➢ **ORAL PRESENTATION**

The covalent tethering of organic functionality to multiwalled carbon nanotubes and their electrochemical properties in aqueous and aprotic media

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Abstract

1-(N-Boc-aminomethyl)-4-(aminomethyl)benzene, bearing a Tert-Butyloxycarbonyl protecting group, was coupled to multiwalled carbon nanotubes (MWCNT) through the electrochemical oxidation of the corresponding amine-based linker. Subsequent to deprotection of amine group, it was shown that anthraquinone, nitrobenzene and dihydroxybenzene could successfully be attached to the resulting amine terminated modified MWCNT electrode using solid-phase synthesis methodology. Anthraquinone-modified MWCNT electrode was the found to undergo reversible 2 protons and 2 electron reduction process, depending on the pH of the solutions. However, The Electrochemical reduction of anthraquinone in aprotic solvent exhibits significantly different behaviour in comparison to aqueous solutions since it occurs through the 2 successive 1 electron reduction process, which generates semiquinone anion radical ($Q^{\bullet -}$) and quinone dianion (Q^{2-}), respectively. It is also quite noteworthy that the addition of a proton source into aprotic solvent significantly changes the electrochemical properties of AQ-modified electrode as peak separation potential between first and second electron transfer step was found to be decreased upon the addition of a proton source.

Keywords: Multiwalled carbon nanotube, anthraquinone, surface modification

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➢ **ORAL PRESENTATION**

Structural and thermal characterizations, antimicrobial and cytotoxic activities of cyclotriphosphazene derivatives

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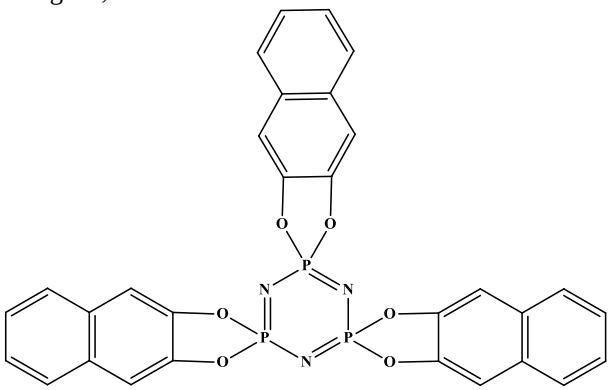
Abstract

Reactions of cyclochlorotriphosphazene ($N_3P_3Cl_6$) with difunctional nucleophilic reagents, 2,3-dihydroxynaphthalene, was investigated. The reactions, using an excess of triethylamine, in acetone solutions at room temperatures and with 1:1, 1:2 and 1:3 mole ratios allow the synthesis of the following novel cyclotriphosphazene derivatives: mono-spiro, $N_3P_3Cl_4[C_{10}H_8O_2]$, dispiro, $N_3P_3Cl_2[C_{10}H_8O_2]_2$, and tri-spiro, $N_3P_3[C_{10}H_8O_2]_3$ derivatives.

The structures of the novel compounds were characterized by elemental analysis, TLC-MS, FT-IR, ^1H, ^{13}C and ^{31}P NMR spectroscopy. Spectroscopic data, product types and relative yields were compared with those of the previously reported cylophosphazene derivatives. Antimicrobial and cytotoxic activities of the derived compounds will also be evaluated against one group of human pathogen bacteria such as escherichia coli, staphylococcus aureus, proteus vulgaris, etc.



Keywords: Cylotriphosphazene, 2,3-dihydroxynaphthalene, substitution pattern, spiro compounds, NMR studies

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➢ **ORAL PRESENTATION**

Synthesis and structural characterization of cyclochlorotriphosphazene derivatives containing indole-3-carbinol substitutions

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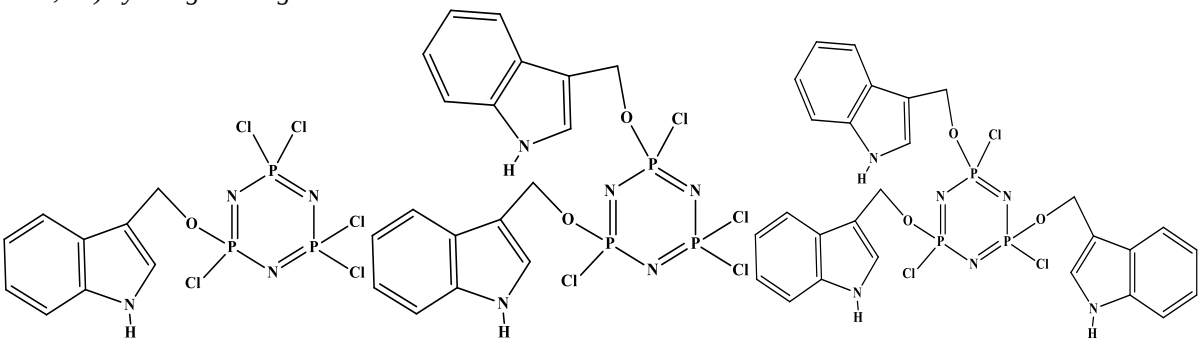
Abstract

Novel cyclophosphazene derivatives; $N_3P_3Cl_5[C_9H_9NO]$, $N_3P_3Cl_4[C_9H_9NO]_2$, $N_3P_3Cl_3[C_9H_9NO]_3$, $N_3P_3Cl_2[C_9H_9NO]_4$,$N_3P_3Cl[C_9H_9NO]_5$, $N_3P_3[C_9H_9NO]_6$ were synthesized and identified by elemental analysis, FT-IR, MS, ^{31}P, ^{13}C and ^{1}H NMR spectral data. The thermodinamic stability and possible biological activities of the derived products will be be investigated by DFT and docking studies respectively. Finally, the ability of the derived compounds will be interacted with the selected biomacromolecules (such as *BRAF kinase, CatB, HDAC7, rHA, RNR, TrxR, TS) by using docking calculations.*



Keywords: cylochlorotriphosphazene, Indole-3-carbinol, biomacromolecules, FT-IR analysis, docking studies

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➢ **ORAL PRESENTATION**

Preparation and antioxidant activity of N-protected (dipeptidoyl)benzotriazole derivatives

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Abstract

A series of N-protected (dipeptidoyl)benzotriazole derivatives have been synthesized and evaluated for their antioxidant properties using 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging method. The antioxidant activities of the compounds were compared to those of BHA, BHT and alpha-tocopherol as reference antioxidant radical scavenger compounds. The structures of the new compounds were identified by proton and carbon NMR spectra. While the synthesized compounds showed medium or good antioxidant activity according to the DPPH assay, they did not show detectable antioxidant activity for compounds **1**-**10** and very low for compounds **7**-**10** according to the metal chelating activity assay. Among the compounds, benzyloxycarbonyl protected dipeptide derivatives exhibited relatively high antioxidant activity but the results were still lower than standard antioxidant compounds (BHA, BHT and α-tocopherol). The highest antioxidant activity was obtained from compound **3** which bearing phenylalanine and S-benzylcysteine amino acid moieties at a concentration of 125 µg/mL.

Keywords: Dipeptides, benzotriazole, acylation, antioxidant activity.

➢ **ORAL PRESENTATION**

DFT calculation of tautomerism of some Schiff bases

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Abstract

In this study, Gibbs free energies were calculated by using density function theory method (DFT) in the gas environment of the tautomers of Schiff bases. From the calculation of the Gibbs energies belonging to the molecules, the NMR values of the molecules were calculated. Basically, it was calculated in the Gaussian09 program by using DFT method at B3LYP/6-311G level. It was determined that the experimental data were in harmony with the NMR data of the lowest energy conformation from the theoretical calculated values.

Keywords: Schiff base, Tautomer, Theorical calculation, DFT.

➢ **ORAL PRESENTATION**

Bazı yeni 7-N-açilamino-2-okso-1,2,3,4-tetrahidrokinolin türevlerinin antioksidan özellikleri

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Özet

On adet yeni 7-N-açilamino-2-okso-1,2,3,4-tetrahidrokinolin ve bir adet yeni dipeptit-benzotriazol türevine ait anti oksidan aktiviteleri 1,1-difenil-2-pikrilhidrazil (DPPH) radikal süpürme ve metal şelatlama yöntemlerine göre incelendi. Bileşiklerin antioksidan aktiviteleri referans bileşikler BHA, BHT ve α-tokoferolün aktiviteleri ile karşılaştırıldı. Bileşikler DPPH yöntemine göre, **9** ve **11** nolu bileşikler hariç çok düşük aktivite gösterirken metal şelatlama metoduna göre tamamen etkisiz bulunmuşlardır. **11** Nolu bileşik 37.5, 62, 5 ve 125 µg/mL derişimlerinde referans antioksidan bileşiklere göre daha iyi antioksidan aktivite göstermiştir.

Anahtar Kelimeler: Antioksidan, amino asit, dipeptit, benzotriazol, açilasyon.

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➢ **ORAL PRESENTATION**

Biodiesel production from vegetable waste oils in ionic liquid catalyst

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Abstract

The limited reserves of fossil fuel have affected the importance of transport fuel. In this light, researchers posit that the yearly global oil production will begin to deplete in the next few years. Inherent, fossil fuel can be substituted with energy from renewable sources. For the energy generation; wind, water, sunlight, biomass and geothermal are the renewable sources. Among these, biomass gain importance as it can be converted into such a form of energy that has to be utilized easily and efficiently. Biomass in the form of biodiesel and bioethanol can be used in transportation fuel. Biodiesel could be synthesized from different origins, including organic oils from animal fats and vegetables. On the other hand, the production of biodiesel from vegetable edible oils can create food security problems, hence the selection of cheap sources, like animal fats is a valuable feedstock, however, its availability is limited and in addition, its obtained esters have high melting points. Thus, the preferable sources other than low-cost feedstocks with high free fatty acids content includes unrefined crude oils, discarded cooking oil and inedible oils. In the study, to improve the efficiency of the acid-catalyzed biodiesel production process, acidic imidazolium ionic liquids were employed to the production of biodiesel from waste vegetable oil under microwave irradiation. The efficiencies of three different catalysts, 1-methyl imidazole hydrogen sulfate ([Hmim]HSO_4), 1-butyl-3-methylimidazolium hydrogen sulfate ([Bmim]HSO_4), and H_2SO_4 were compared. The effect of the methanol/oil mole ratio, reaction temperature, reaction time, and catalyst dosage on the conversion of biodiesel was investigated. The results showed that the most effective catalyst was the ionic liquid [Bmim]HSO_4. The optimal conditions were as follows: methanol/oil mole ratio 28:1, reaction time 4h, reaction temperature 150°C and [Bmim]HSO_4 dosage 10%. Under these conditions, the conversion of biodiesel reached 93.5%.

Keywords: Biodiesel, vegetable waste oil, microwave, ionic liquid

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➢ **ORAL PRESENTATION**

3,3'-Diaminobenzidin ve thiophene-2-carbaldehyde ile oluşan 3,3'-diaminobenzidin türevi schiff bazı bileşiklerinin yapı ve kararlılıklarının teorik olarak incelenmesi

Halil Berber ve Dilek Elmalı

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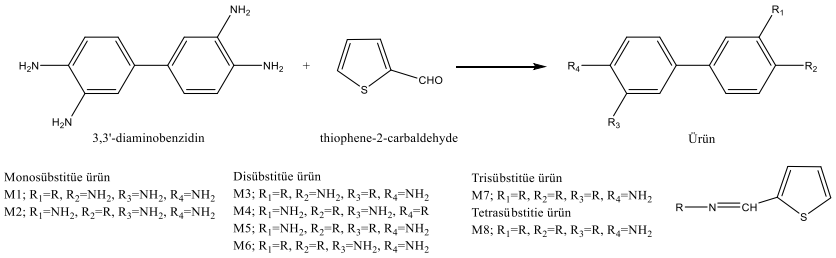
Özet

3,3'-Diaminobenzidin bileşiği, nükleik asitlerin ve proteinlerin immünohistokimyasal boyaması kullanım alanlarından bir kaçıdır [1,2]. Thiophene-2-Karbaldehit bileşiği Schiff bazı kompleksi oluşturularak nanokompozit çalışmaları [3], doğrusal olmayan optik çalışmaları [4] ve benzeri alanlarda kullanılmaktadır. Bu çalışmada sentezi hedeflenen bileşiklerin doğrusal olmayan optik, elektronik ve fotofiziksel özelliklerinin çalışılması amaçlanmaktadır. Öncelikli olarak bu bileşiklerin sentezi ile oluşma ihtimali olan ürünler belirlenecek ve bazı teorik hesaplamaları yapılacak daha sonra deneysel çalışmaları yapılacaktır. Sentezi planlanan 3,3'-diaminobenzidin türevi Schiff bazı bileşiğinin 1 mol 3,3'-diaminobenzidin ile sırası ile 1 mol thiophene-2-carbaldehyde (monosübstitüe ürün, M1 ve M2), 2 mol thiophene-2-carbaldehyde (disübstitüe ürün, M3-M6), 3 mol thiophene-2-carbaldehyde (trisübstitüe ürün, M7) ve 4 mol thiophene-2-carbaldehyde (tetrasübstitüe ürün, M8) sentezi sonunda oluşacak olası ürünler hesaplandı. Hesaplamalarda Gaussian09 programında B3LYP/6-311G(2d,p) kullanılarak hesaplamalar yapıldı. Hesaplamada öncelikle her bir olası ürünün en kararlı konformasyonu belirlendi. Her bir olası ürünlerin optimizasyonu yapıldı ve optimize geometri kullanılarak enerjileri (Sum of electronic and thermal Free Energies), dipol momentleri, HOMO-LUMO enerjileri ve ürünlerin moleküler elektrostatik potansiyel haritaları (Molecular Electrostatic Potentials Values) hesaplandı. Olası ürünlerin kararlılıkları belirlendi.



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Anahtar Kelimeler: Schiff baz, Teorik hesaplama, DFT.

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➢ **ORAL PRESENTATION**

Piano-stool Ru (II) aren komplekslerinin sentezi ve ketonların alkollerle alfa-alkilasyon reaksiyonunda uygulanması

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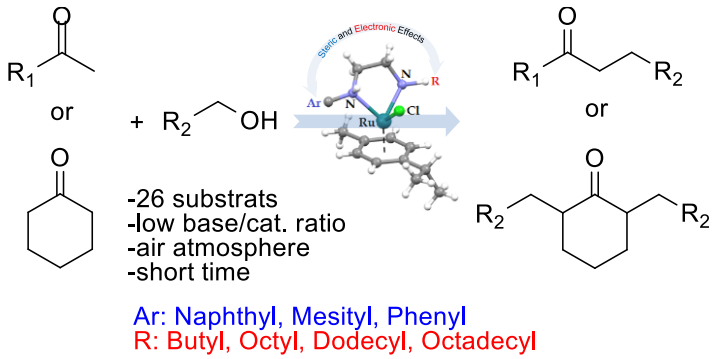
Özet

Aril ve alifatik gruplarla birlikte etilendiamin içeren bir seri piano-stool Ru (II) aren kompleksleri (**Ru**$_{1\text{-}7}$) hazırlanmıştır ve ^{1}H, ^{13}C, ^{19}F ve ^{31}P NMR spektroskopisi, FT - IR ve element analizi ile yapıları tamamen karakterize edilmiştir. **Ru**$_2$ ve **Ru**$_7$'nin kristal yapıları X-ışını kristalografisi ile belirlenmiştir. Sentezlenen kompleksler alkollerin ketonlarla yaptığı alfa-alkilasyon reaksiyonunda ödünç hidrojen alma stratejisine dayanarak ılımlı koşullarda kısa sürede çok iyi katalitik verimler elde etmişlerdir. 1 mmol ketona karşı 1 mmol alkol kullanılarak 0.2 mmol KOH varlığında 2 mL toluen içerisinde 2 saatte 120 °C'de açık havada %0.2 mol katalizör ile yüksek dönüşümler elde edilmiştir. Elde edilen veriler literatürde ki Rutenyum katalizörleri arasında bu katalitik dönüşüm için en iyi verimlerdir. Katalitik sistem, alfa alkillenmiş ketonların mükemmel verimle sentezlenmesine izin veren geniş bir substrat kapsamına sahiptir. Komplekslerin katalitik aktivite üzerindeki elektronik ve sterik etkileri analiz edilmiştir. Farklı zincir uzunluklarına sahip R gruplarının ketonların alfa alkilasyon reaksiyonu üzerindeki etkisi incelenmiştir. Katalitik döngü ayrıca d_8- toluen içindeki ^{1}H - NMR spektroskopisi ile de incelenmiştir. Rutenyum hidrür piki -9.89 ppm'de gözlenmiştir.[1]



Anahtar Kelimeler: alpha alkylation, catalyst, ruthenium (II) arene complexes.

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➢ **ORAL PRESENTATION**

Synthesis of new amide derivatives

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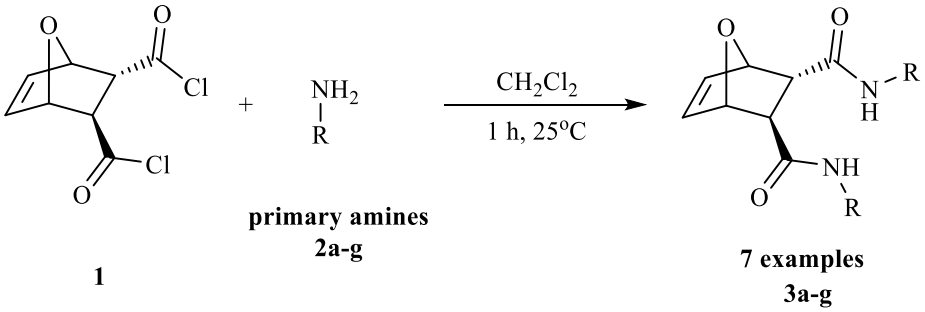
Abstract

The amide group is one of the most important group in organic chemistry because they possess extensive biological activities like antifungal, antioxidant etc[1]. Also, they can be used as a precursor for synthesis of drugs, plastics, agrochemicals or other significant structures like Atorvastatin and Valsartan that known drugs in the market[2]. Thus, develop a new and efficient methods for synthesis of amides are one of the most important topic in academia[3,4].

In a preliminary study, (1R,2R,3S,4S)-7-oxabicyclo[2.2.1]hept-5-ene-2,3-dicarbonyl dichloride[5] was synthesized by the Diels-Alder reaction between furan and fumaryl chloride in high yield. Then 1 eq. starting compound **1** was reacted with 2 eq. different primary amin derivatives **2a-g** and, substituted diamides were obtained with good yield **3a-g** (Scheme 1). All structures were characterized by ^{1}H-NMR, ^{13}C-NMR, COSY, HSQC, LC-MS and IR spectroscopy.



1 **primary amines 2a-g** **7 examples 3a-g**

Keywords: Diels-Alder Reactions, Amines, Amides.

Acknowledgement: This research was supported by a grant from Mersin University (BAP 2017-1-AP1-2188).

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➢ **ORAL PRESENTATION**

Ring opening reactions of donor-acceptor cyclopropanes with 1,2,3,4-tetrahydroquinoline and *n*-benzylindoline

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Abstract

Donor-acceptor cyclopropanes are profitable building blocks in synthetic organic chemistry. The donor and acceptor substituted carbon atoms of cyclopropane have relatively weak chemical bond, which can be easily cleaved heterolytically, can be easily rationalized by a zwitterionic structure in which the negative charge is stabilized by the acceptor (Figure). The positive charge is balanced by the transmitter. This push and pull effect of donor-acceptor cyclopropanes induces high polarization of the C-C bond, which permits a large number of different reactions. In this work, the ring opening reactions of donor-acceptor cyclopropanes were carried out with 1,2,3,4-tetrahydroquinoline and *N*-benzylindoline. It were obtained related ring opening products in good yields using these heterocyclic nucleophiles. We characterized related ring opening product using ^{1}H NMR, ^{13}C NMR and HRMS analysis.

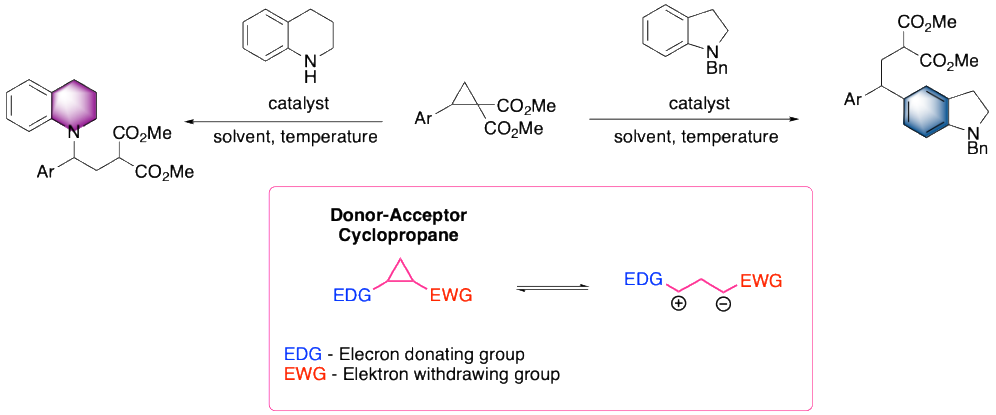

Figure.

Keywords: Donor-acceptor cyclopropane, ring opening, nucleophiles, heterocycles, NMR, HRMS.

➢ **ORAL PRESENTATION**

Bakır (Cu) toksisitesine karşı resveratrol'ün koruyucu etkileri üzerine bir araştırma: *Allium cepa* L. örneği

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Özet

Bakır (Cu) yer kabuğunda ve minerallerde yaygın olarak bulunan bir iz elementtir. Bir ağır metal olarak, hem ökaryotik hem de prokaryotik canlılarda birçok enzimin yapısına girerek önemli metabolik süreçlerde yer almakta; ancak artan dozlarda hücreler için toksik hale gelmektedir. Resveratrol, stilben fitoaleksinlerin ana aktif bileşiği olarak, hücrelerde lipid peroksidasyonunun inhibisyonu, serbest radikallerin süpürülmesi ve kansere karşı aktivitelerin yürütülmesi gibi oldukça önemli rollere sahiptir. Bir bakır şelatörü olarak bilinen resveratrolün, *Allium cepa* L. kök ucu hücrelerinde bakıra karşı koruyucu etkileri araştırılmıştır. Uygulama süresi 72 saattir. Çeşme suyunda çimlendirilen (kontrol) *Allium cepa* L. bulbları ile 400 mg resveratrol, 800 mg resveratrol, 20 µM Cu, 400 mg resveratrol+20 µM Cu, 800 mg resveratrol+20 µM Cu uygulamalarına maruz bırakılan bulblar kıyaslanmıştır. Cu uygulamasının toksik etkileri büyüme-gelişme, hücre anatomisi, mikronükleus sıklığı, mitotik indeks, kromozomal hasarlar, lipid peroksidasyonu ve antioksidan enzim aktivitelerindeki değişimler düzeyinde incelenmiştir. Cu tarafından tetiklenen kromozomal hasarlar fragment, yapışkan kromozom, vagrant, kromatinin eşit olmayan dağılımı, köprü, ters kutuplaşma ve binükleuslu hücre olarak belirlenmiştir. Bakıra bağlı olarak kök korteks hücre çeperinde kalınlaşma, yassılaşmış hücre çekirdeği, binükleuslu hücre ve hücre deformasyonu şeklinde önemli anatomik hasarlar görülmüştür. Resveratrol uygulamaları hem bu hasarları hem de bakırın yol açtığı oksidatif hasara bağlı olarak oluşan lipid peroksidasyonunu önemli düzeyde azaltmıştır. Cu, oksidatif strese bağlı olarak, süperoksit dismutaz ve katalaz enzim aktivitelerini arttırmış; ancak artan resveratrol düzeyleri bu etkileri kademeli olarak azaltmıştır. Çimlenme oranı, kök uzaması ve bulb ağırlık artışı Cu tarafından önemli düzeylerde azaltılmıştır. Resveratrol dozları bu etkileri önemli seviyelerde iyileştirmiştir.

Anahtar Kelimeler: *Allium cepa* L., antioksidan, bakır, genotoksisite, kromozom hasarı, resveratrol.

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➢ **ORAL PRESENTATION**

Yaban mersini (*Vaccinium myrtillus)* ekstraktının bakırın (Cu) *Allium cepa* L.'da sebep olduğu toksisiteye karşı olan koruyucu etkisinin araştırılması

Oksal Macar*[1], Tuğçe Kalefetoğlu Macar[1], Kültiğin Çavuşoğlu[2], Emine Yalçın[2]

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Özet

Günümüzde bakır bileşikleri endüstriyel işlemlerde ve tarımda yaygın olarak kullanılmaktadır. Sonuç olarak, bakır doğal çevrede ve insan yaşam ortamlarında yüksek konsantrasyonlarda bulunabilmektedir. Bakır canlılar için önemli bir mikronutrient olmasına karşın yüksek miktarlarda alınması halinde hem bitki hem de hayvanlarda toksik etkiye yol açmaktadır. Avrupa ve Kuzey Amerika'ya özgü alçak boylu bir çalı olan yaban mersininin (*Vaccinium myrtillus*) kardiyovasküler hastalıklara, yaşa bağlı oksidatif strese ve çeşitli dejeneratif hastalıklara karşı koruyucu rol oynayarak insan sağlığı bakımından önemli olduğu bulunmuştur. Yaban mersini ekstraktı içerdiği yüksek miktardaki antosiyaninler sayesinde oksidatif hasara karşı antioksidan aktiviteye ve hücre koruyucu özelliğe sahiptir. Bu çalışmada yaban mersini ekstraktının bakırın (Cu) *Allium cepa* L.'da sebep olduğu toksisiteye karşı koruyucu etkileri araştırılmıştır. Cu'nun *A. cepa* L. kök hücrelerinde fragment, vagrant, yapışkan kromozoma, kromatinin eşit olmayan dağılımına, köprüye ve ters kutuplaşmaya neden olduğu belirlenmiştir. Bakıra bağlı olarak kök korteks hücre çeperinde kalınlaşma, yassılaşmış hücre çekirdeği, hücre deformasyonu şeklinde anatomik hasarlar görülmüştür. Bakır uygulanan bulblarda çimlenme oranı, kök uzaması ve ağırlık artışı önemli düzeylerde azalırken; bakır kaynaklı oksidatif strese bağlı olarak, süperoksit dismutaz ve katalaz enzim aktiviteleri önemli miktarlarda artmıştır. Yaban mersini ekstraktı uygulamaları hem bu hasarları hem de bakırın yol açtığı oksidatif hasara bağlı olarak oluşan lipid peroksidasyonunu önemli düzeyde azaltmış ve çimlenme oranı ile büyüme parametrelerini önemli seviyelerde düzeltmiştir.

Anahtar Kelimeler: *Allium cepa* L., antioksidan, bakır, genotoksisite, kromozom hasarı, yaban mersini.

➢ **ORAL PRESENTATION**

The effects of *Spirulina* produced in Çankırı geothermal water on DNA protective activity

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Abstract
In this research, carried out with geothermal water through the production of *Spirulina* to increase the widespread and effective use of geothermal waters in Turkey is aiming to gain a new perspective. Turkey in order to provide an innovative contribution to agricultural policy has been investigated culturebility with Çankırı geothermal water of *Spirulina platensis*. In this study, the effects of geothermal water, which is considered as nutrient medium for *Arthrospira* (*Spirulina*) *platensis*, on antioxidant capacity and DNA protection were investigated. In this research, Çankırı geothermal water was used to replace of Schlösser Spirulina nutrient medium, which is widely used commercially. Experiments were carried out with three repetitions with a lighting of 1000 lux at 30°C. The results obtained from groups of geothermal water (50% Çankırı geothermal water and 100% Çankırı geothermal water) were compared with Schlösser's *Spirulina* Medium group. As a result the DNA protective activity of spiruluna produced in the geothermal water of Çankırı showed better protective activity than those produced in the Schlösser medium. The antioxidant content of spiruluna produced in 100% Çankırı geothermal water was found to be significantly higher than 50% Çankırı and Schlösser's medium. It has been determined that Spirulina platensis can be produced by the addition of Çankırı geothermal water also using as alternative of Schlösser's spirulina medium.
Keywords: DNA protection, antioxidant, geothermal water, *Spirulina*

➢ **ORAL PRESENTATION**

Anticarcinogenic and antioxidant activity of borenium and borinium compounds in human cell lines

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Abstract

In this study, the biological properties of borenium and borinium compounds in terms of antioxidant and anticarcinogenic effects were investigated on human peripheral blood under in vitro conditions. All heparinized blood samples were sold commercially. In order to determine the anticarcinogenic activity of the compounds, IC50 values were determined by conducting MTT assays after 48 hours of incubation of 3 different cancer cell lines (human glioblastoma (U87MG), neuroblastoma (SHSY-5Y) and prostate (PC-3). Total antioxidant capacities of borenium and borinium compounds were determined after 72 hours of incubation in human peripheral blood cells at different concentrations (1.56, 3.12, 6.25, 12.5, 25, 50, 100, 200 and 400 mg/l). It was found that the borinium compound had higher anticarcinogenic activity in comparison to borenium compounds. It was reported that the borinium compound yielded the best results in terms of antioxidant capacity values as compared to the control, however increased compound concentration reduced the total antioxidant capacity of both borinium and borenium. Consequently, it was found that borinium compounds could be used as antiproliferative agents and borenium compounds at suitable doses and concentrations could be used in pharmacology, cosmetics and various medical fields due to their antioxidative effects.

Keywords : borenium, borinium, cancer cell line, IC50, MTT

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➢ **ORAL PRESENTATION**

Total phenolic, total flavonoid, and mineral contents; macro- and micromorphology; and mucilage production of mericarps of *Salvia candidissima* Vahl subsp. *candidissima*

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Abstract

Salvia L. (sage) is the largest genus of Lamiaceae (mint family) with about 1000 species and a cosmopolitan distribution. The genus is represented by 100 species, including 53 endemics [1]. The main objectives of this study based on mericarps of *Salvia candidissima* Vahl subsp. *candidissima* are as follows: (i) to determine total phenolic, total flavonoid, and mineral contents; (ii) to comprehensively present quantitative and qualitative macro- and micromorphological attributes; (iii) to provide illustrations using stereo microscope and scanning electron microscopy (SEM); and (iv) to observe the presence of mucilage envelope. Total phenolic and total flavonoid contents were detected using Folin-Ciocalteu and Al(NO3)3 methods, respectively. Mineral content was analyzed by ICP-OES. Total phenolic and flavonoid contents were 3.47 ± 0.81 µg GAE/mg and 0.35 ± 0.03 µg QE/mg, respectively. Na, Mg, P, K, Ca, Mn, Fe, Zn, Cu, Al, and Sr were determined as minerals of the mericarps. K, P, and Mg were determined as major minerals. Mericarp size was 2.60 ± 0.19 mm in length and 2.05 ± 0.10 mm in width. Mericarp shape was oval with L/W ratios of 1.27 ± 0.10. Mericarp transverse section was rounded-trigonous. Mericarp colour was light to dark brown with darker veins. Abscission scar was rounded (rarely trigonous). The surface sculpturing was verrucate-colliculate. Mucilaginous cells were revealed on the mericarp surface after wetting. Transparent mucilaginous cells displayed a moderate reaction with extensions ranging between 0.25 and 0.50 mm. (References: 1. Kahraman A, Buyukkartal HN, Dogan M. Pericarp ultrastructure of Salvia section Hemisphace (Mentheae; Nepetoideae; Lamiaceae). Commagene J Biol. 2018; 2(1): 1-7.)

Keywords: *Salvia candidissima* subsp. *candidissima*, mericarp, mucilaginous cells, morphology, total phenolic, total flavonoid, mineral content.

➢ **ORAL PRESENTATION**

Determination of antioxidant enzyme activity changes in soybean plant under drought stress

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Abstract

Soybean is one of the 5-6 important plants that feed the world in terms of fat and protein content. Drought negatively affects vegetative and reproductive plant development causing severe reductions in plant productivity. Additionally, it can cause a series of physiological and biochemical changes in plants. To cope with the challenging aspects of drought, plants use several mechanisms and produce response at physiological and molecular levels. Plants to reduce or prevent damage caused by reactive oxygen species; non-enzymatic such as flavonoid, carenoid, tocopherol, glutathione and ascorbate and enzymatic compounds such as superoxide dismutase, catalase, peroxidase, ascorbate peroxidase, glutathione reductase and polyphenol oxidase consisting of antioxidant defense system. In this stduy, to determine the amount of malondialdehyde (MDA) as an indicator of lipid peroxidation and the changes of superoxide dismutase (SOD), catalase (CAT) and ascorbate peroxidase (APX) from antioxidant enzymes caused by drought stress in different soybean varieties in control and stress groups. Antioxidant enzyme activities (excluding catalase) and antioxidant concentrations increased in plants under drought stress.

Keywords: Soybean, drought, antioxidant system

➢ **ORAL PRESENTATION**

Expression of transcription factors and miRNAs under salt stress responses in canola (*Brassica napus* L.)

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Abstract

Canola **(***Brassica napus* L., AACC, 2n=38) is one of the most important oil crops, and also is one of the major economic crops. Salinization of agricultural land has been a major problem worldwide for decades and the high concentration of salt negatively influenced growth as well as water and nutrient use of canola. Transcription factors are integral in linking salt sensory pathways to many tolerance responses. The interaction partners of the transcription factors determine the activation or repression of response pathways and are crucial to understand the regulatory networks that modulate plant defense responses. Plant microRNAs (miRNAs) are a highly conserved class of small, non-coding RNAs that regulate gene expression by post-transcriptional degradation or translational repression. Functional analysis of conserved miRNAs revealed their involvement in multiple biological and metabolic processes in plants. They also regulate plant responses to biotic and abiotic stresses, and the miRNA pathway itself. In current study, to investigate transcription factors and miRNAs that are involved in response to salt stress in *Brassica napus* L. leaf and root tissues through in silico analysis. To assess the complex network of signaling pathways in salinity stress, we further compared the profiles of the TFs and miRNAs in root and leaf. Results of this study it was observed that salt stress induced the transcriptional activity of several TFs and miRNAs further experiments are in progress towards functional validation of TFs and miRNA pathways to provide genetic resources for the improvement of salt-stress tolerance in canola.

Keywords: Canola, salt stress, transcription factor, miRNA, transcriptome

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➢ **ORAL PRESENTATION**

The biofilm formation of facultative thermophile *Brevibacillus agri* D505b

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Abstract

Facultative thermophile *Brevibacillus agri* D505b formed biofilm on six different abiotic surfaces (glass, stainless steel, polyvinyl chloride, polypropylene, polystyrene and polycarbonate). The most suitable surface was grade 316L stainless steel for this isolate (6.10 log CFU/cm^2). The D505b isolate produced rigid pellicle and it was observed to have lophotrichous flagella. Molecular weight of the genomic DNA (gDNA) was calculated as 19.9 kb, whereas the molecular weight of extracellular DNA (eDNA) was calculated as 20.9 kb for the isolate. The molecular weights of the eDNA and gDNA were very close to each other. Morever, we observed that deoxyribonuclease I (DNase I) was no significant effect on eDNA of *B. agri* D505b. According to the results obtained, eDNA control was provided as 16.56% for 2 h and 20.04% for 12 h. Genomic DNA only all degraded with DNase I. On the other hand, eDNA was interestingly not affected from any of the enzymes. It seems that eDNA resistance to DNase I for *B.agri* D505 isolate. Total amount of protein was much more than the total amount of carbohydrate. The concentrations of total protein and carbohydrate were quantified as 600 µg/mL and 18.4 µg/mL, respectively. D505b biofilm structure was treated with fifteen different sanitation agents. *Trichloroacetic* acid (TCA) determined as the most effective agent (80.3%). Our results showed that *B. agri* D505b was a high-power biofilm producer and very resistant against sanitation agents.

Keywords*:* *Brevibacillus agri* D505b, biofilm control, eDNA.

➢ **ORAL PRESENTATION**

P53 reaktivasyonunu sağlayan küçük moleküller: Prima-1 ve Prima-1^{Met}

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Özet

p53, hücre döngüsü önleme ve apoptozu tetikleyerek hücreleri genetik saldırılara karşı korur. Genellikle TP53'teki somatik sessiz mutasyonlar veya proteinin aşırı bozunması nedeniyle P53 yolunun etkisizleştirilmesi, insan kanserlerinin büyük çoğunluğunda görülür. Bu nedenle p53'ün reaktivasyonu oldukça ümit verici bir farmakolojik yaklaşım olarak görünmektedir. Son yıllarda, p53'ün kanseri tedavisinde bir hedef molekül olarak kullanılması için çeşitli girişimler yapılmıştır ve mutant p53'ün onkojenik özelliklerini tersine çevirebildikleri iddiasıyla çeşitli moleküller tanımlanmıştır. Bu amaç için en çok araştırılan bileşikler, ilerlemekte olan birkaç klinik denemeyle birlikte PRIMA-1 (p53 reaktivasyonu ve masif apoptozun indüklenmesi) ve PRIMA-1^{Met} (APR-246) 'dır. 2002'den beri PubMed'de referans verilen yayınlara dayanarak, burada, bu bileşiklerin p53 reaktivasyon yetenekleri, anti-kanser etkileri ve çeşitli ilaçlarla kombinasyonları ile birlikte kanser hücreleri üzerindeki etkileri üzerine genel bir bakış yapılacaktır.

Anahtar Kelimeler: Kanser, p53, PRIMA

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➢ ORAL PRESENTATION

Evaluation of carba NP test for detection of carbapenemase producer *Klebsiella pneumoniae* strains from clinical samples

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Abstract

Carbapenems are the first antibiotics used in multiple resistant extended sprectrum beta lactamase (ESBL)-producing bacterial infections. The widespread use of carbapenems in treatment of various serious infections caused by ESBL-producing strains induced the existence of carbapenemase-producing strains. The identification of carbapenemase-producing organisms is important for the spread of resistant isolates in our region and for the control of infection. In this study, 42 of *Klebsiella pneumoniae* strains were isolated from the various clinical samples obtained Bursa Uludağ University, Medical Faculty Hospital, Department of Microbiology were used. Imipenem as carbapenem was used to determine antimicrobial susceptibility profiles of the isolates by the broth microdilution method with cation-adjusted Mueller-Hinton broth. Carba NP test was applied to determine the sensitivity and resistance of *K. pneumoniae* strains occurred in the presence of carbapenemase enzyme. At the end of half an hour incubation resulted in the conversion of phenol red to yellow at few strains and evaluated as positive. This situation became more evident after 1 and 2 hours. A 38 out of 42 strains were selected as carbapenem-resistant from broth microdilution, 18 (including susceptible samples) out of 42 strains in fresh phenol red-imipenem solution were found positive after 1 hour incubation. 29 out of 38 resistant strains in old and fresh solution were found positive, 9 of them found as negative after 2 hours incubation. Therefore 76.3 % of carbapenemase enzyme positivity was found from clinical samples. According to the results, fresh or old phenol red-imipenem solution did not change after 2 hours. Samples at 2 hours incubation were given more evident results. It was also observed that carbapenem resistance was considerably high among *K. pneumoniae* strains

Keywords: carbapenemase, imipenem, phenol red, carba NP.

➢ **ORAL PRESENTATION**

Synergistic effects of some membrane active cationic antimicrobial peptides in combination with conventional antibiotics against *Pseudomonas aeruginosa*

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Abstract

Antimicrobial peptides (AMPs) are gaining attention as viable alternatives to antibiotics due to the broad spectrum of activities and abundantly present in multicellular organisms that act against pathogenic bacteria. The combination of cationic AMPs and conventional antibiotics enables to reduce the overall cost and widen the power of synergistic effects. In this study, the cationic membrane active AMPs were screened and then the most effective AMPs against *Pseudomonas aeruginosa* strains were synthesized and purified by using solid-phase synthesis, analytical HPLC, preparative HPLC, and MALDI TOF mass spectrometry. Minimal inhibitory concentrations (MICs) of 10 of AMPs and 10 of antibiotics were determined. The effects of antibiotics and AMPs in combination were assessed by checkerboard assay in order to eliminate the antibiotics that could not be potentiated by peptide-induced membrane permeabilization**.** In combination assays, azithromycin, ciprofloxacin and colistin (3 of antibiotics) were most efficiently potentiated in the presence of 0.25 µg/ml K11, IsCT-P, P1, T9W, MSI-78, Cecropin B1, Pep-1-k, and K_4S4. MICs of these antibiotics in these combinations were decreased at least 4- fold as compared to those of the antibiotics and AMPs alone. As judged from the results obtained with 0.0625 µg/ml peptide concentration, the most pronounced synergistic effects of some AMPs were found when they were combined with only ciprofloxacin and azithromycin. AMPs used in this study were reported to boost the activities of two of antibiotics with a great synergistic effect. Thus, a new hope has emerged for fighting the battle by combining these conventional antibiotics with these selected AMPs.

Keywords: AMPs, antibiotics, synergy, *Pseudomonas aeruginosa*.

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➢ **ORAL PRESENTATION**

Screening of petroleum degrading *Bacillus* sp. strains and the bacterial degradation of synthetic detergents in wastewater

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Abstract

Detergent is a product of cream, powder and liquid which has the cleaning treatment property formed by the combination of petroleum-derived substances. The worldwide manufacture of synthetic detergents has increased from the 1949 level of 30,000 tons to an estimated 1.5 to 2 million tons per year. The increase in consumption of detergents and its derivatives are the origin of a type of pollution which most significant impact is the formation of toxicity in rivers, lakes, and plants. The aim of this study was to screen of petroleum degrading *Bacillus* sp. strains from different non-contaminated soil samples and to investigate the potential for biodegradation of detergents in wastewaters. 10 out of 100 bacteria were found to be potent, and the best degrading strain was identified as *Bacillus cereus* owing to its 100 % similarity in the 16S rRNA gene sequence. This bacteria was inoculated in Bushnell Haas (BH) medium with different concentrations detergents (0,1%, 0,5%, 1%) such as powder, liquid and solid. After 15 days of incubation period, it was determined bacterial growth (OD_{600}) and phosphorus analysis was performed spectrophotometrically using phosphorus test kit. Among of detergents, the highest inorganic phosphorus content were determined in 1% concentration of solid soap and powder detergent. Bacterial growth showed that bacteria was used petroleum-derived detergents as carbon source. In the phosphorus analyzes, it was found that the amount of phosphorus increased. This showed that the detergents are biodegradable. Then, the phosphorus-containing solution was applied to the potted ornamental plants and it was observed that it helped the plant to develop. The data obtained from the study show that the *Bacillus cereus* strain transforms the detergent contaminated domestic wastewater into a form of phosphorus which has potential of phosphorus source for plants.

Keywords: biodegradation, detergent, *Bacillus cereus*, phosphorus.

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➢ **ORAL PRESENTATION**

Antibiotic resistance and efflux pumps

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Abstract

The main purpose of this manuscript is to review the resistance against antibiotics and efflux pumps, one of the mechanisms important in resistance against antibiotics. As a definition, the resistance against antibiotics is accepted as the capability of a microorganism to resist the activity of antimicrobials, which were successfully used to kill the microorganism once. Antibiotic resistance is characterized by several antibiotic susceptibility tests. The wide consumption of antibiotics; the over prescription of antimicrobial drugs by medical doctors; unnecessary, incorrect and inadequate self-medication by the patient and use of several antimicrobial agents either to support a healthy growth or therapeutic purposes in animals consumed as food triggered severe antibiotic resistance. Therefore, the resistance against antimicrobials became a considerable, wide-spread issue in all around the world and the studies have been initiated to overcome the resistance against antibiotics. There are several different mechanisms, which could lead bacteria to be resistant overtime. One of the mechanism of action, which leads to antibiotic resistance, is efflux pumps. Several efflux pump inhibitors were discovered until now, but since some of them are highly cytotoxic, they have very limited use. Understanding efflux pumps and discovering new inhibitors against these pumps could probably save the future of human beings.

Keywords: Antibiotic resistance, efflux pumps, inhibitors

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➢ **ORAL PRESENTATION**

Kuzey Anadolu ve Trakya'daki *Apodemus* Kaup, 1829 (Mammalia: Rodentia) cinsine ait türlerin mitokondriyal DNA sitokrom *b* bölgesi analizi

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Özet

Bu çalışmada Türkiye'nin kuzeyinde, Trakya'da ve yüz ölçümü bakımından sırasıyla Türkiye'nin üç büyük adası olan Gökçeada, Marmara Adası ile Bozcaada'da yayılış gösteren *Apodemus* cinsine dâhil örneklerin mitokondriyal DNA'sının sitokrom *b* bölgesindeki varyasyonlar araştırıldı. DNA dizi analizi sonucunda elde edilen bulgular sonucunda çalışma alanında *Apodemus* cinsinin altı türünün (*Apodemus flavicollis*, *Apodemus mystacinus*, *Apodemus witherbyi*, *Apodemus uralensis*, *Apodemus sylvaticus* ve *Apodemus agrarius*) yayılış gösterdiğini ortaya çıkardı. *A. flavicollis*'in Trakya ve Anadolu populasyonlarının iki farklı genetik soy hattı oluşturduğu belirlendi. *A. mystacinus* populasyonları Batı Karadeniz ve Orta/Doğu Karadeniz olmak üzere iki farklı genetik gruba ayrıldı. Bugüne kadar Türkiye'de sadece Anadolu'nun büyük bölümünde yayılış gösterdiği bilinen *A. witherbyi* populasyonlarının Trakya'da yayılışının olduğu ilk kez bu çalışma ile tespit edildi. *A. uralensis* populasyonları arasında gen akışının devam ettiği, dolayısıyla genetik farklılaşmanın az olduğu sonucuna varıldı. Parçalı yayılışa sahip olan *A. sylvaticus*'un Anadolu'dan tek bir lokalitedeki Kurupelit (Samsun) populasyonu ile Gökçeada, Marmara Adası ve Trakya populasyonları arasında yüksek genetik farklılıkların bulunduğu açığa çıkarıldı. Trakya'da yayılışı olan *A. agrarius*'un sadece bir lokaliteden incelenen populasyonunda haplotip çeşitliliğinin yüksek, nükleotid çeşitliliğinin düşük seviyede olduğu bulundu. Miyosen, Pliyosen ve Pleyistosen dönemlerinde meydana gelen jeolojik, tektonik olaylarla beraber iklim değişikliklerinin *Apodemus* cinsi türlerinin genetik farklılaşması üzerinde etkili olduğu ortaya kondu.

Anahtar Kelimeler: *Apodemus*, sitokrom *b*, genetik varyasyon, Türkiye

➢ **ORAL PRESENTATION**

Investigation of the potential anticancer effects of napelline and talatisamine dirterpenes on experimental brain tumor models

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Abstract

Brain cancers are one of the most aggressive tumours in humans. Especially, gliomas are among the deadliest of human cancers and show high resistance to chemotherapeutic agents. On the other hand, discovery of biologically effective non-synhetic biomaterials in treatments of different diseases, especially cancer, has continued to be one of the most popular research topics today. Therefore, we aimed to investigate biochemical, cytological and molecular genetic effects of napelline and talatisamine diterpenes in human U-87 MG glioma cells by using total antioxidant status and total oxidative status, 3-(4,5-dimethylthiazol-2-yl)-5-(3-carboxymethoxphenyl)-2-(4-sulfophenyl)-2H-tetrozolium, inner salt and lactate dehydrogenase release assay and RT2 Prolifer PCR Arrays. Our results revealed that napelline and talatisamine exhibited cytotoxic effects at high doses. Napelline and talatisamine diterpenes increased apoptosis compared to control in U-87 MG cells. While napelline induced up-regulation of 50 and down-regulation of 13 genes, talatisamine induced up-regulation of 32 and down-regulation of 18 genes in U-87 MG cells. Napelline was shown to have a higher anticancer activity than talatisamine. We think that, napelline and talatisamine might be evaluated as potential chemotherapeutic agents for treatment of glioblastoma.

Keywords: Glioblastoma Multiforme, Diterpenes, Anticancer Activity, Cytotoxicity, Apoptosis

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➢ **ORAL PRESENTATION**

Localisation study of hephaestin and Ireg1 Proteins in MDCK cell line

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Abstract

Hephaestin is a critical link in the chain of proteins involved in uptake of dietary iron by epithelial cells of the duodenum. It is a homologue of the serum ferroxidase ceruloplasmin and is expressed on the basolateral aspect of duodenal cells. Hephaestin is amembrane-bound ferroxidase that prepares iron for loading onto the serum iron transport protein transferrin, by converting ferrous iron (Fe2+) to ferric iron (Fe3+). The ferrous iron is converted to ferric iron by hephaestin and transferrin binds the ferric iron for transport to cells around the body.
Despite the simplicity of this model, details of the mechanism remain elusive. There is evidence that ferroportin and hephaestin are linked in their action, but little evidence so far has been found for an interaction between hephaestin and transferrin.
MDCK cell lines are transiently transfected with the Heph and Ireg1 containing construct.
The co-expression and the cellular localization of these proteins are observed in the MDCK cells using a biomarker, which is green fluorescent protein. Since MDCK cells are a well-established model of intestinal epithelial cells, the membrane-bound Heph exhibits the highest expression level in intestinal enterocytes. As a result of this study, Ireg1 distribution shows a similar pattern to hephaestin, which is distributed primarily to the basolateral membrane enterocytes, especially onto the villus of the cell. Additionally, the expressed Heph is functional into the cell, thus promoting efflux of iron to the blood across the basolateral membrane. The co-localization of Heph/Ireg1 is analyzed by immunohistochemistry staining. Finally, strong perinuclear signal is found for the precise localization of Heph/Ireg1 with less intensity through the cytoplasm.

Keywords: hephaestin, ceruloplasmin, iron

➢ **ORAL PRESENTATION**

İnsan kolon kanseri CCL-233 hücrelerinde borun apoptotik ve antianjiyogenik etkilerinin araştırılması

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Özet

Bor, daha çok bitkisel yiyeceklerden eser olarak sağlanan bir elementtir. Borun son yıllara kadar bitkiler için gerekli temel element olduğu bilinmekteydi. Son yıllarda insanlar için de gerekli olduğu, bazı patolojik durumlarda ve hastalıklarda bor takviyesinin tedavi açısından faydalı olabileceğini ifade eden birçok çalışma yapılmıştır.

Bor türevlerinin farklı kanser hücreleri üzerindeki etkilerine dair son zamanlarda çalışmalar başlamış ve farklı kanser hücrelerinde borun antitümöral etkinlik gösterebileceğine dair veriler sunulmaya başlanmıştır.

Bu bilgiler ışığında, CCL-233 kolon kanseri hücrelerine farklı dozlarda verdiğimiz borik asitin, kanser hücreleri üzerindeki antiproliferatif etkilerinin belirlenmesi amacıyla CCK-8 kiti ile borun proliferasyona etkisi belirlenmiş, PARP-1 enzimi ile borik asitin apopitotik etkisi ve VGEF ölçümü ile, borun kanser hücreleri üzerindeki antianjiogenik etkileri değerlendirilmiştir.

25,50,100 mmolar dozlarında verilen borik asitin 24, 48 ve 72. Saatlerde CCK-8 kiti ile proliferasyona etkisi belirlenmiş, elde edilen sonuçlara göre 48 ve 72. saatlerde borik asitin 100 mmolar konsantrasyonda borik asitin antiproliferatif etkisi gözlenmiştir.

Human Vascular Endothelial Growth Factor (VGEF) ve human Poli (ADP-Riboz) Polimeraz (PARP) ELISA kitleri ile, belirlenen dozlarda ölçümler yapılmıştır. Sonuçlarımızın istatistiksel analizi SPPS20 programında yapılmıştır.

Çalışmamız, kolon kanseri hücrelerinde borun antianjiyogenik ve apopitotik etkileri üzerine yapılmış literatürdeki ilk çalışma olup elde edilen sonuçlarımızın ise literatüre katkı sağlayacağını düşünmekteyiz.

Anahtar Kelimeler: kolon kanseri, apopitoz, anjiogenez, bor

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➢ **ORAL PRESENTATION**

The effect of *Hypericum perforatum* L. extracts on obesity markers in 3T3-L1 *Mus musculus* cell line

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Abstract
Obesity is a low-grade inflammatory disease that develops based on sedentary lifestyle, unhealthy and malnutrition, environmental and genetic factors. Obesity is a disease that causes different health problems by reducing the quality of life and affecting the body all over the world. Primary health problems correlated with obesity include insulin resistance, Type II diabetes, hypertension, atherosclerosis, hyperlipidemia, hypertriglyceridemia and metabolic syndrome. For the treatment of obese individuals with Type II diabetes, glucose-lowering insulin sensitizing drugs are used together with the diet. Metabolic surgery is recommended for individuals with BMI≥40. Drugs recommended for obesity are not tolerable to anyone, while metabolic surgery is costly and has risks. Increased obesity rates lead to greater health and economic burdens in all countries.This encourages researchers to seek for alternative ways to treat obesity. Most of the alternative therapies base on medicinal plants. Based on the recent studies, *Hypericum perforatum* has been shown to improve the antidiabetic, antihyperglycemic, antiobesity effect and insulin resistance. In this study, 3T3-L1 adipocytes were used as an *in vitro* model to mimic obesity and DGAT-1 and LPL genes were chosen as molecular markers to examine the effect of *Hypericum perforatum* on obesity at the molecular level.
Keywords: Obesity, *Hypericum perforatum*, 3T3-L1 Cell Line

➢ **ORAL PRESENTATION**

İmazalil ile indüklenen hücresel toksisite üzerine iz element takviyesinin *in vitro* değerlendirilmesi

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Özet

Pestisitler, zararlı organizmaları engellemek, kontrol altına almak ya da zararlarını azaltmak için tarım alanında kullanılan madde ya da madde karışımlarıdır. İmazalil hasat öncesi ve sonrası özellikle narenciye gibi mevyelerin çürümesini engelleyerek raf ömrünü uzatmak amacıyla kullanılan bir pestisittir. Bu çalışmada primer rat hepatositlerinde imazalile (100 µM) maruz bırakılarak oluşturulan *in vitro* toksisiteye karşı 19 farklı iz elementin (10 µM) koruyucu potansiyelleri MTT, LDH, TAK ve TOD analizleriyle belirlenmiştir. Sonuçlarımız bu elementlerden bor, selenyum ve çinkonun diğerlerine kıyasla yüksek koruyucu etkiye sahip olduğunu göstermiştir.

Anahtar Kelimeler: Hücre canlılığı, rat hepatosit kültürü, iz element takviyesi, imazalil

➢ **ORAL PRESENTATION**

Bazı bitki ekstrakt ve karışımlarının SH-SY5Y hücre hattında antiproliferatif, apoptotik etkisinin ve antioksidan aktivitesinin incelenmesi

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Özet

Bu çalışmada, nöroblastomanın tedavisinde kullanılabilmesi için; bazı bitkiler ve bu bitkilerden elde edilen karışımların antiproliferatif, apoptotik ve antioksidan aktivitesi araştırılmıştır. Bu etki ve aktivitelerin tespitinde XTT,anneksin, DPPH ve TEAK yöntemleri kullanılmıştır. Karışımlarda kullanılmak üzere literatürde etkisi saptanmış bazı bitkilerede yer verilmiş ve bütün deneyler bu bitkiler içinde teyit amaçlı denenmiştir.
Canlılık yüzdeleri karşılaştırıldığında, 24. saatte buğday, böğürtlen (rubus hirtus) ve literatürde antiproliferatif olduğu düşünülen sinir otu (Plantago major) proliferatif, yeşilçayda fark anlamsız, diğerlerinde ise antiproliferatif olduğu görülmüştür. Antiproliferatif olanlardan ise bazı dozlarının kanser ilacı olan sisplatinden daha etkili olduğu görülmüştür. 48. Saatte ise zencefil, biberiye, ebegümeci,zerdeçal, ısırgan, kantaron, böğürtlen ve tarçının antiproliferatif etkisinin oldukça fazla olduğu ve sisplatinden daha etkili olduğu görülmüştür. Zencefil istatistikselolarak en etkili bitki olarak göze çarpmaktadır. Etkili bitkilerden elde edilen karışımların sonuçlarına bakıldığında ise bütün dozlar antiproliferatif bulunmuş ve sisplatinden daha etkin dozlarbulunmuştur. Karışımın IC50 değerleri 24. Ve 48. Saatte sırası ile Karışım1' in 38,82 ve 42,01µg/ml, Karışım2' nin 22,85 ve 15,59µg/ml, Karışım 3' ün ise 27,6 ve15,62 µg/ml' den düşük olarak bulunmuştur.
Anneksin deneyinin apoptotik ve nekrotik etkileri 24 ve 48. Saatlerde kontrol grubuyla karşılaştırıldığında, böğürtlen,ısırgan, ebegümeci ve karışımlarımızın apoptotik olduğu görülmektedir. Nekrotik oranları ise kontrol ile benzer ya da fazla olduğu görülmüştür. Isırganın nekrotik oranı diğerlerine göre fazla çıkmıştır. 24. saatte karışım 2 ve 3 te en yüksek değerlere sahip olduğu görülmüştür. 48. Saatte ise yine karışım 3'ün değeri oldukça yüksek çıkmıştır. Bitkilerden ise ebegümecinin etkisinin oldukça yüksek olduğu (%91,6) diğer iki bitkiye göre çok daha etkili olduğu görülmüştür.
DPPH sonucunda ise karışımların bütün konsantrasyonlarının %80 üzeri inhibisyon; diğer bitkilerin genel olarak, ebegümeci ve ısırgan hariç, radikal süpürme kapasitesi yüksek konsantrasyonlarında %70 ve üzeri inhibisyon görülmüştür.
Bir toplam antioksidan kapasitesi testi olan TEAK testinde ise karışımlarda en yüksek antioksidan kapasite görülürken, ebegümeci aktif olmadığı; ısırganda tüm dozlarda en az antioksidan kapasitesine sahip olduğu görülmüştür.

Anahtar Kelimeler: Nöroblastom, antiproliferatif etki, apoptotik etki, antioksidan aktivite

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➢ **ORAL PRESENTATION**

Türkiye'de yayılış gösteren *Muscardinus avellanarius* Linnaeus,1758 (Mammalia: Rodentia) populasyonlarında mitokondriyal DNA NADH dehidrojenaz alt ünite 1 (*ND1*) gen bölgesinin analizi

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Özet

Bu çalışmada fındık faresi, *Muscardinus avellanarius*'a ait altı lokaliteden toplanan 25 örnek analiz edildi. Analizlerde, mitokondriyal DNA'nın NADH dehidrojenaz alt ünite 1 (*ND1*) gen bölgesine ait diziler kullanıldı. *ND1* gen bölgesine ait 11 haplotip belirlendi. Bu gen bölgesi için oluşturulan filogenetik ilişkileri gösteren ağaçlara göre Türkiye'deki *M. avellanarius* örnekleri doğu ve batı olmak üzere iki farklı soy hattına ayrıldı. Doğu soy hattında daha ileri bir farklılaşma gözlenmezken, batı soy hattında her iki filogenetik ağaçta da Bursa-Uludağ örnekleri ayrılma gösterdi. *ND1* gen bölgesine dayanarak oluşturulan evrimsel ayrılma zamanı analizinde (BI=Bayesian Inference) *M. avellanarius*'un doğu ve batı soy hatlarının günümüzden yaklaşık 2.2 Myö (milyon yıl önce) birbirlerinden ayrıldığı tahmin edildi. Bursa-Uludağ populasyonun ise grubun geri kalanından yaklaşık 1.09 Myö farklılaştığı belirlendi. Bu farklılaşma zamanının Geç Pliyosen-Pleyistosen iklim dalgalanmalarının hüküm sürdüğü dönemlere karşılık geldiği tespit edildi. Tür içinde gözlenen genetik soy hatlarına farklılaşmanın *Muscardinus avellanarius abanticus* ve *Muscardinus avellanarius trapezius* alttürlerinin yayılış alanlarıyla uyum içinde olduğu görüldü.

Anahtar Kelimeler: NADH dehidrojenaz alt ünite 1 (*ND1*), *Muscardinus avellanarius*, Gliridae, Filogeni, Türkiye

➢ **ORAL PRESENTATION**

Marmara Bölgesi ve Kuzey Anadolu'da yayılış gösteren *Mus* Linnaeus, 1758 (Mammalia: Rodentia) cinsi türlerinde mitokondriyal DNA sitokrom oksidaz alt ünitesi 1 (*CO1*) gen bölgesinin analizi

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Özet

Bu çalışmada, Marmara ve Kuzey Anadolu bölgelerinde 43 lokaliteden toplanan *Mus domesticus* ve *Mus macedonicus* türlerine ait toplamda 73 örnek analiz edildi. Analizlerde, mitokondriyal DNA gen bölgesinin sitokrom oksidaz alt ünite 1 (*CO1*) dizileri kullanıldı. *CO1* gen bölgesi için 33 haplotip tespit edildi. *Bu* gen bölgesine ait filogenetik ağaçlara göre *M. macedonicus* iki soy hattına ayrıldı. *M. domesticus*'un Ardahan soy hattının türün diğer soy hatlarından ayrıldığı görüldü. *M. domesticus*'un Trakya-Güney Marmara-Adalar soy hatlarının birbirlerinden belirgin olarak ayrılmadıkları tespit edildi. *CO1* gen bölgesi verileriyle oluşturulan evrimsel ayrılma zamanı analizinde (BI=Bayesian Inference), *M. domesticus* ile *M. macedonicus* arasındaki ayrılma zamanı 4.79 myö (milyon yıl önce) olarak tahmin edildi. Bu farklılaşma zamanının Erken Pliyosen döneminin Zankleyen çağına karşılık geldiği tespit edildi. *M. domesticus*'un Ardahan soy hattının, türün geri kalanından yaklaşık 1.73 myö ayrıldığı görüldü. Bu dönem ise Pleyistosen iklimsel dalgalanma dönemine karşılık gelmektedir.

Anahtar Kelimeler: *Mus*, Sitokrom Oksidaz Alt Ünite 1 (*CO1*), Filogeni, Türkiye

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➢ **ORAL PRESENTATION**

The effect of coordination compounds on carbonic anhydrase (CA) activity

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Abstract

Inhibition properties of some coordination compounds containing dicyanidogylene were investigated on human carbonic anhydrase I (CA I, E.C. 4.2.1.1). Carbonic anhydrase, a multifunctional enzyme, catalyzes reversibly a crucial reaction between carbon dioxide and water, leading to the formation of protons (H^+) and bicarbonate (HCO_3). CA inhibitors (CAIs) have clinical importance because they are used in the treatment of various diseases such as antiglaucoma, anticonvulsant and diuretics. Coordination complexes have remarkable biological activities such as antibacterial, antifungal and antitumor activities, and as therapeutic compounds due to their pharmaceutical properties. Metal complexes have effects on the inhibition of enzymes that play a role in biochemical reactions, which are important reactions for human life quality. In the present study, we investigate inhibitory effect of two coordination compounds ([Ni(bishydeten)2Ag(CN)2][Ag(CN)2].H2O and [Ni(edbea)$Ag_3(CN)_5$]) synthesized by our project team on hCA I and enzyme activity was measured by spectrophotometrically. Inhibition constant (Ki) were calculated from drawn Lineweaver Burk charts. These complexes exhibited effectively inhibitory effects on hCA I and K_i values were found as 635.30 nM and 184.01 nM, respectively. The IC_{50} values of the complexes against hCA I were 350.01 µM and 466.02 µM, respectively. Inhibition type of the complexes is noncompetitive against to hCA I enzyme activity. In conclusion, it has been indicated that novel coordination complexes have in vitro inhibitory effect on hCA. In the future, the inhibitory effect of these compounds can be observed in animal experiments for beneficial health effects and these data may lead to designing potent novel inhibitors.

Keywords: carbonic anhydrase, cyanido complexes, enzyme inhibition

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➢ **ORAL PRESENTATION**

Proliferation of HELA cells may be prevented by rivaroxaban

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Abstract

New oral anticoagulants including rivaroxaban are commonly used in the prophylaxis and treatment of systemic embolism and deep vein thrombosis. Cancer patients have also an increased risk of developing venous thromboembolic events or may have other indications for anticoagulation, such as atrial fibrillation. Several data suggest that anticoagulant drugs may have an effect on tumor development and progression. In this study, we aimed to investigate the cytotoxic effects of rivaroxaban on a cervical cancer cell line HeLa cells. Cells lines were placed in 96-well culture at an initial density of 50.000 cells/ml in six replicates. HeLa cells were incubated in the Dulbecco's Modified Eagle's Medium (DMEM)/Ham's F12 supplemented with 10% foetal bovine serum (FBS). Following incubation, the cells were treated with four dilutions (dilution I: 30 □m; dilution II: 15 □m; dilution III: 7.5 □m; dilution IV: 3.75 □m and control: only the cell culture medium) of the test material [Xarelto (rivaroxaban, 20 mg)™]. Test material was prepared in culture medium supplemented with 1% dimethyl sulfoxide. The cell viability was determined by MTT assay. At 24 and 48-hours incubation, the cells exposed to dilution I of rivaroxaban showed a significant difference compared to control group ($p<0.001$). The cells displayed cellular alterations including nuclear condensation, rounded morphology, and cell degeneration. These results showed that rivaroxaban may reduce proliferation of cancer cells in high dilutions.

Keywords: Oral anticoagulants, Rivaroxaban, Cell viability, MTT assay

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➢ **ORAL PRESENTATION**

Rheological properties of paraffin wax emulsions prepared by acid soap of triethanolamine stearate (TEA-St) with different ratios of stearic acid (SA) and triethanolamine (TEA)

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Abstract

Evaluation of rheological behaviour of paraffin wax emulsions was investigated using in-house synthesized acid soap of triethanolamine-stearate (TEA-St) emulsifying system with respect to the effect of stearic acid (SA) and triethanolamine (TEA) concentrations. In the preparation of the emulsifying system, stearic acid (SA) was neutralised by triethanolamine (TEA), in different concentration ratios, to form a soap and its acid–soap chemical structure has been examined by means of FTIR measurements and pH values were recorded. A single emulsion formula was used, with a specified weight percentage of paraffin wax along with TEA-St emulsified with a constant remaining weight percentage of distilled water, in order to assess the influence of TEA-St combination on the evolution of rheological behaviour of prepared paraffin wax emulsions. The investigations were then carried out in both the rotational and oscillatory modes of a parallel-plate rheometer. The flow curves of each emulsion were presented. The emulsions prepared displayed shear-thinning behaviour. Each emulsion approaches an infinite shear viscosity. Every emulsion showed long-term and short-term stability depending upon the concentration ratio of SA to TEA. As a result, a rheological means for manupilating the flow properties of paraffin wax emulsions by tuning alkonalamine and fatty acid reaction of the prepared emulsifying system, studied within the current research, was provided.

Keywords: Rheology, Emulsion, Paraffin wax, Acid soap

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➢ **ORAL PRESENTATION**

Polidimetil siloksan ve doğal kauçuktan üretilen membranın benzen giderimde kullanımı

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Özet

Bu çalışmada, atık sulardaki organik bileşenlerin seçici bir şekilde ayrılması için gözeneksiz, organik seven doğal kauçuk ve poli(dimetil silokzan) (silikon) harman membranlar hazırlanmış ve bu membranlar sudaki düşük konsantrasyondaki benzeni ayırmak için kullanılmıştır. Gözeneksiz membranlarda ayırım, çözünme-difüzyon temeline bağlıdır. Dolayısıyla membranın yüzey hidrofilitesi, polimerin camsı geçiş sıcaklığı, polimer içerisindeki bağ yapıları, çözelti içerisindeki bileşenlere membranın ilgisi ayrımanın performansını doğrudan etkilemektedir. Membranlar üretildikten sonra, bağ yapıları Fourier Dönüşümlü Kızılötesi ile belirlenmiştir. Üretilen membranların benzen ve suya karşı gösterdikleri ilgi şişme testleri ile belirlenmiştir. Yapılan testler sonucunda, üretilen membran %3 benzen içeren suda %50 şişme değerleri gösterirken, saf benzende şişme değeri %150'den fazladır. Benzen-su karışımındaki benzenin tamamının membran tarafından emildiği görülmüştür. Şişme testleri ardından, değişen benzen konsantrasyonlarında (%0.5-%3), değişen sıcaklıklarda (30 °C-50 °C) membran ayırma deneyleri yapılmış ve membranın yüksek oranda benzen seçici olduğu 1681 ayırma faktörü eldesi ile görülmüştür.

Anahtar Kelimeler: benzen giderimi, harman membran, doğal kauçuk, PDMS

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➢ **ORAL PRESENTATION**

Rheological behaviors of poly(vinyl alcohol)/poly(ethylene glycol) aqueous blends as model system for understanding physical entanglements in pharmaceutic gels and solutions

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Abstract

In this study, rheological behaviors of poly(vinyl alcohol)/poly(ethylene glycol) (PVA/PEG) aqueous blends were characterized depending upon the molecular weight (Mw) of PEG. Rheological properties of blends were quantified by applying different test procedures in a rotational rheometer and using several mathematical models. It was found that PEG addition increased the viscosity of PVA solution, shear modulus and reduced the relaxation time and creep strain. But, increase in viscosity did not yield a linear correlation depending on the Mw of PEG. It was concluded that the PEG addition more pronouncedly influenced the long-term viscoelastic behavior of PVA solution possibly due to the increasing of the physical entanglements between PVA chains.

Keywords: Rheology, Aquous blends, Physical entanglement

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➢ **ORAL PRESENTATION**

Application of response surface methodology for optimization of copper removal using a novel adsorbent

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Abstract

In this study, a novel graphene-alginate adsorbent has been synthesized and used for copper removal from synthetic wastewater. In order to optimize the reaction parameters and to investigate the removal behavior, the central design of the RSM method has been adapted to the experimental data. The varying copper concentration, pH and adsorbent dosage have been selected as experimental factors and the effects of factors on removal have been investigated. The optimum operating time and separation temperature were obtained from previous experiments and were kept constant during the separation. As a result of the study, the synthesized adsorbent gave the copper removal performance over 90%. When the designing results were validated with the experimental results, less than 2% of error was found. The highest removal of 92.9% was obtained when the pH value was 4.5 and the adsorbent amount was 0.5 g.

Keywords: bio-based adsorbent, Cu (II) removal, response surface method

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➢ **ORAL PRESENTATION**

Poli(Ɛ-CL-co-BMA) polimerininin termal bozunma kinetiğinin incelenmesi

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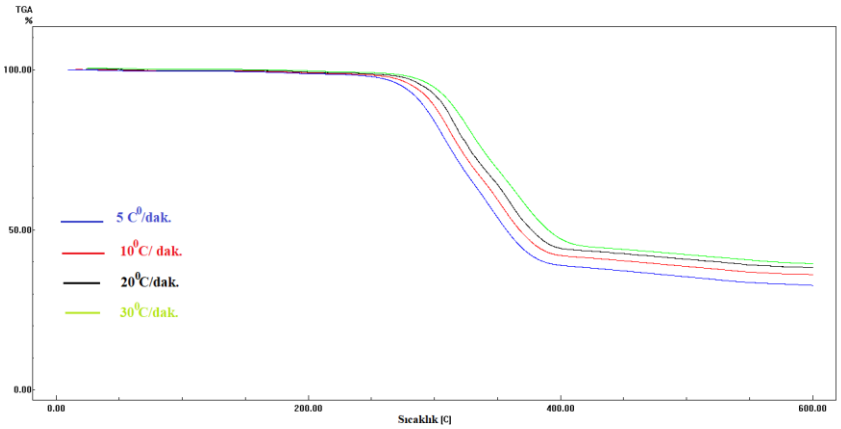
Özet

Bu çalışmada, Poli(Ɛ-CL-co-BMA) kopolimerinin termal bozunması incelendi. Bu amançla belirli miktarlarda azot atmosferinde ısıtılan polimer örnekleri 5, 10, 20 ve 30ºC/dk ısıtma hızlarında oda sıcaklığından 500ºC'ye kadar ölçülerek, TGA eğrilerinden, polimerin bozunma sıcaklıkları belirlendi. Farklı ısıtma hızlarındaki bozunma eğrilerinden yararlanarak, Flynn-Wall-Ozawa metoduna göre polimerin bozunmasına yönelik aktivasyon enerjileri belirlendi. Bu metoda göre aktivasyon enerjisinin tayininde %2 'den %60'a kadar olan ağırlık kaybı değerlerinden yararlanıldı [1]. Farklı dönüşümlerde tespit edilen 1000/T sıcaklık değerlerine karşı logβ değerleri grafiğe geçirildi. Elde edilen bir seri doğrunun eğiminden, her bir dönüşüm yüzdesine karşılık gelen aktivasyon enerji değeri ayrı ayrı hesaplandı. Bu değerler arasında polimer için ortalama aktivasyon enerji değeri 150,926 kJ/mol olarak hesaplandı. % 25 dönüşüme karşılık gelen aktivasyon enerji değeri; "148,812 kJ/mol" ortalama aktivasyon enerji değerine en yakın değere karşılık olduğu tespit edildi.



Şekil. Poli(Ɛ-CL-co-BMA)'nın farklı sıcaklıklarda TGA Spektrumları

Anahtar Kelimeler: İnorganik madde katkılı polimer, termal bozunma, termogravimetrik analiz, Flynn–Wall–Ozawa

[1].**Ma, S., Hill, J.O., Heng, S.,** 1991. A kinetic-analysis of the pyrolysis of some Australian coals by nonisothermal thermogravimetry, *J Therm Anal.*, 37, 1161-1177.

➢ **ORAL PRESENTATION**

[Ni(OCH3)(CH3OH)(C2H4N4)]Cl tek kristalinin yapı analizi

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Özet

Bu çalışmada, yeni metal organik [Ni(OCH_3)(CH_3OH)($C_2H_4N_4$)]Cl tek kristali sentezlendi. Kristale ait kırınım şiddet verileri tek kristal difraktometresi ile toplandı ve toplanan kırınım şiddet verileri SHELXS-2014 ve SHELXL-2008 bilgisayar programları ile çözülerek arıtıldı. Tek kristal monoklinik örgü yapısında olup P-21/c uzay grubundadır. Kristal yapının birim hücre parametreleri a=5.1692Å, b=11.9615Å, c=11.4317Å, α=90, β=101.796, γ=90'dir. Bu kristallere ait bağ açıları, bağ uzunlukları vb. yapısal özellikleri elde edildi. Elde edilen değerlerden bazıları; Ni1—N4 ve Ni1—N1 bağ uzunlukları sırasıyla 1.859(5) Å, 1.880(5) Å, N4—Ni1—N1 ve C1— N1— Ni1 bağ açıları ise 91.0(2)º, 128.1(5)º' dir. Ayrıca, bu kristalin FT-IR spektrumu incelenerek; simetrik-asimetrik gerilme pikleri ile burulma-sallanma pikleri gözlemlenmiştir.

Anahtar Kelimeler: Tek kristal, Yapı çözümü, SHELXS-2014, SHELXL-2008, FT-IR spekturumu.

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➢ **ORAL PRESENTATION**

Bakır (Cu) içerikli metal organik tek kristalin sentezlenmesi ve X-ışınları kırınımı yöntemi ile kristal yapısının analizi

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Özet

Bu çalışmada Dicyandiamide (C2H4N4) [Sigma Aldrich – Cas: 461-58-5] ligantı ile CuCl2.2H2O, reaksiyona sokularak orijinal bir metal organik tek kristal sentezlendi. Diklorobis (metoksidisiyandiamid) bakır (II) kristaline ait kırınım şiddet verileri X-Işını kırınımı yöntemi kullanılarak toplatıldı. Kristale ait kırınım şiddet verileri, SHELXS-2014 ve SHELXL-2008 programına girilerek kristalin yapısı çözüldü ve arıtıldı. Atomların koordinatları, hücre parametreleri, bağ uzunlukları, bağ açıları ve düzlemler arasındaki mesafeler hesaplandı. Ortorombik Pnma uzay grubuna ait CuCl2[C2H4N4].[CH3OH] kristalinin birim hücre parametreleri ile arıtım sonucunda elde edilen birim hücrenin açı ve hacim değerleri; a= 8.3151(7)Å, b=6.4235(5)Å, c= 15.3424(12)Å, α= 90°, β= 90°, γ=90°, V=819.47(11) (Å3) olarak bulundu. Elde edilen tek kristal, Cambridge Kristalografik Data Merkezi tarafından "CCDC 1852234" numarası ile uluslararası kayıt altına alındı.

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Anahtar Kelimeler: Kristal Yapı, Tek Kristal Sentezi, X-ışınları difraktometre, SHELXS-2014, SHELXL-2008.

➢ ORAL PRESENTATION

Ozonlama ile endüstriyel atık sulardaki koku bileşiklerinin giderimi: Spekülatif reaksiyon mekanizması ve muhtemel ara yolları

Musa Büyükada

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Özet

Hava kalitesi ve kirliliği anlamında koku kirliliğinin ilgili literatürde sıklıkla ele alınmasına rağmen, endüstriyel atık sulardaki koku kirliliğinin ilgili literatürde büyük bir boşluk olarak durması mevcut çalışmanın ana motivasyonunu teşkil etmiştir. Bu bağlamda yerel bir kanatlı kesimhanesi tesisine ait atık su arıtma ünitesinden alınan atık sulardaki koku bileşiklerinin hem kuantifikasyonu hem de ozonlama ile giderimi çalışmanın temel hedefleridir. Mevcut çalışmada atık su örneklerindeki koku bileşiklerinin %65'inin alkol- ve asit-bazlı olduğu tespit edilmiştir. Farklı işletme şartlarında, bu bileşiklerin %58 ile %63 aralığında giderimi ozonlamanın etkinliğini ortaya koyarken oluşan ürünler üzerinden de yüzeysel ve spekülatif reaksiyon mekanizmaları önerilmiştir.

Anahtar Kelimeler: Endüstriyel atık su, Ozonlama, Ampirik modelleme, Regresyon

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➢ **ORAL PRESENTATION**

Catalytic properties of Co-B / γ-Al_2O_3 catalyst for hydrogen generation by hydrolysis of $NaBH_4$

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Abstract

The supported cobalt-boride catalyst was synthesized for the hydrogen generation by hydrolysis of sodium borohydride. Impregnation and chemical reduction method was used to prepare the catalyst and γ-Al_2O_3 was used as a catalyst support material. The catalyst was characterized by XRF, FTIR and XPS analysis. Its catalytic activity was investigated. The influences of catalyst amount, $NaBH_4$ concentration, NaOH concentration and reaction temperature on to hydrolysis reaction of $NaBH_4$ were studied. Furthermore, the re-usability of Co–B/γ-Al_2O_3 catalyst and the kinetics of hydrolysis reaction of $NaBH_4$ were also investigated. The activation energy of reaction was calculated as 57.09 kJ mol^{-1}.

Keywords: Hydrogen generation, Co-B/γ-Al_2O_3, Catalyst, $NaBH_4$, Catalytic hydrolysis.
stability in alkaline $NaBH_4$ hydrolysis.

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➢ ORAL PRESENTATION

Production of new recipes to improve the resistance of glazes used in ceramic production to acid-acidic environments

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Abstract
The main purpose of this study is developing new recipes to increase the acidic strength of the commercial glaze material used in floor tile production. Glaze; It is a glassy structure that melts the surface of ceramic material as a thin layer. Improvements were made during and after the production process based on the glaze patterns of the "Bien" company. The glazes used for the production of ceramics, both visually and durable, were synthesized using recipes having different compositions. Properties of synthesized glazes are investigated with density, acid resistance, etc. characterization analysis methods. In addition, XRD, SEM and FT-IR analysis methods were used to determine the post-coating properties. According to the obtained characterization results, it was observed that the acid strength of the synthesized glazes was much better than the glazes of the "Bien" company. Moreover, the ceramic surface coating properties of the glazes have been significantly improved.
Keywords: Glaze, Floor tile, Acid resistance, Characterization, Bien ceramic

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➢ **ORAL PRESENTATION**

Structural and microstructural comparison of gadolinium oxide and cerium oxide for use as luminescence materials

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Abstract

Rare earth (RE) elements are essential components for a wide variety of applications, especially for high-tech products such as information systems, electrical and hybrid vehicles, and flat-screen monitors and digital medical devices. Gadolinium oxide (Gd_2O_3) and cerium oxide (CeO_2) materials are commonly used as luminescent materials in said application fields due to their photo-luminescence efficiencies. In this study, the photoluminescence efficiency of Gd_2O_3 and CeO_2 were compared. The sol-gel method is used in the production of these materials. Gadolinium (III) acetate hydrate ($Gd(CH_3CO_2)_3$ x H_2O) and cerium (III) acetylacetonate hydrate ($C_6(C_5H_7O_2)_3$ x H_2O,> 99%) were used as starting precursors. Distilled water was used to dissolve the precursors as a solvent. In general, the sol-gel process consists of three steps, hydrolysis, and gelation, drying, and heat treatment followed by condensation of alkoxylate or nitrate precursors. Sol-gel precursors chemically react with solvents present in solution. After each gelation, drying at 250 ° C was carried out for 30 minutes. The dried materials were treated with heat at 700 and 1000 °C for CeO_2 and Gd_2O_3 for 2 hours under an argon gas atmosphere, respectively. Temperature values were determined according to DTA-TG (Differential thermal analysis-thermal gravimetric) results. Define of phase analysis and lattice parameters, specify of chemical analysis and elemental analysis, determine of surface morphology and identify of optical properties of the produced materials were used XRD, XPS, SEM and PL device, respectively and the results were interpreted in detail.

Keywords: Rare earth elements, sol-gel, photo-luminescence.

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➢ **ORAL PRESENTATION**

Investigation of the surface characteristics and photocatalytic properties of TiO_2 layers by anodic oxidation

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Abstract

In this study, investigation of the surface characteristics and photocatalytic properties of TiO_2 layers by anodic oxidation with different anodization time were performed. The TiO_2 layers were formed on Ti6Al4V (Grade 23) alloy using electrochemical coating procedure. Anodization parameters such as electrolyte type, anodization time and anodization voltage have a great effect on surface properties and photocatalytic activities of the semiconductor oxides. The layers were obtained in 1 M H_2SO_4 electrolyte at 100 V of anodization voltage and in the range of 5-20 minutes of anodization time. The aim of this study is that the effect of the various anodization time on structural properties, surface morphology, and photocatalytic properties. Anodization time is determined as 5, 10, 15 and 20 minutes to compare the samples. Surface morphology, phase structure and photocatalytic properties of the TiO_2 layers were analyzed by scanning electron microscope, X-ray diffraction, and UV-vis spectroscopy, respectively. Photocatalytic performances of TiO_2 layers obtained with different anodization time were investigated via methylene blue aqueous solution. It was observed that the anodization time has a great effect on photocatalytic performances due to the formation of different structural properties and surface morphology. Moreover, further investigation determining the reaction kinetics of photocatalysis were carried out using the related equations. The results showed that the TiO_2 layers formed on Ti6Al4V alloy have porous structures with different pore sizes which implies that it causes the enhancing photocatalytic performances.

Keywords: Surface characteristics, photocatalysis, titanium dioxide, structural properties, anodic oxidation.

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➢ **ORAL PRESENTATION**

Synthesis and characterization of polyvinyl alcohol/calcium carbonate composite film

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Abstract

Calcium carbonate is widely used as a filler material both in plastics and in the pharmaceutical industry in recent years. In this study, the synthesis and characterization of calcium carbonate reinforced polyvinyl alcohol composite film is provided. The synthesized composite film was characterized by FTIR and UV-VIS spectroscopy, the properties of the film were determined by measuring pH and film thickness. Finally, the morphology of the composite film was analyzed by optical microscope. The results show that the polyvinyl alcohol/calcium carbonate composite film was successfully synthesized. According to the results of the optical microscope the calcium carbonate was homogenously dispersed into the film matrix.

Keywords: Composite films, calcium carbonate, polyvinyl alcohol.

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➢ **ORAL PRESENTATION**

Co-B / Diaion catalyst for $NaBH_4$ hydrolysis reaction for hydrogen generation

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Abstract

The current energy system based on fossil-fuels has been identified as the major cause of global climate change and local air pollution. Hydrogen for power have significant environmental advantages. Metal hydrides give a great opportunity to store hydrogen in solid state and also give an important safety advantage over the gas and liquid storage methods. But heavy weight of metal reduces the gravimetric storage capacity. However this problem is resolved in chemical hydrides due to light weight and high gravimetric hydrogen storage capacity. Among the chemical hydrides, sodium borohydride is potential candidate for pure hydrogen generation and storage due to its non-flammable and non-toxic nature, and high hydrogen storage capacity of % 10.8. The self-hydrolysis of sodium borohydride at room temperature is quite slow. Thus, the hydrolysis of $NaBH_4$ occurs only in the presence of suitable catalyst.

In this study, cobalt-boron / Diaion (Co-B/ Diaion) catalyst was prepared by impregnation and chemical reduction method. Diaion CRB 02 resing was used as a support material. The supported catalyst was tested in hydrolysis reaction of $NaBH_4$. The catalyst was characterized by XRF, FTIR and XPS analysis. The effects of catalyst amount, $NaBH_4$ concentration, NaOH concentration and reaction temperature on to hydrolysis reaction of $NaBH_4$ were investigated. The re-usability of Co–B/Diaion catalyst and the kinetics of hydrolysis reaction of $NaBH_4$ were also investigated. The activation energy of reaction was calculated as 48,9 kJ mol^{-1} and the reaction kinetics conformed to the zeroth order kinetic model.

Keywords: Co-B/ Diaion, Catalytic hydrolysis, $NaBH_4$, Hydrogen generation.

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➢ **ORAL PRESENTATION**

An alternative source of biodiesel based on tarragon *(Artemisia Dracunculus)*.

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Abstract

Kyrgyzstan, as an agrarian country, possesses the richest resources of annually renewable plant raw materials, which so far are not used appropriately. In addition to agricultural crops on the territory of the republic, wild-growing, weed plants grow on a large scale, which litter and reduce the yield of crops and grass stand of mountain pastures. One of the representatives is a wild-growing widespread, annually renewable weed plant Tarragon (*Artemisia Dracunculus L* - wormwood - estragon). The aim of the present study is to investigate the suitability of Tarragon biomass (total mass, stem part and kernels+leaves) as an alternative source for fuel production. Results of physicochemical composition showed that all parts of tarragon can be used as a raw material for cellulose (37.69-47.60%), lignin (29.52-31.37%), and hemicellulose (8.75-21.69%) production. Biomass of tarragon contains from 6.64 to 8.93% of pectin substances, which are of interest as sorbents with respect to heavy metal ions and radionuclides. Several extractants (hexane, kerosene and petroleum ether) were used for better extraction of oil from samples. The most effective extractants were hexane and kerosene, but due to the higher boiling point of kerosene it was difficult to distil it back. The highest content of lipids was extracted with hexane from kernels+leaves (15.7%) part, than that of total mass (12.8%) and stem part (0.98%) of tarragon. Isolated vegetable oil can be used as a biodiesel or as an additive (0.5%) to diesel fuels after transesterification. Transesterification of triglycerides carried out by two steps with concentrated H_2SO_4 (first stage) and KOH (second stage) as a catalysts. Density (0.838 and 0.827 g/cm^3) and viscosity (12.982 and 11.426 cP) were decreased after transesterification of oil into ester, respectively. Yield of esters were 92%, which show the high potential of kernels+leaves part of tarragon for biodeisel production.

Keywords: Biodiesel, Extractant, Tarragon, Transesterification.

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➢ **ORAL PRESENTATION**

Mathematical modelling of the *Mytilus edulis* dried by the method of oven

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Abstract

Mytilus edulis (blue mussel) is a healthy food that lives in rocky and earthy areas and can be consumed raw and cooked. In this study, mathematical modeling of the blue mussels, which were dried in the oven was investigated. Drying temperatures were selected as 60, 70 and 80 ºC. Several mathematical models were applied to the moisture content data. According to the drying results, the temperature increase leads to decrease in the drying times. The amount of moisture in the samples was 0.1986 kg H_2O/ kg dry matter at the beginning of the drying process, and decreased to 0.1496, 0.1650 and 0.1681 kg H_2O / kg dry matter, at the temperatures 60, 70 and 80 ºC, respectively. According to the mathematical modelling results, Jena, Logarithmic, Midilli, Parabolic and Two-Term Exponential models were had the highest suitability with the drying data. Among them, Midilli had the highest coefficient of regression (R^2) with the values of 0.999306, 0.999269 and 0.999585 for 60, 70, 80 ° C, respectively. The R^2 values were changed between 0.98 and 0.99 for the models of Jena, Logarithmic, Parabolic and Two-Term Exponential. On the other hand, Henderson R^2 values were found as 0.979172, 0.979894 and 0.985768 for 60, 70, 80 ° C, respectively.

Keywords: Drying, Midilli, modelling, Mytilus edulis, oven

Acknowledgement

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➢ **ORAL PRESENTATION**

Effective moisture diffusivity and activation energy of *Loligo vulgaris* dried by temperature controlled infrared drier

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Abstract

In this study, effective moisture diffusivity and activation energy of *Loligo vulgaris*, which was dried using infrared (IR) are studied. A thin-layer IR drying method are applied with the temperatures of 60, 70 and 80°C. According to the drying results, the increase in the temperature resulted in a decrease in the drying times. The moisture content in the samples was 3.8752 kg H_2O/ kg dry matter at the beginning of the drying process, and decreased to 3.0632, 3.2441 and 3.8751 kg H_2O / kg dry matter, and the drying times observed 277, 240 and 150 minutes at the temperatures of 60, 70 and 80 ºC, respectively. The effective moisture diffusivity values for *Loligo vulgaris* were calculated using Fick's second law and found to be $6.57x10^{-10}$, $7.95x10^{-10}$ and $1.35x10^{-9}$ at 60, 70 and 80°C, respectively. Using modified Arrhenius type equation the activation energy was found as 17.6903 kW/kg.

Keywords: Activation energy, drying, effective moisture diffusivity, IR, Loligo vulgaris

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➢ **ORAL PRESENTATION**

Preparation of SERS/SEF nanoparticles for DNA hybridization

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Abstract

In this study, after the PAVAL brushes with the carboxylic acid hanging group and covalently attached to the silicon nanowire were synthesized by the RCTP method, the IPV-specific DNA single strand (probe-ss DNA) was attached to the carboxylic acid groups. PAVAL-bound Si NTs must first bind to probe-ss DNA to recognize IPV o bind human papilloma virus (IPV) DNA onto functional surfaces. For this purpose, probe-ss DNA with one end amine functionality and the other end modified with Rhodamin 6G (Rh6G) was commercially purchased. For covalent binding of probe-ss DNA on PAVAL @ Si NT, the carboxylic acid groups were converted to N-hydroxysuccinimide (NHS) esters to increase the affinity of free carboxylic acid groups against amine groups. After connecting the probe single-stranded DNA (probe-ss DNA) onto the PAVAL-bound Si NT (PAVAL @ Si NT), Optimization studies were performed by on Surface Enhanced Raman Spectroscopy (SERS) and Surface Enhanced Fluorescence (SEF) microscopy. The probe-ss DNA binding conditions (initial concentration and adsorption time) were easily monitored by both fluorescence and SERS to obtain accurate and reproducible results in any prepared DNA sensor. In this context, the optimum binding conditions such as the initial concentration and the effect of the adsorption time were examined.

In the later stages of the study, the modification of nanoparticles with SERS / SEF properties will be carried out with the DNA-ss DNA. However, DNA hybridization will be carried out on silicon wire surfaces. and the analytical performance of the prepared sensor (limit of determination and observability, selectivity, stability, etc.) and the design of an IPV diagnosis with the sensor designed in blood equivalent to be purchased commercially.

Keywords: DNA Hybridization, nanoparticles, SERS, SEF

Acknowledgments

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➢ **ORAL PRESENTATION**

Synthesis and Characterization of poly(N-Acryloyl-L-Valine) on Silicon Nanowires

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Abstract

Polymer brushes can simply be defined as layers of terminated polymers in which the polymer chains are bonded to a solid surface (gold, glass, mica or colloidal particles). Depending on the preparation technique of the polymer brushes, the polymer brushes could be distributed on the surface at almost equal length and homogeneously. By virtue of this regularity and conformation, the type of polymers could be adjusted and, in particular by replacing the end groups, biocompatible, bioactive, hydrophobic-hydrophilic surfaces could be prepared. Therefore, polymer brushes have a wide range of use due to carrying the desired functional groups, their smart features and unique behaviour. In this study, N-acryloyl-L-valine (AVAL) was preferred as the monomer in the preparation of the polymer brush. The synthesis and characterization of N-acryloyl-L-valine monomer were firstly carried out. Then, silicon nanowires were prepared by metal-mediated chemical etching method (MACE) on silicon surfaces and the optimum conditions of the nanowire formation were determined. After the preparation of silicon nanowires (Si-NT), the 3-iodopropyl trimethoxysilane (IPTS) was first covalently bound to the nanowires prepared and poly (N-acryloyl-L-valine) brushes were synthesized by the surface initiated reversible chain transfer catalysed polymerization (SI-RCTP) method. Thus, a new biosensor has been prepared to diagnose human papillomavirus (IPV) which causes many cancers such as cervix, penis, vulva, vagina and orapharynx cancer by preparing polymer brushes on nanowires by RCTP method. In addition, the kinetic properties of the polymerization carried out in solution and on the surface were investigated in detail.

Keywords: Polymer brush, reversible chain transfer catalyzed polymerization, human papilloma virus

Acknowledgments

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➢ **ORAL PRESENTATION**

Graphene oxide with Ag@Au nanoparticles composite for methanol oxidation

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Abstract

In present report, various catalysts based on 2-aminoethanethiol functionalized graphene oxide (AETGO) with bi-metallic nanoparticles such as Ag@Au nanoparticles (Ag@Au NPs) were synthesized. The successful synthesis of nanomaterials and the prepared glassy carbon electrode (GCE) surfaces were confirmed by transmission electron microscope (TEM) and electrochemical impedance spectroscopy (EIS). The Ag@Au NPs/AETGO modified GCE also exhibited a higher peak current for methanol oxidation than those of comparable Au NPs/AETGO and Ag NPs/AETGO modified GCE, thus providing evidence for its higher electro-catalytic activity.

Keywords*:* Graphene oxide; Core-shell Nanoparticles; Fuel Cell

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➢ **ORAL PRESENTATION**

A New SPR Biosensor For Etodolac Detection in Real Samples

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Abstract

A novel and sensitive molecular imprinted surface plasmon resonance (SPR) biosensor was developed for selective determination of etodolac (ETO) in drug. Firstly, the gold surface of SPR chip was modified with allyl mercaptane. Then, ETO-imprinted poly(2-hydroxyethyl methacrylate - methacryloylamidoglutamic acid) [p(HEMA-MAGA)] film was generated on the gold surface modified with allyl mercaptane. The unmodified and imprinted surfaces were characterized by fourier transform infrared (FTIR) spectroscopy and atomic force microscopy (AFM). The linearity range and the detection limit were obtained as 0.005 – 1.0 ng/mL and 0.0015 ng/mL, respectively. The SPR biosensor was applied to determination of ETO in drug sample.

Keywords: Etodolac; Drug analysis; Biosensor; SPR

➢ **ORAL PRESENTATION**

Kopolimerlerin tuz stresi altındaki mısır bitkilerine etkisinin biyokimyasal olarak incelenmesi

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Özet

Dört farklı oranda sentezlenen ve biyobozunur özellik gösteren poli(etilen oksit)-ko-(ε-kaprolakton) [poli(EO-ko-ε-CL)] kopolimerinin tarımda olası uygulamalarını incelemek için mısır (Zea mays L. cv. "72 May 99") bitkilerinde büyüme analizi yapılmıştır. Bitkilere yalnız kopolimerler, yalnız 200 mM tuz (NaCl) çözeltisi ve hem kopolimerler hem de tuz çözeltisi birlikte uygulanmış ve kontrol grupları ile karşılaştırılmıştır. 21. günde, tüm bitkiler hasat edilmiştir ve analize kadar -80 ° C'de saklanmıştır. Kopolimerlerin ve tuzluluğun bitki gelişimine etkisini değerlendirmek için lipid peroksidasyonu, pigment ve toplam karbonhidrat gibi bazı biyokimyasal analizler yapılmıştır. İstatistiksel analiz SPSS 17.0 yazılım programı kullanılarak yapılmıştır ve sonuçlar birbirleriyle karşılaştırılmıştır. Bu sonuçlar, kopolimerlerin, klorofil içeriğinin yanı sıra lipid peroksidasyon içeriğinin bir ürünü olan malondialdehit (MDA)ve toplam karbonhidrat üzerinde olumlu bir etkisi olduğunu göstermiştir. Ayrıca bu kopolimerlerden poli (EO-ko-P-CL0.98), mısır bitkilerinin büyümesinde tuzluluğun zararlı etkilerinin önlenmesinde diğer kopolimerlerden daha etkili olmuştur. Çalışma sonucunda, incelenen tüm parametrelerin tuz stresinden olumsuz etkilendiği görülürken, kopolimer uygulamasının olumlu etki yarattığı görülmüştür.

Anahtar Kelimeler: Biyobozunur kopolimer, tuz stresi, mısır, MDA, klorofil

➢ **ORAL PRESENTATION**

Kopolimerlerin dielektrik sabitini artırmak için frekans, voltaj, grafen katkısının etkisi ve optimizasyonu

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Özet

Poli (Vinil pivalat–ko-Maleik anhidrit) kopolimerinin dielektrik sabitini (ε) optimize etmek için merkezi kompozit tasarımla (MKT) birleştirilmiş cevap yüzey yöntemi (CYY) kullanılmıştır. 3 değişken (frekans, uygulanan voltaj ve grafen miktarı) arasındaki etkileşim incelenmiş ve modellenmiştir. Sonuçların istatistiksel analizi varyans analizi (ANOVA) ile yapılmıştır. Deneysel sonuçlara göre, artan grafen miktarıyla birlikte dielektrik sabiti önemli ölçüde artarken, frekansın artmasıyla azalmıştır. Aksine uygulanan voltajın kopolimerin ε üzerine önemli bir etkisinin olmadığı görülmüştür. RSM ile tahmin edilen optimum değerlerin deneysel verilerle uyum içinde olduğu onaylanmıştır. Modelde maksimum dielektrik sabiti için optimum değerler bulunmuştur.

Anahtar Kelimeler: dielektrik sabiti, grafen, cevap yüzey yöntemi, kopolimer, ANOVA

➢ **ORAL PRESENTATION**

Dual type electrochromic device fabrication using donor-acceptor-donor type conjugated polymers

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Abstract

Electron Donor-Acceptor-Donor type conjugated polymers have been taking attention due to allowing molecular engineering. Combining donor and acceptor units in the same polymer backbone results in a significant decrease in the band gap, also changes the electrochemical and optical properties of the polymer depending on the donor-acceptor match. Moreover, these polymers can be good candidates for electrochromic device applications due to exhibiting different colours at neutral and oxidized states. In this study, two different 3,4-propylenedioxy based donor-acceptor-donor type polymers were electrochemically deposited on indium tin oxide (ITO) glass working electrode as thin films. The acceptor units were selected as N-ethylcarbazole and benzimidazole. These polymer films then were used as cathodically coloured materials for constructing a dual type electrochromic devices with poly(3,4-ethylenedioxythiophene). Electrochemical and optical properties of the resulting electrochromic devices were tested, compared and obtained results were discussed.

Keywords: Conjugated polymers, Electrochromic device, Donor-acceptor-donor approach.

➢ **ORAL PRESENTATION**

A fluorescent cation sensing study of fluorene based conjugated polymer

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Abstract

Electron Donor-Acceptor-Donor type conjugated polymers have been taking attention due to allowing molecular engineering. Combining donor and acceptor units in the same polymer backbone results in a significant decrease in the band gap, also changes the electrochemical and optical properties of the polymer depending on the donor-acceptor match. Moreover, these polymers can be good candidates for ion-sensing applications. In this study, a donor acceptor donor type polymer was chemically synthesized via Suzuki reaction. Acceptor unit is 4,5-Diaza-9,9'-spirobifluorene and donor unit is 2,2'-9,9-Dioctyl-9H-fluorene. Since the resulting polymer was soluble and fluorescent, tested for cation sensing. The fluorescence intensity of the polymer quenched in different levels for different cations in tetrahydrofuran solvent. Mercury(II) and Cadmium(II) ions resulted in more quenching when compared to other cations (Fe2+, Fe3+, Zn2+, Cu2+, Ni2+, Co3+, Mn). The obtained results will be shared and discussed.

Keywords: Ion sensing, fluorescence, conjugated polymers.

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➢ **ORAL PRESENTATION**

Investigation of the optical and electrochemical properties of 3,4-propylenedioxythiophene based electrochromic polymers

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Abstract

3,4-Propylenedioxythiophenes (ProDOTs) are the derivatives of thiophene circumventing aforementioned problems of thiophene such as high oxidation potential of monomer ("the polythiophene paradox"), non-regioregular polymeric product, low solubility of obtained polymer etc. These problems were partially solved with alkyl substituted thiophenes or 3,4-ethylenedioxythiophene and its derivatives before the synthesis of ProDOT, however, solubility of the obtained polymer cannot be properly disentangled by those groups. By the way of the synthesis of ProDOTs, it is possible to obtain not only soluble, but also regioregular, having high optical contrast, low oxidation potential and narrow band gap polymeric materials. This group or its derivatives have been used as a monomer or a fragment of a monomer such as the donor part of a donor-acceptor-donor system. In this study, it is aimed to utilize the synergy between ProDOT and indolocarbazole, thiadiazoloquinoxaline or bisthiadiazole groups due to the distinguished properties of ProDOT mentioned above. For this aim, donor-acceptor-donor type monomers were synthesized and polymerized, and then optical and electrochemical properties of the obtained polymers were investigated.

Keywords: 3,4-propylenedioxythiophene; indolocarbazole; thiadiazoloquinoxaline; bisthiadiazole.

* We wish to express our thanks to the Scientific and Technical Research Council of Turkey (TUBITAK-115Z480 and TUBITAK-214Z306) for their financial support.

➢ ORAL PRESENTATION

H2- reseptör antogonisterinden famoditin, nizatinin ve raniditinin hidrolitik, oksidatif, termal ve fotolitik stres koşulları altında bozunma davranışının HPLC ile değerlendirilmesi

Bediha Akmeşe

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Özet

İlaçlarda zorunlu bozunma çalışmaları, kirlilik profilini ve çeşitli stres koşulları altında ilaç maddesinin davranışını verir. Bozunma ürünleri terapötik etkinliği bozabilir ve hastalarda toksik veya beklenmedik ciddi yan etkilere neden olabilir. Bu çalışmada; gastro-özofageal, reflü, mide ve onikiparmak bağırsağı ülseri tedavilerinde kullanılan H2-reseptör antogonisterinden famotidin, nizatidin ve ranitidinin çeşitli stres koşulları altında bozunma davranışları incelenmiştir. Bu ilaçlar hidrolitik, oksidatif, termal ve fotolitik koşullara maruz bırakılarak, gösterdikleri davranışlar kromatografik olarak belirlenmiştir.

Anahtar Kelimeler: H2-reseptör antogonist, Famotidin, Nizatidin, Raniditin, HPLC, Bozunma çalışmaları

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➢ **ORAL PRESENTATION**

Ab-initio study of ıntermetallic BaZn in B2 structure for elastic and thermodynamic properties under pressure

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Abstract

Recently, new intermetallic materials which have suitable for several applications particularly at high pressure and high temperature have been studied to develop the technology. These materials are used in both theoretical and experimental applications as structural ceramics and classical metallic alloys. Intermetallic components attract the attention of researchers due to their superior mechanical and physical properties such as thermal stability, good ductility, high tensile strength and high corrosion resistance. Intermetallic BaZn compound crystallizes in B2 structure. Here, structural, elastic and thermodynamic properties of the BaZn have been studied by first-principles method based on Generalized Gardient Approximation (GGA) using VASP program. For these purpose, the temperature and pressure-dependent behaviour of the volume, bulk modulus, heat capacity, thermal expansion coefficient, Grüneisen parameter, enthalpy and Debye temperature are investigated in wide pressure and temperature range. The results on the basic mechanical and structural parameters, such as the lattice constant, Young's modulus, Zener anisotropy factor, bulk modulus, isotropic shear modulus and Poisson's ratio are also evaluated. The obtained results are compared with available experimental and other theoretical values.

Keywords: B2 structure, BaZn, Thermodynamic Properties

➢ **ORAL PRESENTATION**

Structural, elastic, electronic and vibrational properties of CdSr compound: First-principles study pressure

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Abstract

Early, cadmium element was often used to electroplate steel and protect it from corrosion. Nowadays, It is still used to protect critical components of aeroplanes and oil platforms. Cadmium coatings are particularly useful in the automotive, aerospace, offshore, mining, electrical, electronic, and defence industries where they are applied to bolts and other connectors, chassis, fasteners and other components. Strontium is a trace mineral found naturally in your body. Although strontium is often overlooked, it's incredibly beneficial to your bones and is an important factor in your overall bone health. There are no any theoretical study of elastic, electronic and vibrational properties of intermetallic compound CdSr in B2 structure up to now. In this study, our aim is to fill deficiency in the literature about physical properties of this compound. We have computed structural and elastic constants, electronic band structure and density of states and phonon frequencies based on density functional theory using VASP program. Obtained results show that this compound stable both mechanically and dynamically.

Keywords: B2 structure, CdSr, Elastic Properties

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➢ **ORAL PRESENTATION**

Valorization of clover stalk and polyvinyl chloride wastes via in co-pyrolysis using thermogravimetric analysis

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Abstract

In this study, the pyrolytic degradation mechanism of clover stalk (CS) and its blend with waste polyvinyl chloride (PVC) were investigated. Clover stalk and polyvinyl chloride wastes were determined by experiments done in 0:1, 1:1 and 1:0 blending ratio intervals. Pyrolysis process was conducted with a heating rate of 10°C/min from room temperature to 1000°C in nitrogen atmosphere with 100 cm^3/min flow rate by thermogravimetric analyzer. After pyrolysis experiments, with the obtained TG data kinetic equations among pyrolysis process were derived, decomposition temperatures and thermal behaviors of mixtures were determined. To elaborate kinetic analysis and to determine kinetic parameters, Arrhenius and Coats Redfern methods was used. After co-pyrolysis experiments in TGA, raw materials were also pyrolzed in fixed bed reactor in order to obtain solid, liquid and gas products in nitrogen atmosphere with 100 cm^3/min flow rate from room temperature to 550ºC. Pyrolysis products were characterized by using FT-IR, GC-MS, elemental characterization techniques.

Keywords: Co-pyrolysis, biomass, clover stalk, polyvinylchloride, kinetic, thermogravimetric analysis.

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➢ **ORAL PRESENTATION**

Synthesis of nano CaO-based sorbents from calcined eggshell

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Abstract

In recent years, cheap natural sorbents have been preferred for removal of harmful chemicals and gases. Eggshell contains around 85-95 % calcium carbonate and this is very important in their use as a sorbent. On the other hand, it is known that it is an efficient, cheap, safe and environmentally friendly sorbent. Many egg types are widely used in many sectors such as food and cosmetics and the eggshells from these sectors generate serious waste, and their recovery is important economically. In present study, the eggshell samples were collected from household eggshell waste. Firstly, eggshell samples were rinsed several times with deionized water and then the samples were allowed to air at 105 °C for 24 hours and the dried eggshells were crushed. The calcined eggshell was obtained by calcination of the eggshell at 800 ° C for 4 hours and then prepared calcium oxide sample was modified with Pluronic 123 and polyethylene glycol. In the syntheses, 1 g calcined eggshell was dissolved in 15 mL distilled water and then 1 g Pluronic 123 or polyethylene glycol was added to solution. The solution was stirred at room temperature for 1 hours. The resulting solid was poured to petri dishes and dried at room temperature. Synthesized sorbents were characterized by used the scanning electron microscopy (SEM) and Fourier transforms infrared (FTIR) analysis techniques. Analysis results showed that CaO based nano sorbents were successfully synthesized using different modifier.

Keywords: Eggshell, CaO, modification, sorbent

➢ **ORAL PRESENTATION**

Design of biogas system with ındustrial symbiosis thematic area for clean energy

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Abstract

Development of new generation domestic biogas reactor production with industrial symbiosis thematic and burning techniques. New generation domestic biogas producer with 10 m^3 / day capacity obtained from anaerobic fermentation of organic materials is burned in a conventional combustion system. Combustion system is developed and a domestic software is developed to control methane generation (%) of bacteria in the biogas generator. It is aimed to disseminate alternative uses of biogas, which can contribute to the national economy, especially in rural areas. This combustion system is used in rural areas where abundance of biomass is abundant and is enabled the progress of the country on the incineration technologies and the incineration of the gaseous fuels even in places where the incineration systems is accelerated the harmony and never reach the natural gas.

Keywords: Clean energy, biogas, biogas reactor, anaerobic fermentation, Industrial symbiosis

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➢ **ORAL PRESENTATION**

Humidifier design to absorb H_20 content in biogas fuels

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Abstract

In this study, a dehumidifier design has been made to remove H_20 content from biogas fuels. H_20 content is an important parameter for biogas combustion characteristics. The moisture-holder is designed to minimize the effect of H_2O content in the biogas due to its effect on combustion chamber temperatures. Another important feature of the moisture holder design for eliminating H_20 content in the biogas content is its effect on minimizing the amount of greenhouse gas produced by combustion. This study is carried out to make a moisture holder design for biogas systems in order to combustion efficiency and environment.

Keywords: Biogas systems, humidity, humidity holder, hydrogen sulfide, H_2O content

➢ **ORAL PRESENTATION**

PBO (1,4 fenilen bisoksazolin) uyumlaştırıcısının indirgenmiş grafen oksit takviyeli poli(etilen teraftalat)/poli(bütilen teraftalat) kompozitlerinin özelliklerine etkisinin incelenmesi

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Özet

İki veya daha fazla polimerin yüksek performanslı uygulamalar için harmanlanması, istenen özelliklere sahip yeni malzemeler elde etmek için yararlı bir yöntemdir. Poli (etilen teraftalat) (PET) ve poli (bütilen teraftalat) (PBT), çeşitli mühendislik uygulamalarında kullanılan ticari termoplastik polyesterlerdir. PET, yüksek ısıl eğilme sıcaklığı, sertliği ve ekonomik olması ile dikkat çekmektedir. Ambalaj ve otomotiv gibi sektörlerde kalıplanmış ürün eldesinde kullanılmaktadır. Bununla birlikte, yavaş kristallenme hızı ve düşük erime dayanımından dolayı PET'in işlenmesi zordur. PBT ise iyi işlenebilirliği, kalıplanabilirliği ve yüksek kristalleşme hızı nedeniyle enjeksiyonlu kalıplama uygulamalarında önemli bir polimerdir. PET ve PBT'nin harmanlanması, birbirlerinin eksikliklerinin giderilmesinde etkili bir yöntemdir [1,2]. Amorf fazda uyumlu olan PET/PBT karışımının nispeten düşük mekanik özellikleri, kırılganlığı ve yalıtkan olması kullanım alanlarını sınırlandırmaktadır. Bu özellikleri iyileştirmek için yapıya indirgenmiş grafen oksit (rGO) gibi nano dolgu maddeleri eklenebilir. Grafen, polimer kompozitlerin mekanik, elektriksel ve termal özelliklerini düşük yükleme oranlarında bile artırabilen potansiyel bir nano dolgu maddesidir. Polimerik kompozitlerin son özellikleri, matris ve takviye malzemesinin özelliklerinin yanında matris ve takviye fazı arasındaki arayüzey etkileşimlerinden de önemli ölçüde etkilenmektedir. Arayüzey etkileşimini arttırmak için kullanılan farklı yöntemler arasından yapıya bir uyumlaştırıcı ilavesi basit, ekonomik ve güvenilir bir yöntemdir [3,4]. Uyumlaştırıcılar, polimer ve takviye ile bağ kurabilecek şekilde seçilen bifonksiyonel kimyasallardır. Bu çalışmada, uyumlaştırıcı olarak 1,4 fenilen bisoksazolin (PBO) seçilmiştir. Kompozitlerin hazırlanmasında çift vidalı ekstruder ve enjeksiyon kalıplama yöntemi kullanılmıştır. 70PET/30PBT karışımına %1 oranında rGO ve dört farklı oranda (% 0.5, 1.0, 2.0, 4.0) PBO eklenmiştir. Kompozitlerin karakterizasyonu, diferansiyel taramalı kalorimetre, termogravimetrik analiz, çekme testi, dinamik mekanik analiz, termal iletkenlik ve taramalı elektron mikroskobu ile yapılmıştır. Termal test sonuçları, kompozitlerin termal özelliklerinde önemli bir değişiklik olmadığını göstermiştir. Çekme testi sonuçlarına göre en yüksek çekme dayanımı değeri % 4.0 PBO içeren kompozitte gözlenmiştir.

Anahtar Kelimeler: Poli(etilen teraftalat), Poli(bütilen teraftalat), İndirgenmiş grafen oksit, Uyumlaştırma

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➢ **ORAL PRESENTATION**

Sodyum kazeinat/poli (vinil alkol) filmleri: Farklı çapraz bağlayıcıların etkilerinin incelenmesi

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Özet

Sodyum Kazeinat (NaCAS), süt proteini kazeinin asitle çöktürülmesiyle elde edilen, suda çözünebilen bir polimerdir. NaCAS filmleri genellikle şeffaflık, iyi film oluşturma ve yüksek gaz bariyer özellikleri sunmaktadır. Bu özellikler NaCAS'ı ambalajlama, yenilebilir ve koruyucu film gibi uygulamalar için geleneksel sentetik polimerlerin yerine kullanılabilen ilginç bir hammadde haline getirir. NaCAS filmlerinin birçok üstünlüğünün yanında zayıf mekanik özellikleri ve yüksek nem hassasiyeti dezavantaj oluşturmaktadır. Bu dezavantajlarının üstesinden gelmek için proteinler, farklı polimerler, plastikleştiriciler ve çapraz bağlayıcılar (ÇB) ile karıştırılabilirler [1,2]. Poli (vinil alkol) (PVA), suda çözünebilen sentetik vinil polimeridir ve enzimler ya da mikroorganizmalar ile biyobozunmaya elverişlidir. Bu sayede proteinlerle karıştırılarak biyobozunur bir malzeme elde edilebilir. Böylece proteinlerin mekanik/bariyer özelliklerini karışımla geliştirilmesi beklenir. Aynı zamanda, çapraz bağlama işlemi de geliştirilmiş özelliklere sahip NaCAS filmlerinin elde edilmesi için PVA harmanlama ile birleştirilebilir. Çapraz bağlama sonucu oluşacak ağ yapısı ile filmin mekanik ve bariyer özellikleri daha da iyileştirilmiş olur. PVA-NaCAS filmleri kimyasal olarak glutaraldehit (GLA), borik asit (BA) ve tannik asit (TA) ile çapraz bağlanabilir [1-4]. Bu çalışmada PVA-NaCAS-çapraz bağlayıcı filmleri çözeltiden dökme yöntemi ile hazırlanmış ve üç farklı çapraz bağlama ajanının yükleme oranlarının etkileri incelenmiştir. Kütlece %6'lık olarak ayrı ayrı hazırlanan PVA ve NaCAS çözeltileri hacimce 70:30 bileşiminde karıştırılmıştır. Ardından karışıma kütlece %0.5 - 1.0 oranlarında TA, BA ve GLA ilave edilmiştir. Çözeltiler petri kaplarına dökülüp oda sıcaklığında kurutularak filmler elde edilmiştir. Filmlerin karakterizasyonu, termogravimetrik analiz, temas açısı ölçümü, fourier dönüşümü kızılötesi analizi ve çekme testi ile gerçekleştirilmiştir. Çekme testi sonuçları, artan ÇB oranının kopmada uzama değerini azaltırken çekme dayanımını arttırdığını göstermiştir. Ayrıca temas açısı ölçümleri sonucu, ÇB içeren filmlerin genel olarak daha fazla hidrofobik karakter sergiledikleri görülmüştür.

Anahtar Kelimeler: Sodyum Kazeinat, Poli (vinil alkol), Çapraz bağlama

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➢ **ORAL PRESENTATION**

Fonksiyonelleştirilmiş MWCNT katkılı PC/PLA kompozitlerinin karakterizasyonu

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Özet

Poli(laktik asit) (PLA), mukavemet değeri, sertliği, gaz geçirgenliği gibi birçok özelliğinden dolayı biyobozunur polimerler arasında en fazla tercih edilen polimerlerden biridir. Endüstri için iyi özelliklerinin yanı sıra düşük ısıl kararlılığı ve tokluğu onun birçok alanda kullanımı sınırlandırmaktadır. Isıl kararlılığı ve tokluğunun arttırılması için kullanılan yöntemlerden biri polimerlerle karışım halinde kullanılmasıdır. Bu çalışmada polikarbonat (PC), PLA ile karıştırılarak PC/PLA karışımı oluşturulmuştur. PC, yüksek mekanik özellikler, yüksek termal dayanıklılık ve gelişmiş tokluk özellikleri ile birçok alanda kullanılmaktadır. Özellikle otomotiv sektöründe tercih edilmektedir. PC'ın, PLA ile karıştırılması ona kısmi olarak biyobozunurluk özelliği de kazandırmaktadır. Literatürde, bu iki polimer karışımının özelliklerini iyileştirmek için bazı katkı maddeleri ile takviye edildiği çalışmalarda bulunmaktadır. Bu katkılar çok düşük yüzdelerde olsalar bile karışıma çok iyi özellikler sağlamaktadırlar. Çok duvarlı karbon nanotüpler (MWCNT), yüksek elektrik, mekanik ve termal özellikleri ile polimerlere farklı özellikler kazandıran nano katkılardır. MWCNT'lerin matris içinde iyi dispersiyonu polimer karışımının birçok özelliğini geliştirmede etkili parametrelerin en önemlisidir. Bu çalışma kapsamında matris olarak 70PC-30 PLA seçilerek modifiye edilmiş MWCNT ilave edilerek nanokompozitler üretilmiştir. Daha sonra, PC/PLA karışımını ısıl, mekanik ve iletkenlik özelliklerindeki değişimler incelenmiştir. Kontrol numunesi olarak 70/30 oranında PC/PLA karışımı seçilmiştir. Dört farklı yükleme oranında (%0.5-1-3-5) çalışılmıştır. Malzemeler laboratuvar ölçekli çift vidalı mini ekstruderde 260 ºC'de 100 rpm vida dönme hızında eriyik haline getirilmiştir. Ekstruderden alınan eriyik enjeksiyon kalıplama cihazında kalıplanmıştır. Hazırlanan numunelerin karakterizasyonları için termal gravimetrik analiz (TGA), diferansiyel taramalı kalorimetre (DSC), çekme testi ve iletkenlik ölçüm yöntemleri kullanılmıştır. Elde edilen termal iletkenlik ölçümleri sonucunda karbon nanotüp ilavesinin iletkenlik değerlerini arttırdığı saptanmıştır. Isıl kararlılığa da olumlu etkileri görülmüştür.

Anahtar Kelimeler: nanokompozit, iletkenlik, poli(laktik asit), polikarbonat, karbon nanotüp

Teşekkür: Bu çalışma Kocaeli Üniversitesi, Bilimsel Araştırma Projeleri Koordinasyon Birimi (BAP) tarafından desteklenmiştir (2019/038).

➢ **ORAL PRESENTATION**

Preparation of silica-sols and anti-reflective silica films-parameters affecting the sol synthesis and film coating

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Abstract

Clean and sustainable energy studies have become increasingly widespread in recent years. They have also increased the importance of material studies such as anti-reflective, self-cleaning and hydrophobic coatings to be developed in these areas. Anti-reflective coatings (ARCs) reduce the reflection of light and increase its permeability through the surface.

Silica has tunable refractive index so it is suitable for the fabrication of ARC. In this study, silica nanoparticles are synthesized by using sol-gel method with the help of the aqueous polymeric solutions. Mono- and co-polymers of poly acrylic acid (PAA) and carboxy methyl cellulose (CMC) were used. Tetraethyl ortho silicate (TEOS) is used as silica source in the study. The aim of the usage of aqueous polymeric solutions is to form template for synthesis of silica nanoparticles. They are located at the surface of the spherical templates by this way the transmittance of the coating is increased.

Silica sol was prepared at different PAA/TEOS ratios and stirring rates. Dip coating technique was used and effects of different withdrawal speeds (100 and 150 mm/min) and number of coating layers (1 or 2 layers) were investigated. The fabricated coatings were characterized by scanning electron microscopy (SEM) for the surface morphology and thicknesses of the layers, X-ray diffractometer (XRD) for crystal structure, Fourier transform infrared spectrophotometer (FTIR) for chemical bond structure and UV-visible spectrophotometer including the integrated sphere for the transmittance of the coatings.

In this study, coatings having high anti-reflective and homogeneous surface properties were fabricated.

Keywords: silica, polymer, anti-reflective, sol-gel, template, film coating.

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➢ **ORAL PRESENTATION**

The highly branched conducting polymer architecture for biosensor applications

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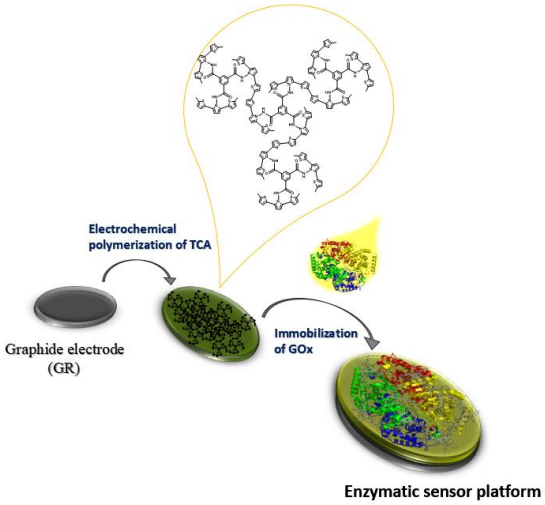
Abstract

The evolution of electrochemical biosensors reflects a simplification and enhancement of the transduction pathway. The use of novel conducting polymers in the preparation of sensor platforms has become increasingly studied and imparts many advantages. The sensitivity and overall performance of enzymatic biosensors has improved tremendously as a result of incorporating functional group containing conducting polymers into their fabrication.

Hereby, an efficient surface design was investigated by modifying the graphite rod electrode surfaces with conducting polymer displaying functional groups for the immobilization of biomolecules. A model enzyme, glucose oxidase, was efficiently immobilized to the modified surfaces via covalent binding. The biosensor was characterized in terms of its storage and operational stability and kinetic parameters. The designed sensor platform revealed excellent stability and promising kinetic parameters compared with the literature. Finally, the sensor platform was tested on beverages for glucose detection.



Scheme: Schematic illustration of conducting polymer based enzymatic biosensor platform

Keywords: conducting polymer, biosensor, advanced materials

➢ **ORAL PRESENTATION**

Yüksek kaliteli kömürün Hummers yöntemi ile oksidasyonu

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Özet

Dünya genelinde 323,6 milyar tona yakın miktarda kömür rezervlerinin olduğu bilinmektedir. Kömürün birçok kullanım alanının yanında nano teknolojik alanda da kullanılabilmesi için çalışmalar yapılmaktadır. Bu çalışmada hem kömürün katma değerini artırmak hem de grafen oksit sentezinde grafitin yüksek maliyetinden kaçınmak için karbon kaynağı olarak kullanılması amaçlanmıştır. Bu amaçla, çalışmada grafit yerine kömürün kullanılmış ve Hummers metoduyla okside edilmiştir. Üretilen okside kömürün karakterizasyonu Fourier Dönüşümlü Kızılötesi Spektroskopisi (FT-IR), Taramalı Elektron Mikroskobu (*SEM*) ve *Raman* spektrometresi ile gerçekleştirildi. Okside edilen kömür ve grafit benzer karakteristik özellikler gösterdi.

Anahtar Kelimeler: Kömür oksidasyonu, Kömür, Grafen oksit, Hummers Method.

➢ **ORAL PRESENTATION**

Heterotrof ve miksotrof koşulların *Chlorella variabilis* türü mikroalgin yağ birikimine etkisi

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Özet

Mikroalgler diğer mikroorganizmalardan daha yüksek miktarda yağ içermektedir. Bu nedenle biyodizel üretimi için hammadde kaynağı olarak kullanılmasına yönelik çalışmalar son yıllarda artmıştır. Enerji maliyetlerini düşürmek ve endüstriyel uygulamalar için mikroalglerin daha yüksek oranda yağ biriktirmesine izin veren uygun büyüme ve üretim koşulları altında bir fermentör ile kontrol edilen heterotrofik kültürler geliştirilmektedir. Bu çalışmada heterotrof ve miksotrof koşullarda yetiştirilen *Chlorella variabilis* türü mikroalgin yağ içeriği ve yağ asidi bileşimi incelenmiştir. Mikroalgler 100 ml erlenlerde kültüre alınmışlardır. Heterotrof koşullar için besi ortamlarına karbon kaynağı olarak 0, 2, 5 gr/L derişimlerde saf gliserol eklenmiştir. Miksotrof koşullar ise aynı şartlardaki kültür ortamının 4 Klüks ışık şidddeti kullanılarak sürekli aydınlatılmasıyla sağlanmıştır. Heterotrof koşullarda, 28 günlük kültür sonucunda, en yüksek mikroorganizma derişimi ($X_{max,}$1 g/L), büyüme hızı (μ_{max},0,0085 h^{-1}) ve yağ verimliliği (7,14x10^{-3} g/Lgün) 5 g/L gliserol bulunan kültürde elde edilmiştir. Ayrıca besin ortamında bulunan karbon kaynağı miktarı arttıkça yağ asitlerinin yüksek molekül ağırlıklı asitlere doğru gelişme gösterdiği ve buna bağlı olarak ortalama molekül ağırlığının da arttığı belirlenmiştir.

Anahtar Kelimeler: Mikroalg yağı, *Chlorella*, heterotrof, miksotrof, microalgae, gliserol

➢ **ORAL PRESENTATION**

Statistical approach to experimental design in the synthesis of polyol ester from fatty acid methyl esters by using lipozyme TL IM catalyst

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Abstract

Recently, the synthesis of biolubricants has been the focus of attention of researchers due to their good lubricating properties. Biolubricants are an alternative to mineral-based oils and other synthetic-based lubricants with low toxicity, high viscosity index and fast biodegradability. It is also advantageous that they are environmentally friendly. In this study, the parameters affecting the transesterification reaction between edible waste oil methyl esters (WOME) and trimethylolpropane (TMP) by using Response surface methodology (RSM) have been statistically analyzed and optimized for high polyol ester conversion. Different levels were determined by selecting the reaction parameters, temperature (35-55 ° C), amount of catalyst (0-10% by weight), WOME / TMP molar ratio (6: 1-3: 1) and reaction time (0-96 hours). and the design model is defined. The reactions were carried out in an agitated incubator at a speed of 500 rpm in 25 ml open flasks. The highest ester (86%) conversion was determined as a result of the model and 89% ester conversion was obtained in the validation test. It is also expected that the triester content of the polyol esters obtained will be high. In the presence of Lipozyme TL IM, only 89% of the TMP diester was obtained for this reaction. The reaction time and the amount of the enzyme are the most important factors affecting the total ester conversion.

Keywords: biodiesel, biolubricant, lipase, response surface methodology, trimethylolpropane ester

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➢ **ORAL PRESENTATION**

Modified halloysite nanotube-PCL/PEO composite fibers: Preparation, characterization, and drug release profiles

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Abstract

Nowadays, nano/micro-fibers obtained using biopolymers are widely used in drug delivery systems, tissue scaffolds, and wound dressings applications. There are many drug delivery systems that used nano/micro-fibers having higher porosity, surface area, greater flexibility, and mechanical properties prevent initial burst release. Biodegradable nanofibers used in the drug delivery system can be from natural (e.g. collagen, gelatin, chitosan, and elastin) or synthetic polymers (e.g. polycaprolactone, polylactic acid, polyethylene glycol, or polyvinyl alcohol) or their blends. Polycaprolactone (PCL) and polyethylene oxide (PEO) are a synthetic, biodegradable, biocompatible, semi-crystalline, non-cytotoxic, and highly desirable material for biomedical applications [1,2]. Recently, halloysite nanotubes (HNTs) a two-layered aluminosilicate have attracted increasing interest as an inorganic filler and reinforcement materials for polymers [3]. Due to having a nontoxic property and low cost, HNTs and their composites have been studied for biomedical applications such as bone cement, tissue engineering, drug delivery, and enzyme immobilization, among others [4,5]. In this regard, the aim of this study is to design drug carrier fibers that performed controlled release and to examine drug release properties. For this purpose, Curcumin-loaded fibers were prepared by electrospinning method using PCL, PEO polymers and pure or modified halloysite (HNT), and drug release profiles were examined by using UV-Vis spectrophotometry. Moreover, morphological and physicochemical properties of the prepared composite fibers were characterized by scanning electron microscopy (SEM), Fourier transform infrared spectroscopy (FTIR), Atomic force microscopy (AFM). Besides, *in vitro* cell cytotoxicity of composite fibers was investigated on the human breast cancer cell line (MCF-7).

Keywords: Curcumin, drug delivery systems, halloysite nanotube, polycaprolactone, electrospinning.

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➢ **ORAL PRESENTATION**

Microencapsulation of n-eicosane by nano clay particles doped chitosan/sodium alginate wall for lateht heat storage

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Abstract

In this study, microencapsulated phase change material (PCM) was prepared by complex coacervation method. In the study, n-eicosane which was a linear long chain hydrocarbon was used as PCM and chitosan and sodium alginate polymers were used to form wall of the microcapsules. Nano clay was doped to microcapsule wall structure during microencapsulation process. In the microencapsulation process by complex coacervation method, two oppositely charged polymer solutions was mixed. The pH of the mixture was set to 4 to form the polymer complex structure around the core material emulsified in the mixture. In this study, the mixture solution comprised a chitosan polymer solution of 2.5% (w/v) as polycation solution and a sodium alginate solution of 2.5 % (w/v) as polyanion solution. Different from the conventional complex coacervation process, in the study, clay nanoparticles were added in polyanion polymer solutions. Thus, it was aimed that nano particles added in polyanion polymer solution form complex with polycation polymer molecules because of their negative charge. The morphology, chemical structure and thermal properties of the microcapsules were investigated. According to the FT-IR analysis, microencapsulated n-eicosane with chitosan/sodium alginate/nano clay wall was fabricated successfully. DSC analysis results showed that microcapsules containing nano clay in their wall absorbed the latent heat of from 69 j/g to 80 j/g. On the other hand, microcapsules having no nano clay absorbed 68 j/g latent heat. Besides, the increasing amount of the doped nano clay from 1.2 grams to 2 grams, caused to increase the enthalpy values from 69 j/g to 80 j/g as well as melting points of the microcapsules increased. The presence of clay nano particles in the structure of microcapsules was confirmed by energy dispersive X-ray microanalysis (SEM-EDX) and X-ray photoelectron spectroscopy.

Keywords: PCMs, n-eicosane, microcapsules, nanoclay, entalpy, latent heat.

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➢ **ORAL PRESENTATION**

Catalytic activity comparisons of Y and Y-Fe based catalysts for H_2S selective oxidation to elemental sulfur

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Abstract

Toxic H_2S gas is converted to elemental sulfur by selective catalytic oxidation reaction ($H_2S+1/2O_2 \rightarrow S+H_2O$) with high yield. To obtain high yield, active, stable and selective catalysts should be developed using in this reaction. Metal oxides such as iron, vanadium, ceria, titanium oxides were mostly used as catalyst in H_2S selective oxidation reaction [1-3]. In this study, yttrium (Y100) and equimolar yttrium-iron (Y50Fe50) catalysts were synthesized by complexation method. In order to determine the effect of the support material on catalytic activity, commercial alumina supported catalysts containing 10% by weight Y ($Y100@Al_2O_3$) and Y50Fe50 ($Y50Fe50@Al_2O_3$) were prepared by wet impregnation method. The synthesized catalysts were characterized by using N_2 adsorption-desorption, XRD, SEM-EDS and TPR analyses. Y_2O_3 crystalline phase was observed in the XRD pattern of Y100 catalyst while both amorphous and $Y_3Fe_5O_{12}$ complex compound was detected in the XRD pattern of Y50Fe50 catalyst. Alumina supported catalysts showed mainly γ-alumina crystalline phase. TPR analysis showed that iron addition to the catalyst structure improved the redox ability of the catalyst. Catalytic activity tests were performed in a fixed-bed flow reactor at 250°C using feed stream containing stoichiometric ratio of O_2/H_2S. Y100 showed the lowest H_2S conversion (9%) among the synthesized catalysts. 61% H_2S conversion was obtained with iron incorporated Y50Fe50 catalyst. Alumina supported catalysts showed higher activity than those without alumina supported. 66% and 72% H_2S conversions were obtained with $Y100@Al_2O_3$ and $Y50Fe50@Al_2O_3$, respectively. Complete sulfur selectivity was achieved with all catalysts in the given experimental conditions.

Keywords: H_2S Removal, Selective Oxidation, Y-Fe Catalyst, Alumina

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➢ **ORAL PRESENTATION**

Fabrication of polyethylene glycol–grafted polyacrylonitrile solid-solid phase change nanofibers

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Abstract

In this study, it was aimed to produce latent heat storing polyacrylonitrile nanofiber to be used as solid-solid phase change material. Nowadays, phase change materials, which storage and release a large capacity latent heat during their phase change from one physical state to another, have attracted extensive interest. Solid-liquid PCMs have been used as thermal energy storage materials in different fields such as solar energy storage, construction and textile sectors. They have been encapsulated in a shell structure to overcome their some disadvantage such as the leakage, subcooling, low thermal conductivity, reactivity toward the outside environment, and flammability. Recently, the electrospinning technique has been utilized to encapsulate PCMs in a supporting polymer matric in order to produce shape-stable phase change nanofibers [1,2]. In this study, polyethylene glycol (PEG) polymers used as solid-liquid PCM were grafted on nanofibers chemically to produce solid-solid PCM nanofibers. In the study, polyacrylonitrile (PAN) nanofibers were produced by a needle electrospinning method. Polyethylene glycol polymers with different molecular weight were grafted on PAN nanofibers using glutaraldehyde cross-linker. Thermal properties of the nanofibers such as melting and crystallizing temperatures and enthalpies were investigated by DSC (differential scanning calorimetry) analysis. The highest melting (ΔHm) and crystallization enthalpy (ΔHc) values of the PAN/PEG1000 nanofibers were measured as 57.32 J/g and -67.72 J/g, respectively. PAN/PEG2000 nanofibers were stored maximum 127.4 J/g energy and released -125.7 J/g energy. The chemical structure of the nanofibers comprising of PEG grafted PAN was confirmed by Fourier-transform infrared (FT–IR) spectroscopy. Scanning electron microscope (SEM) analysis was performed to investigate morphology of the nanofibers. The SEM results indicated that the nano-sized, nanofibers with uniform diameter were spun. Their morphology changed depending on the amount of grafted PEG.

Keywords: nanofibers, phase cahange materials (PCMs), latent heat, polyethylene glycol, polyacrylonitrile

➢ **ORAL PRESENTATION**

The use of Bingöl-Adaklı propolis self-assembled monolayer films for metal protection

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Abstract

Beekeeping is one of the most important potential sectors to provide regional / rural development in the province of Bingöl. An important way to increase the level of employment and economic prosperity by making the sector economically advantageous is to expand other bee products besides honey. In the province of Bingöl, bee products are concentrated almost entirely on honey, whereas other bee products such as Propolis (PP) and Polen (P) are not evaluated economically at all. Propolis (PP) is an industrial food supplement produced by honeys, which is taken on a daily diet by humans and provides important contributions to the strengthening of the immune system and the protection of health. In this study, PP was produced from Adaklı-Bingöl region where beekeeping is done intensively in this province. Self-assambled monolayer (SAM) films of natural Adaklı PP (APP-SAM) were formed on the copper surface. The films were used for copper protection in chloride containing solution, which is one of the most corrosive agents. For corrosion tests, Electrochemical Impedance Spectroscopy (EIS), Linear Polarization Resistance (LPR) and Potentiodynamic Polarization Curves (PPE) were used. It was found that, very thin and high-quality Bingöl-APP-SAM could be fabricated over the copper surface. The films protect this metal against corrosion. The protection ability was around 97%, which clearly indicates that this film could be used for practical industrial applications.

Keywords: Beekeeping, Bingöl Propolis, Self-assembled monolayer films, copper protection.

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➢ **ORAL PRESENTATION**

Methanol electrooxidation activity of MoCu-Au composit electrocatalyst in alkaline solution

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Abstract

Surface of carbon felt (C), which has high electrical conductivity and has quite wide gaps, was modified by electrochemical co-deposition of Mo and Cu (C/MoCu). The co-deposit was then further modified by Au (C/MoCu-Au) with the help of chemical replacement method in a properly prepared deposition bath. The electrodes were characterized using surface characterization methods. The C/MoCu-Au was tested as possible anode material for direct methanol fuel cells. For this aim, electrochemical methods were used. It was found that porous and compact MoCu thin films could be prepared over the C surface. Very homogenously distributed and adherent Au could be deposited over the formerly coated binary MoCu layers. Electrochemical measurements showed that the co-deposition of small amounts of Mo and Cu enhances the rate of methanol electrooxidation reaction. Modifying the surface with small amount of Au improve performance of the electrode for this process. The enhanced activity of the C/MoCu-Au electrode for methanol electrooxidation was assigned to enlarged real surface area, synergistic effect between the metals and good surface structure.

Keywords: Direct methanol fuel cells, methanol electrooxidation, carbon felt, electrochemical deposition, Au-activated MoCu electrocatalyst

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➢ ORAL PRESENTATION

Molecular imprinted voltammetric sensor based on carbon nitride nanotubes for determination of chlorpyrifos

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Abstract

In this report, a novel molecular imprinted voltammetric sensor based on carbon nitride nanotubes (C_3N_4 NTs) modified glassy carbon electrode (GCE) was presented for determination of chlorpyrifos (CHL). The developed surfaces were characterized using scanning electron microscope (SEM) and x-ray photoelectron spectroscopy (XPS). MEL imprinted GCE was prepared via electropolymerization process of 100 mM phenol as monomer in the presence of phosphate buffer solution (PBS) (pH 7.0) containing 25 nM CHL. The linearity range and the detection limit of the method were calculated as 1.0×10^{-10} - 5.0×10^{-9} M and 1.0×10^{-11} M, respectively. The stability and reproducibility of the voltammetric sensor were also reported.

Keywords*:* Molecular imprinting; Chlorpyrifos; Carbon nitride nanotubes; Determination

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➢ **ORAL PRESENTATION**

Platinum nanoparticles/carbon nitride nanotubes with molecularly imprinted polymer for determination of bilirubin

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Abstract

In this report, a new electrochemical sensor based on molecular imprinting polymer (MIP) and platinum nanoparticles (Pt NPs)/carbon nitride nanotubes (C_3N_4 NTs) nanocomposite was developed for bilirubin (BR) analysis. Firstly, the structures of prepared nanocomposites and surfaces were characterized by scanning electron microscopy (SEM), transmission electron microscopy (TEM), x-ray photoelectron spectroscopy (XPS) and x-ray diffraction (XRD). After the characterization studies, BR imprinted glassy carbon electrode (GCE) based on Pt NPs/C_3N_4 NTs nanocomposite was developed by 100 mM phenol containing 25 nM BR. The linearity range and the detection limit of the molecular imprinted sensor were calculated as 1.0×10^{-12} – 1.0×10^{-10} and 1.5×10^{-13} M, respectively.

Keywords*:* Molecular imprinting; Bilirubin; Carbon nitride nanotubes; Platinum nanoparticles

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➢ **ORAL PRESENTATION**

Silica modification of new types silica pillared clays

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Abstract

Silica Pillared Clays (SPCs) are new mesoporous materials which have high micro porosity and surface area, hydrothermal and chemical stability and good mechanical strength. The synthesis is based on the principle of the introducing of positively charged long chain carbon surfactant within the layer of clay followed by the intercalation of layers by the formation of silica walls around this organic micelle. Upon the removal of surfactants by calcinations meso pores galleries are formed within the layers and the silica wall is mainly the source of micro porosity. In the literature, it was observed that silica intercalated in the structure just like amorphous and the settling of silica mainly as free silica rather than then placement between the layers due to the lack of interaction of silica with the clay and surfactant.

In the present study it is aimed to overcome the lack of interaction by the modification of silica with amine groups and the investigation of modification's effects on crystalline and textural properties were investigated. Na^+ form Standard Wyoming (SWy-2) host with a CEC capacity of 76 meq/g was transformed to CTAB (cetrimethyl ammonium bromide). Octylamine (OA) as a co-surfactant was used as the micelle shaping agent. Tetraethyl orthosilicate (TEOS) and 3-Aminopropyl triethoxysilane (APTES) were used as a silica source and surface modifier, respectively with an APTES/TEOS ratios of 1/14 or 1/4. Silica surface modification was carried either directly or co-condensation method. The powders separated by centrifugation were dried firstly at room temperature then 100 °C in the oven and finally calcined for 14 hours at 550 °C under air flow. Loading of silica was supported both by FTIR spectrums and XRD. SPC structures having a surface area of 922 m^2/g and basal spacing (d_{001}) of 5,98 nm, were successfully synthesised.

Keywords: hetero structured clays, crystallinite, modification, textural properties

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➢ **ORAL PRESENTATION**

Hydrothermal fructose conversion over sulfated zeolite: Effect of acid concentration

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Abstract

In this study, the influence of acid concentration on synthesis of zeolite catalysts for dehydration reaction of fructose to 5-hydroxymethylfurfural (HMF) was surveyed. 1M, 2M and 3M sulfuric acid treated zeolite was synthesized and used as an efficient catalyst for this reaction. All catalyst synthesis treatments were conducted at 40 °C for 1 hour. Catalysts were characterized by Brunauer–Emmett–Teller (BET) and X-ray powder diffraction (XRD). Synthesized catalysts were used in the hydrothermal conversion of fructose. Catalytic hydrolysis were carried out in a high temperature-high pressure stainless steel reactor (Parr, USA) at 180°C. Samples were taken at time intervals of 30-60-90-120-150-180 minutes. Compositions of liquid products were analyzed by high-performance liquid chromatography (HPLC). Sulfuric acid treatment of the zeolite catalysts led to increase in fructose conversion and HMF production. Under these conditions 99% fructose conversion was achieved. Maximum HMF yield was obtained as 24.43% with 2M sulfuric acid treated zeolite for 30 minutes conversion time. Selectivity for HMF production under these conditions was 26.41%. Further increasing the reaction time led to decrease in HMF yield due to the propagation of side reactions. HMF was not stable at high temperatures so it was converted to Levulinic acid (LA) and Formic acid (FA). Maximum LA (36.33%) was obtained with 3M sulfuric acid treated zeolite for 150 minutes conversion time. Selectivity for LA production at these conditions was 36.37%.

Keywords: Zeolite, Hydrothermal Conversion, Fructose, HMF, Solid acid catalyst

➢ **ORAL PRESENTATION**

Stability enhancement of pectolytic enzymes by covalent ımmobilization

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Abstract

Current biotechnological industries demand development of new techniques for increasing enzyme utilization and extending their shelf life. These requirements are inevitable to facilitate large-scale applications and economic operations. Enzyme immobilization provides an excellent method to increase enzyme availability to utilization with greater turnover over a significant period. The two main purposes of immobilization are to obtain reusable and stable enzymes resistant to a variety of environmental agents. In this study, pectin degrading enzymes were efficiently immobilized on a natural and biocompatible support of chitosan via covalent linking using glutaraldehyde as an activating agent. The stable chitosan beads were produced by drop-wise addition of acetic acid-chitosan mixture in KOH solution. The activation of the support was achieved by 1h-treatment of beds in 1-3-5 % (w/w) glutaraldehyde solution. *Aspergillus niger* pectinase was immobilized by investigating the effect of immobilization pH under acidic (pH=6), neutral (pH=7) and basic (pH=8) conditions, as well as evaluating the time for immobilization (2, 4 and 6 h) on protein loading and enzyme activity. The optimum conditions resulting in highest specific activity were 5% glutaraldehyde concentration, pH=8 and 2-h immobilization. The stability of free and immobilized enzymes was studied at 40-45-50-55-60°C and pH of 4.0 - 4.5 -5.0 -5.5. Both free and immobilized enzymes showed highest activity at 45°C, however, while the immobilized pectinases retained more than 68% of their activity in the range of 40 to 60°C, the free enzymes were significantly affected and completely inactivated at 60°C. Thus, demonstrating the protective effect of immobilization on enzyme activity. The optimum pH for both free and immobilized enzyme was 4.0, free enzyme showing higher specific activity. Finally, the potential of immobilized enzymes for multiple utilization was investigated and upon use of immobilized pectinases in 5 consecutive cycles 43% of the residual activity was retained.

Keywords: enzyme immobilization, pectinase, chitosan, stability.

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➢ **ORAL PRESENTATION**

Grafted thermosensitive gelatin scaffold as drug delivery system

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Abstract

Gelatin-based hydrogels have been extensively used in pharmaceutical and medical applications in respect to their biocompatibility, non-toxicity, biodegradability, and being an economic, readily available material. Gelatin is obtained by the hydrolytic degradation of natural collagen, which possesses RGD sequences promoting cell recognition. Gelatin is a relatively "safe" biopolymer which is approved by the US FDA. The mechanical and chemical properties of gelatin can be easily modified via its functional side groups (e.g., -COOH, $-NH_2$), in order to fabricate gelatin-based scaffolds for tissue engineering and regeneration medicine applications.
Poly(N-vinylcaprolactam) (PNVCL) based studies have attracted interest due to its versatile characteristics such as biocompatibility, solubility, and thermosensitivity. The lower critical solution temperature (LCST) of PNVCL is very close to the body temperature.
In this study, gelatin (GL) was conjugated with thermosensitive poly(N-vinylcaprolactam) using the strong covalent amide bonds by a cross-linking agent pair (EDC/NHS). Thermosensitive gelatin-based hybrid (GL-*g*-PNVCL) hydrogel and the formed scaffold was investigated in terms of structural characteristics and drug delivery properties. Phase transition temperature of the conjugate was determined by measuring the optical transmittance at a wavelength of 480 nm over the temperature range of 25-40 ^oC. Water uptake and model drug (bovine serum albumin, BSA) release properties of thermosensitive GL-*g*-PNVCL scaffolds were determined, dependent of different temperatures (25^oC and 40^oC).
LCST of GL-*g*-PNVCL solution (10% w/v in distilled water) was determined as ~38^oC which was a suitable value for a number of biomedical applications. ATR-FTIR and ^{1}HNMR analysis proved successful graft polymerisation of gelatin with PNVCL. The water uptake and drug release from GL-*g*-PNVCL scaffolds decreased by increasing temperature. The thermosensitive gelatin-based hydrogel underwent reversible structural transition from transparent gel to an *opaque gel by increase in temperature*. Studies exhibited that the copolymerization of with PNVCL introduced a new property to Gelatin hydrogel, while also retaining its temperature sensitivity.

Keywords: Thermosensitivity, poly(N-vinylcaprolactam), gelatin, biopolymer, drug delivery.

➢ **ORAL PRESENTATION**

Polietilen/Sodyum kazeinat karışımlarından ekstrüzyon yöntemiyle biyobozunur film üretimi,karakterizasyonu ve plastikleştirici etkisinin incelenmesi

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Özet

Polietilen (PE) renksiz, yarı saydam, su geçirgenliği düşük, kokusuz ve ucuz oluşu nedeniyle ambalaj sektöründe oldukça fazla kullanılan bir plastiktir [1]. Doğal bir polimer olan proteinler ise çok fazla polar gruplara sahip olmaları nedeniyle düşük O_2 ve CO_2 gazı geçirgenliği göstermektedirler [2]. Ancak hidrofilik olmaları nedeniyle su buharı geçirgenlikleri yüksektir. Sodyum Kazeinat (NaCAS), bir süt proteini olan kazeinin asit ile çöktürülmesinden sonra $Na(OH)_2$ ile etkileşiminden elde edilmektedir [2-3]. Mekanik özelliklerini ve su buharı geçirgenlik özelliklerini iyileştirmek için biyopolimerler ile diğer polimerlerin karıştırılması sıkça uygulanan bir yöntemdir [4]. Polimerlerin mekanik özelliklerini iyileştirmek amacıyla kullanılan bir diğer yöntem de organik bileşikler olan plastikleştiricilerin kullanılmasıdır. Plastikleştiriciler, polimerlere eklendiğinde serbest hacmi artırarak esneklik ve uzamayı artırmaktadırlar [5]. Kazeini plastikleştirmek amacıyla kullanılan plastikleştiricilerden biri de Gliserol (GLY)'dür. Bu çalışmada, mekanik test sonuçlarına göre PE ile ağırlıkça % 5 ve % 15 NaCAS oranlarında hazırlanan karışımlarından film elde edilmiş ve bu karışımlar kontrol numunesi olarak kullanılmıştır. Daha sonra sırasıyla GLY/NaCAS oranları 0.5, 1.0, 1.5 ve 2.0 g/g olacak şekilde GLY eklenerek film üretilmiştir. Bu karışımlar ekstrüderde 135°C, 100 rpm ve 3 dk boyunca harmanlanarak pelet haline getirilmiştir. Basınçlı kalıplama yöntemi ile film haline getirilmiştir. Elde edilen filmlerin karakterizasyonu için mekanik, termal, temas açısı, su buharı geçirgenliği, FTIR ve SEM analizleri yapılmıştır. PE içerisindeki NaCAS oranı arttıkça kopma dayanımı azalmış, GLY oranı arttıkça ise kopma dayanımı artmıştır. Kopmada uzama değerleri, 5NaCAS/PE de artan GLY oranlarında artış gösterirken, 15NaCAS/PE de ise 0.5GLY oranı hariç düşüş göstermiştir. Erime sıcaklığı PE içerisine eklenen NACAS ile azalmış, artan GLY oranında anlamlı bir değişiklik yaratmamıştır. Temas açısı, artan NACAS ve GLY oranı ile azalmıştır. Su buharı geçirgenliği artan NaCAS oranında artmış ve 1GLY oranında bu değer daha da artmıştır. SEM görüntülerinde, 5NACAS/PE-1GLY oranında homojen yapının oluştuğu ama 15NaCAS/PE -1GLY oranında ise homojen yapının bozulduğu gözlenmiştir.

Keywords: Sodyum kazeinat, Polietilen, Biyobozunur film, plastikleştirici, ekstrüzyon

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➢ **ORAL PRESENTATION**

Glucose biosensor based on glassy carbon electrode modified with benzo[c]cinnoline and carboxylated multiwalled carbon nanotubes

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Abstract

The determination of glucose level is a hugely important topic for healthcare, clinical, food and beverage industries analysis. Moreover, it can be used to diagnose diseases such as diabetes, infectious hepatitis, liver cirrhosis, renal, hepatic, or cardiac failure. Thus, high selective, sensitive, rapid and accurate detection of glucose is very crucial [1,2]. Recently, carbon nanotubes have been widely used in biosensor applications. They have greatly enhanced performance parameters of biosensors, due to their unique properties such as high electrocatalytic effect, large surface area, chemical stability, strong adsorption ability [3]. Electron transfer mediators have been also extensively employed in biosensor construction and they can provide better selectivity and sensitivity and reduce the operating at low potentials, resulting in the minimization of interference effect of coexisting electroactive species [4].

In this study, glassy carbon electrode (GCE) was modified with benzo[c]cinnoline (BCC) used as an electron transfer mediator and carboxylated multiwalled carbon nanotubes (c-MWCNT). Amperometric glucose biosensor was constructed by three steps: Firstly, the proper amounts of BCC and c-MWCNT were dispersed in chitosan solution and an aliquot of this mixture was dropped on the GCE surface. Then glucose oxidase (GO) was immobilized covalently onto BCC−c-MWCNT−CH composite film. Finally, the nafion was coated on the modified electrode in order to prevent enzyme from leakage.

Optimization of experimental conditions such as pH, working potential and performance parametres including selectivity, repeatability, and reproducibility of the biosensor were investigated. Electron transfer characteristics of the modified electrodes were also studied by cyclic voltammetry and electrochemical impedance spectroscopy. In order to demonstrate the change in the surface morphology of the electrodes after each modification step scanning electron microscopy technique was used. The GO/BCC−c-MWCNT−CH/GCE biosensor showed good selectivity and sensitivity. The proposed electrode can be utilized for observing different real samples.

Keywords: Glucose, carbon nanotubes, mediator, biosensor, amperometry

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2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

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➢ **ORAL PRESENTATION**

Mono-Ferrosenil N/O Spirosiklotetrafosfazenlerin N/O Dönorlü 4-florobenzil Ligandları ile Reaksiyonları ve Spektral Özellikleri

Gamze Elmas[1], Aytuğ Okumuş[1], Arzu Binici[1*], Mehtap Özgür[1], Zeynel Kılıç[1]

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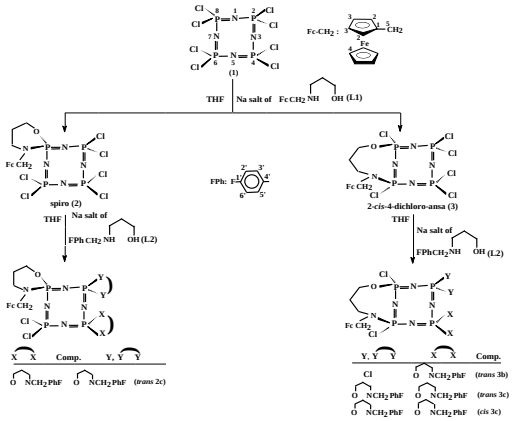
Özet

Yapılan bu çalışmada, öncelikle ferrosenkarboksaldehit ile 3-amino-1-propanolün metanol ortamındaki kondenzasyon tepkimeleri sonucunda oluşan Schiff bazının $NaBH_4$ ile indirgenmesinden 3-(N-ferrosenilmetilamino)-1-propanol, $FcCH_2N(CH_2)_3OH$ **(L1),** elde edilmiştir. Sentezlenen bu NO donör atomlu iki dişli ligandın oktaklorosiklotetrafosfazen (tetramer, $N_4P_4Cl_8$, **1**) ile reaksiyonundan mono-ferrosenil-spiro **(2)** ve mono-ferrosenil-2-*cis*-4-dikloro-ansa **(3)** siklotetrafosfazen bileşikleri kolon kromatografisi yöntemiyle ayrılmıştır. Daha sonraki aşamada ise 4-florobenzaldehit ve 3-amino-1-propanolün metanol ortamındaki kondenzasyon tepkimeleri sonucunda oluşan Schiff bazının $NaBH_4$ ile indirgenmesinden 3-(4-florobenzilamin)-1-propanol **(L2),** elde edilmiştir. Bir sonraki aşamada, hekzakloro-mono-ferrosenil-spiro (**2**) bileşiğinin THF ortamında Et_3N varlığında aşırı miktardaki **L2** bileşiğinin sodyum tuzu ile etkileştirilmesi sonucunda 2-*cis*-4-*trans*-6-trispiro (***trans* 2c**), bileşiği elde edilmiştir. Aynı şekilde mono-ferrosenil-2-*cis*-4-dikloro-ansa **(3)** bileşiğinin THF ortamında Et_3N varlığında aşırı miktardaki **L2** bileşiğinin sodyum tuzu ile reaksiyonu sonucunda ise mono-spiro 2-*cis*-4-dikloro-ansa-2-*trans*-6-spiro(N/N) (***trans* 3b**) ve di-spiro {2-*cis*-4-dikloro-ansa-6-*trans*-8-dispiro(N/O) (***trans* 3c**) ve 2-*cis*-4-dikloro-ansa-6-*cis*-8-dispiro(N/O) (***cis* 3c**)}bileşikleri elde edilmiştir (Şema 1). Sentezlenen bileşikler kolon kromatografisi ve preperatif ince tabaka kromotografi teknikleri ile saflaştırılmıştır. Bileşiklerin yapısı; element analizi, kütle spektrometresi (ESI-MS), FTIR, ^1H, ^{13}C ve ^{31}P-NMR tekniklerinden faydalanılarak aydınlatılmıştır. Bu ürünler yer seçimli (regioselective) olarak oluşmaktadır ve stereojenik P merkezlerine sahiptir.



Şema 1. Mono-Ferrosenil Spirosiklotetrafosfazen türevlerinin sentezi

Anahtar Kelimeler: Spektroskopi, ferrosenil siklotetrafosfazenler, steorojenik fosfor atomları

Bu çalışma, 215Z496 numaralı TÜBİTAK projesi tarafından desteklenmiştir.

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➢ **ORAL PRESENTATION**

Synthesis of potentially bioactive 1,5-benzodiazepinone derivatives with a new approach through intramolecular electrophilic cyclizations

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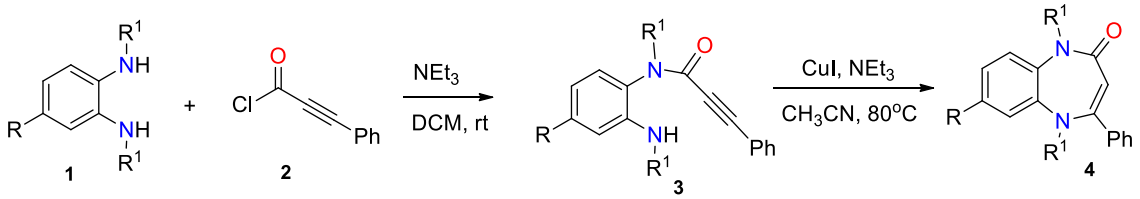
Abstract

Since the discovery of first benzodiazepine, synthetic derivatives have replaced with the barbiturates, bromine salts etc. in treatment of central nervous system disorders as safe anxiolytic/sedative drugs and have attracted great attention of scientists with the recognition of other pharmacologial effects such as anti-cancer, HIV-1 reverse transcriptase inhibitors.[1-5] This interest results from differences in binding to receptors of the groups on 1,5-benzodiazepin-2-on skeleton and diversity of biological activity that it brings. Since the groups involved in the analogous structure and positions of them determine the domain and strength of the active substances intended to be developed, the introduction of new compounds into the literature is of importance in the field of pharmaceutical chemistry. For this purpose, we report here a new synthetic approach for the synthesis of new 1,5-benzodiazepinones by intramolecular 7-endo-dig cyclization reactions. The structure of title products were identified by means of IR, ^{1}H NMR, ^{13}C NMR and mass measurements.



Keywords: 1,5-benzodiazepin-2-one, intramolecular cyclization, biological activity

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➢ **ORAL PRESENTATION**

Bulutlanma noktası ekstraksiyonu yöntemi ile zenginleştirildikten sonra ilaçlarda carmoisine'nin spektrofotometrik tayini

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Özet

Bir gıda boyası olan ve vişne kırmızısı olarak bilinen Carmoisine(Karmosin) diğer adıyla Azorubin gıda, ilaç ve kozmetik için kullanılan yaygın gıda katkı maddelerinden biridir. Adından da anlaşılacağı üzere azo boyasıdır ve sentetiktir. Yüksek performanslı sıvı kromatografisi[1], voltametri[2] ve FT-IR spektrofotometri[3] gibi Carmoisine tayininde birçok çalışma literatürde vardır. Bu analitik yöntemler, kullanılan çözücülerin özellikle laboratuvar operatörleri ve çevre için zararlı olduğu bir ekstraksiyon adımını gerektirir[4]. Bulutlanma noktası ekstraksiyonu (CPE), diğer ayırma / zenginleştirme tekniklerine alternatif olan, basit, hassas, ucuz, çevre dostu yöntem olarak kullanılmaktadır[5].

Bu çalışmada, Carmoisine spektrofotometrik tayini için ilk defa Brij 58 yüzey aktif maddesi kullanılarak bulutlanma noktası ekstraksiyonu ile zenginleştirme işlemi yapılmıştır. Yöntem, pH, Yüzey aktif maddenin derişimi, ekstraksiyon süresi ve sıcaklığı, santrifüj hızı ve tuz derişimi gibi çeşitli değişkenler incelenerek optimize edilmiş olup optimum şartlar ilaç numunesine uygulanması hedeflenmiştir.

Anahtar Kelimeler: Bulutlanma Noktası Ekstraksiyonu, Carmoisine, Brij58

Kaynaklar:
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➢ **ORAL PRESENTATION**

Synthesis and characterization of novel p-alkylaminophenol compounds

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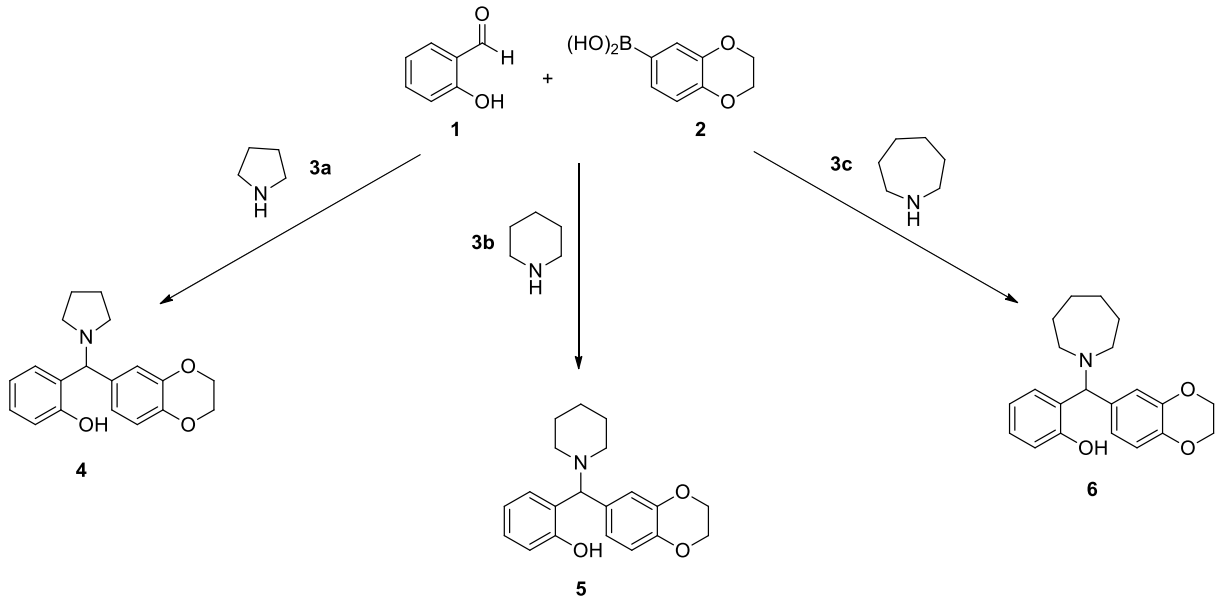
Abstract

The O-N-Alkylated derivatives of the aminophenols (alkoxyanilines and N-alkylaminophenols) have an essential class of compounds in organic chemistry. The Petasis reaction is a powerful and effective method for preparing alkylaminophenols. In this reason, the petasis reaction was chosen. This reaction takes place between an amine, aldehyde and boronic acid. Generally, the catalyst is used in the reaction.

In the study, three novel compounds of biological importance were synthesized. The synthesis was carried out without catalyst. The structure analysis of the compounds was carried out by ^{1}H-NMR and ^{13}C-NMR.



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Scheme-1 The synthesis reaction of alkylaminophenols

Keywords: Alkylaminophenol, petasis reaction, amine derivative.

This study was supported by the Bursa Uludag University Scientific Research Projects Unit with the KUAP(F)-2015/22 and KUAP(F)-2016/5 projects.

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➢ **ORAL PRESENTATION**

Theoretical (B3LYP, HF) properties [Spectroscopic (FT-IR, $^{13}C/^{1}H$-NMR), electronic, thermodynamic and Geometric] of 2-(3-Benzyl-4,5-dihydro-1*H*-1,2,4-triazol-5-on-4-yl)-azomethine)-benzoic acid molecule

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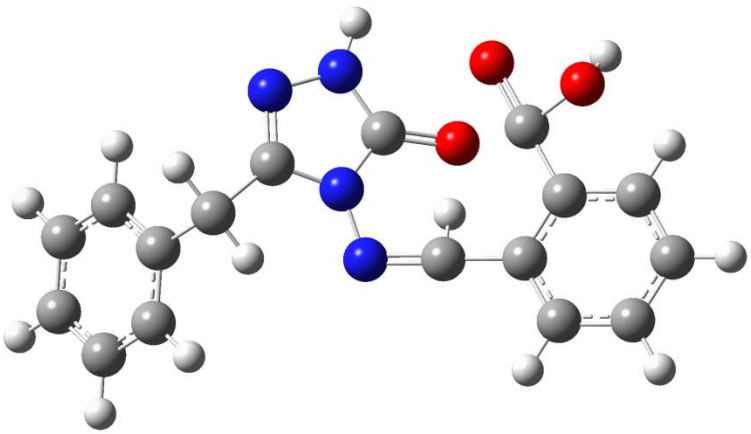
Abstract

2-(3-Benzyl-4,5-dihydro-1*H*-1,2,4-triazol-5-on-4-yl)-azomethine)-benzoic acid molecule has been optimized using the 6-311G(d,p) basis set of DFT (B3LYP) and HF methods. Thus, the most stable geometrical comformer of compound with different methods was obtained. Molecular geometric optimizations (bond angles, bond lengths), Proton/Carbon NMR chemical shifts, thermodynamic parameters, HOMO-LUMO analyses, electronic properties, mulliken charges, vibrational wavenumbers, dipole moment, total energy of the title molecule were studied using Gaussian 09W software package. The calculated results were obtained immersive via GaussView5.0 program. All quantum chemical computations were performed with HF and B3LYP functional in DFT method at the 6-311G(d,p) basis set. Proton Nuclear Magnetic Resonance (^{1}H-NMR) and Carbon-13 Nuclear magnetic Resonance (^{13}C-NMR) spectral values was calculated in gas phase and in DMSO solvent according to GIAO method. Theoretical and experimental values were plotted according to δ exp=a+b·d calc. Theoretical spectral values of molecule were calculated and compared with experimental values. Experimental data obtained from the literature. Using the seperate methods in the veda4f program were calculated at the harmonic vibrational frequencies which were scaled with definite factor. In addition, thermodynamics properties (heat capacity CV^0, entropy S^0 and enthalpy H^0), electron affinity (A), global hardness (η), softness (σ), E_{LUMO}-E_{HOMO} energy gap (ΔEg) and ionization potential (I), electronic properties (electronegativity (χ) were calculated and the molecular surfaces such as the electron spin potantial (ESP), molecular electrostatic potential (MEP), the total density, the electron density, the electrostatic potential of the molecule were visualized.



The Gaussview structure of the molecule

Keywords: B3LYP, HF, HOMO-LUMO, Veda4f, GIAO.

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➢ **ORAL PRESENTATION**

Synthesis and investigations of antimicrobial, antioxidant activities of novel di-[2-(3-alkyl/aryl-4,5-dihydro-1*H*-1,2,4-triazol-5-one-4-yl)-azomethinephenyl] isophtalates and mannich base derivatives

Haydar Yüksek[1], Gül Özdemir[1], Sevda Manap[1], Yonca Yılmaz[1], Gül Kotan[2*], Özlem Gürsoy-Kol[1], Muzaffer Alkan[3]

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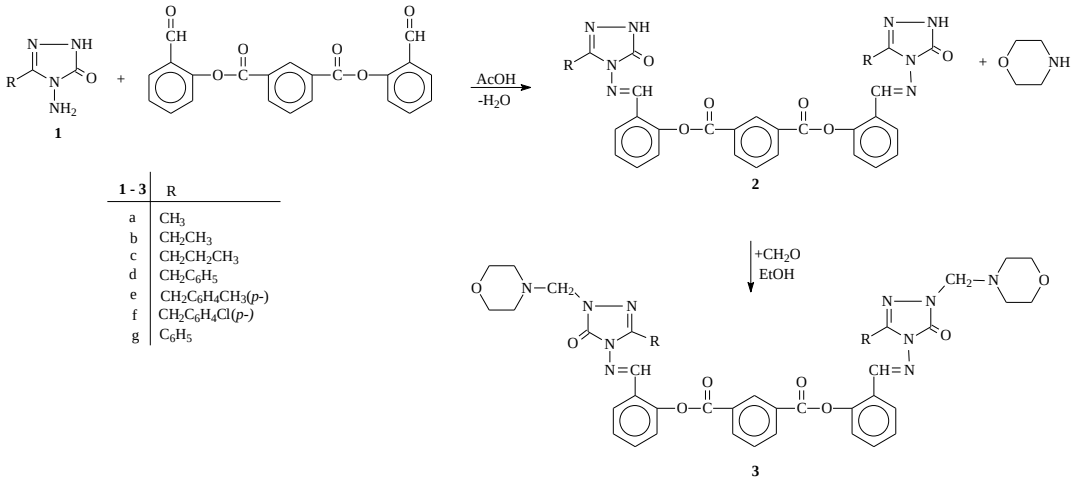
Abstract

A large number of heterocyclic compounds containing the 1,2,4-triazole ring, are associated with diverse biological properties such as antioxidant, anticonvulsant, antiinflammatory, antimicrobial and anti-viral activity. In this study, the synthesis of di-[2-(3-alkyl/aryl-4,5-dihydro-1*H*-1,2,4-triazol-5-one-4-yl)-azomethinephenyl] isophtalates (**2a-g**) from the reactions of 3-alkyl/aryl-4-amino-4,5-dihydro-1*H*-1,2,4-triazol-5-ones (**1**) with di-(2-formylphenyl) isophtalate is described. Then, the compounds **2** were treated with morpholine in the presence of formaldehyde to synthesize di-{2-[1-(morpholine-4-yl-methyl)-3-alkyl(aryl)-4,5-dihydro-1*H*-1,2,4-triazol-5-one-4-yl)-azomethinephenyl]} isophtalates (**3a-g**). The newly synthesized compounds were characterized using IR, ^{1}H-NMR and ^{13}C-NMR spectral data. In addition, the compounds synthesized were screened for their antimicrobial activities. Furthermore, the antioxidant properties of the newly synthesized compounds were analyzed for their in-vitro potential antioxidant activities in three different methods (reducing power, free radical scavenging and metal chelating activity). These antioxidant activities were compared to those from standard antioxidants, such as BHA, BHT, EDTA and α-tocopherol.



1 - 3	R
a	CH_3
b	CH_2CH_3
c	$CH_2CH_2CH_3$
d	$CH_2C_6H_5$
e	$CH_2C_6H_4CH_3$(*p*-)
f	$CH_2C_6H_4Cl$(*p*-)
g	C_6H_5

Keywords: 1,2,4-Triazol-5-one, Schiff base, Mannich base, antimicrobial activity, antioxidant activity.

➢ ORAL PRESENTATION

Antrasen grubu içeren Pd-NHC komplekslerinin sentezi ve Suzuki-Miyaura tepkimesinde katalitik özelliklerinin incelenmesi

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Özet

Bu çalışmada, $Pd(OAc)_2$ ve karşılık gelen benzimidazolyum tuzlarının, asetonitril içinde, piridin ve potasyum klorür varlığında tepkimesi ile antrasen grubu içeren iki yeni paladyum *N*-heterosiklik karben (Pd-NHC) kompleksi sentezlenmiştir. Bu komplekslerin yapıları ^{1}H NMR, ^{13}C NMR, LC-MS, IR spektroskopik teknikleri ve element analizi sonuçları ile tamamen aydınlatılmıştır. Sentezlenen komplekslerin, aril klorür türevlerinin fenilboronik asit ile Suzuki-Miyaura çapraz eşleşme tepkimelerinde katalitik özellikleri incelenmiştir. İlk olarak optimizasyon testleri gerçekleştirilmiş ve ürünlerin DMF-H_2O çözücü sisteminde en iyi verimle elde edildiği görülmüştür. Optimizasyon testlerinden sonra iki kompleksin de altı farklı aril klorür türevinin tepkimesinde katalitik özellikleri incelenmiş ve orta seviyede veya iyi verimler elde edilmiştir.

Anahtar Kelimeler: Antrasen, *N*-heterosiklik karben, Paladyum, Suzuki-Miyaura reaksiyonu, Kataliz,

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➢ **ORAL PRESENTATION**

Some steroid compounds of *Picoa* species

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Abstract

When macrofungi is of concern, the first things that come to mind are “poison mushroom” and “edible mushroom”. In addition to these, there are called" Truffles " that naturally grow under soil and develop on the roots of some plants. Truffles are a complex family and mainly consist of the genera Picoa, Tirmania, Tuber and Terfezia. Truffle mushrooms are distributed in the barren and semi-barren areas covering the Mediterranean region. They are consumed as food for their nutritional values, aromas and their unique aromas. Truffle species are known not only to be tasty food but also to have compounds that exhibit various activities. In this study, it is aimed to investigate the isolation and elucidate structures of steroids of Picoa juniperi and Picoa lefebvrei. For this purpose, collected around Denizli-Çardak region, P. juniperi and P. lefebvrei were identified by Truffle Research Center at Muğla Sıtkı Koçman University. They were dried, extracted according to increasing polarities (n-hexane, chloroform, acetone, methanol and hot water). Purification was carried out by various chromatographic methods. According to the analysis result, the isolations of the compounds from extracts carried out by various chromatographic methods. Structures of pure compounds were characterized by NMR techniques, MS, IR and UV spectroscopic methods. The structure of 11 compounds isolated in this study was elucidated by spectroscopic methods. Four of them have steroidal structure and are ergosterol-derived compounds. Ergosterol, ergosterol peroxide, ergosta-5,22-dien-3β-ol, ergosta 5,22-dien 3-O-β-D-glucopyranoside were obtained from P. juniperi, ergosta-5,22-dien 3β-ol from P. lefebvrei.

Keywords: *Picoa juniperi*, *Picoa lefebvrei*, truffle, isolation, ergosterol, steroid, structure elucidation

This study was financed by The Scientific and Technological Research Council of Turkey (TUBITAK-114Z644).

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➢ **ORAL PRESENTATION**

Coordination polymers and their applications

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Abstract

Coordination polymers, also known as metal-organic coordination network, are metal-ligand compounds that extend infinitely one, two or three dimensions via metal-ligand bonding. Over the past few decades, the crystal engineering of the coordination polymers has attracted the great attention of researchers, not only for their intriguing topologies and multiple functionalities, using versatile metallic nodes and organic linkers as building blocks, but also for their potential applications such as gas adsorption, catalysis, magnetism, optic and non-linear optic, sensor, conductivity, gas and dye adsorption (Figure 1) [1-5].

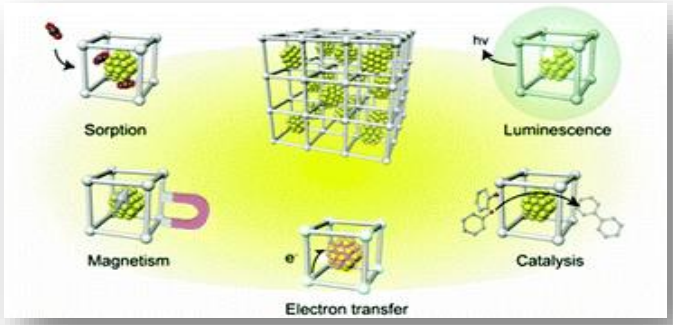

Figure 1. Applications of coordination polymers

Parallel to industrialization, the harmful effects of factory waste are also increasing. In recent years efforts to reduce these effects have become important. Therefore, the development of environmentally friendly adsorbent is important. The studies on the synthesis of new adsorbents and purification of wastewater from harmful dyestuff by means of adsorption have seen an increasing interest and studies on coordination polymers which behave as adsorbent have attracted the attention of researchers [5].

Keywords: Coordination chemistry, Coordination polymers, Dye adsorption

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➢ **ORAL PRESENTATION**

A multifunctional copolymer with promising electrochemical and electrochromic behaviors

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Abstract

In this study, a novel electrochromic copolymer of 3,4-ethylenedioxythiophene (EDOT) and (E)-1,2-bis(2-fluoro-4-(4-hexylthiophen-2-yl) phenyl)diazene (M1) was electrochemically synthesized on an ITO (Indium thin oxide) working electrode. After electro-synthesis electrochemical and spectroelectrochemical characterizations were performed with cyclic voltammetry (CV) and UV-Vis-NIR spectrophotometer methods. Copolymerization was performed in 0.1 M $TBAPF_6$ DCM /ACN (5/95, v/v) solution at a scan rate of 100 mV s^{-1} via CV which is a very beneficial and widely preferred technique for both electropolymerization and the electroactivity determination of the compounds due to its certain simplicity and advantages. In addition to electrochemical polymerization, HOMO-LUMO energy levels and redox potentials were calculated with CV. Electrochemical characterizations showed that addition of an electron rich EDOT unit into the azobenzene based copolymer structure increased the electron density on the polymer chain. The resulting copolymer exhibited very low oxidation potential with red shifted absorption and lower optical band gap. Other important parameters for electrochromic device applications are optical contrast and switching times of polymers. Herein, kinetic studies showed that insertion of EDOT unit into the copolymer chain increased the optical contrast and stability significantly.

Keywords: copolymerization, electrochromism, specrtroelectrochemistry

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➢ **ORAL PRESENTATION**

One-step synthesis and characterization of Poly(ε-Caprolactone-b-Methyl Methacrylate) block copolymers via simultaneous reversible-addition fragmentation chain transfer and ring-opening polymerization

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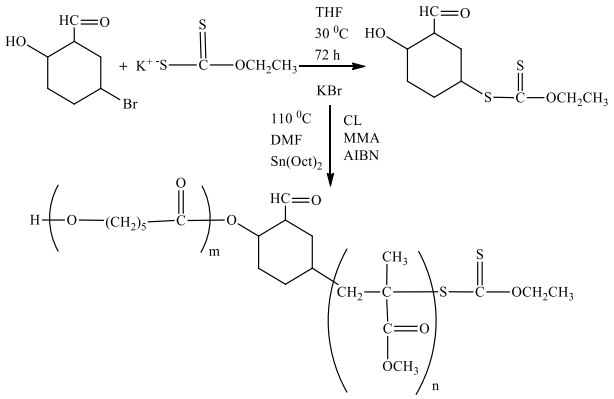
Abstract

One-step synthesis of poly(caprolactone-b-methyl methacrylate) [poly(CL-b-MMA)] block copolymers was reported by reversible addition-fragmentation chain transfer (RAFT) and ring-opening polymerization (ROP) of a novel dual initiator (RAFT-ROP agent). For this purpose, RAFT-ROP agent was obtained by reaction of 5-bromo-2-hydroxybenzaldehyde and potassium salt of ethyl xanthogenate. Then, poly(CL-b-MMA) block copolymers were synthesized by using ε-caprolactone (CL) and methyl methacrylate (MMA) in the presence of RAFT-ROP agent. The products were characterized by FT-IR, ^{1}H-NMR and GPC analyses. Thermal transitions and degradation features of the block copolymers were investigated by using DSC and TGA methods. Spectroscopic and thermal analyses revealed that one-step synthesis of the block copolymers was successfully achieved.



Scheme 1: Reaction pathways in the synthesis of the novel dual initiator and poly(CL-b-MMA) block copolymers.

Keywords: One-step polymerization; block copolymer; reversible-addition fragmentation chain transfer; ring-opening polymerization.

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➢ **ORAL PRESENTATION**

Synthesis and characterization of poly(ε-caprolactone)-*b*-poly(acrylamide) block copolymers by controlled radical polymerization techniques

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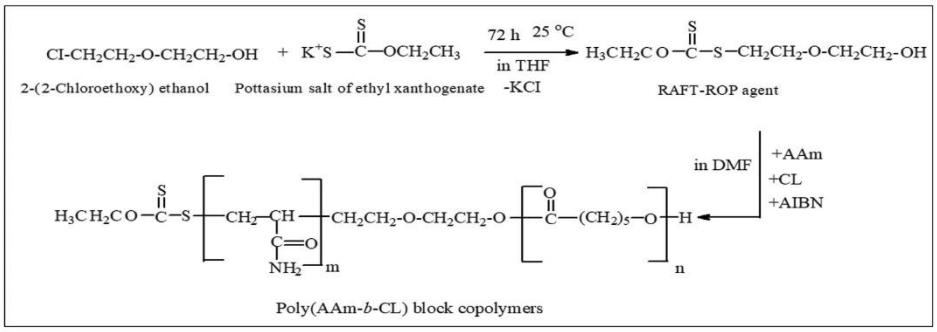
Abstract

Until today, the synthesis of block copolymers have usually been carried out through ionic polymerization. However, ionic polymerization requires strict conditions and the number of monomers is relatively limited. To overcome these disadvantages, simpler and easier techniques have been used for block copolymer synthesis **[1]**. In recent years, the production of polymers in a way that the molecular architecture can be controlled, there's molecular weight control, and low molecular weight distribution (polydispersity) has been made possible by controlled radical polymerization techniques. In the synthesis of polymers with star, comb, brush, worm or graft architecture, molecular structure and size are provided by controlled radical polymerization techniques **[2]**. The combination of different polymerization techniques should be an attention-grabbing method for block and graft copolymer because the presence of more than one monomer in a polymer chain has been established by a combination of such different techniques **[3]**.

In this study, poly(acrylamide–*b*–ε-caprolactone) block copolymers were synthesized by a combination of reversible addition-fragmentation chain transfer (RAFT) polymerization and ring-opening polymerization (ROP) methods using a chain-transfer agent (RAFT-ROP initiator) which was obtained via the reaction of 2-(2-Chloroethoxy)ethanol with the potassium salt of ethyl xanthogenate. Chemical synthesis of block copolymers was shown in Scheme 1. The block length of the block copolymers could be adjusted by changing various parameters such as monomer and initiator concentrations and the polymerization time. The characterization of the products was achieved using ^{1}H-NMR, FT-IR, DSC, TGA, and fractional precipitation [solvent (THF-mL)/non-solvent (petroleum ether-mL)] techniques.



Scheme 1. Chemical synthesis of poly(AAm-*b*-CL) block copolymers.

Keywords: Reversible addition-fragmentation chain transfer polymerization; ring opening polymerization; acrylamide;

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➢ **ORAL PRESENTATION**

Hydrolyzed polymers of intrinsic microporosity (HPIM-1) for high performance air filtration

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Abstract

Polymers of intrinsic microporosity (PIMs) have emerged as a valuable class of polymers for separation applications due to their unique characteristics such as high free volume, large surface area, and outstanding chemical stability [Budd *et al*., 2008, p. 230-231]. The porosity in PIMs originates from a spiro-center which limits the rotational freedom. PIM-1 (Figure 1) is the first synthesized and a solution-processable polymer of PIM family, which could be modified by functional group modification owing to the nitrile group in backbone. One of the most studied modification is the hydrolysis of PIM-1 in the presence of sodium hydroxide, resulting in Hydrolyzed PIM-1 (HPIM-1, Figure 1) which demonstrates good solubility in dimethylformamide [Satilmis *et al*., 2014, p. 52189-52198]. Therefore, it could be produced in the membrane forms such as dense and fibrous membrane forms. While dense membrane could be produced by solvent evaporation method, fibrous membrane could be fabricated by electrospinning technique which is a simple and cost-effective method to produce self-standing fibrous membranes. We have recently showed that fibrous membrane of HPIM-1 could be used for the separation of organic dyes from water [Satilmis *et al*., 2017, p. 67-75]. In this study, we have investigated air filtration ability of HPIM-1 in three different forms; powder, dense and fibrous membrane forms using aniline as a model compound. Aniline uptake was determined by two complementary techniques; TGA and 1H NMR spectroscopy. The study showed that although all forms of HPIM-1 have the ability to adsorb aniline, fibrous membrane shows greater adsorption capacity from air.

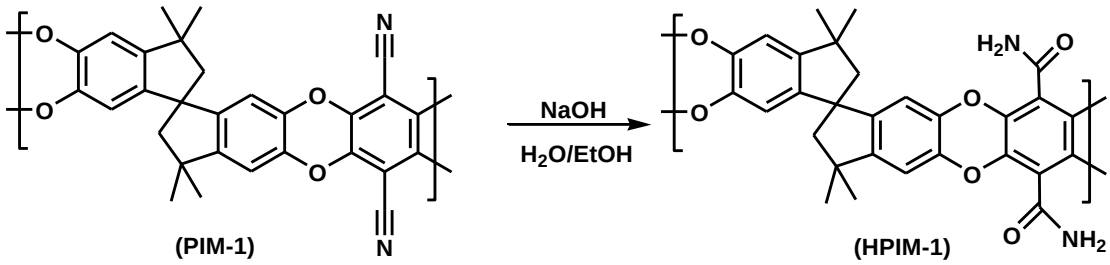

Figure 1: Chemical structures of PIM-1 and Hydrolyzed PIM-1.

Keywords: Polymers of Intrinsic Microporosity, Membrane, Nanofibers, Adsorption.

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➢ **ORAL PRESENTATION**

Investigation of thermal and dielectric properties of morpholine/triazine-based acryl amide polymer composites

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Abstract

In In this study, firtsly 2,4,6-trimorpholino-1,3,5-triazine (TMT) was synthesized by reaction of 2,4,6-trichloro-1,3,5-triazine and morpholine. Poly(N-isopropyl acryl amide) P(NIPAM) homopolymer was synthesized by Free Radical Polymerization. The polymerization of N-isopropyl acryl amide was carried at 60°C in the presence of methanol using AIBN as an initiator. The composites were prepared which containing 1.0, 3.0 and 5.0 %wt amounts TMT of the synthesized polymer. P(NIPAM) was dissolved in methanol and added 1.0, 3.0 and 5.0 %wt amounts of TMT. Then the solutions were continuous stirred in an ultrasonic homogenization system for about 40 min to allow for the appropriate dispersion of TMT. The polymer composites were precipitated in cold diethyl ether and filtered. Then the composites were dried under vacuum at 40 °C for 24 hours. Thermal behaviors of composites were investigated by DSC and TGA techniques. The glass transition temperatures (Tg) and TGA thermograms were compared to each other. The dielectric measurements of P(NIPAM)/TMT composites were investigated at room temperature by means of impedance analyzer at 100 Hz and 30 kHz depending on the alternating current (AC) conductivities. Dielectric constant decreased with increasing frequency; this behavior is expected for most of dielectric materials [1]. In a dielectric material, polar molecules at high frequencies is applied to rotational movement, balance of field is not reasonably fast. Thus for any polymer dielectric constant, increasing frequency seemed to show a decreasing dependency [2].

Keywords: Morpholine, Triazine, Composite

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➢ **ORAL PRESENTATION**

Biyomedikal uygulamalarda *İnula viskosa* metanol ekstresi yüklü polivinil alkol-nişasta hidrojeller

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Özet

Hidrojeller, özellikle yara iyileştirme uygulamaları için biyomalzemeler olarak büyük dikkat çeken çapraz bağlı hidrofilik polimerlerdir. Polivinil alkol (PVA), biyouyumlu hidrojellerin hazırlanmasında kullanılan ideal bir öncüdür. Ancak özelliklerinin geliştirilmesi gerekmektedir. PVA birkaç polimer ile karıştırılabilir. Polimerler arasında, nişasta, bu amaç için değerlendirilebilen bol bulunan, düşük maliyetli ve biyolojik olarak parçalanabilir bir polimerdir. Öte yandan, doğal biyoaktif özütlerin eklenmesi biyolojik aktivitelere hizmet eden yara sargısı elde etmek için idealdir. *İnula viskosa* ülkemizde bilinen adıyla kanser otu diğer adıyla yapışkan andız otu Asteraceae familyasına ait çok yıllık tıbbi bir bitkidir. Özellikle halk arasında yara iyileştirmede, solunum yolları enfeksiyonunda ve ülser gibi hastalıkların tedavisinde kullanılmaktadır. Antioksidan, antimikrobiyal, antiinflamatuar antiseptik gibi tıbbi aktivitelere sahiptir. Bu çalışmanın ilk kısmında *İnula viskosa* yapraklarının sırasıyla hekzan ve metanol ile ekstraksiyonları yapıldı. Elde edilen ekstrelerin radikal giderim aktiviteleri (DPPH ve ABTS) ve üreaz enzim inhibisyon aktiviteleri test edildi. Her iki ekstre karşılaştırıldığında metanolün oldukça yüksek radikal giderim (sırasıyla, IC_{50}: 42,5 µg/ml ve 10,4 µg/ml) aktivitesine sahip olduğu aynı zamanda 200 µg/ml konsantrasyonda %60,3 oranında üreaz enzimini inhibe ettiği belirlendi. Bir sonraki adımda ise, hidrojellerin biyolojik aktiviteleri ve yapısal değerlendirmeleri incelendi. Elde edilen sonuçlar, *İnula viskosa*'nın PVA / nişasta hidrojellerinin yanık yaraları ve diğer potansiyel yara iyileşme uygulamaları için etkili bir şekilde uygulanabileceğini göstermektedir.

Anahtar Kelimeler: Biyolojik aktivite, Kompozit hidrojel, Yara iyileştirme

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➢ **ORAL PRESENTATION**

AISI 316 üzerine organik madde varlığında sentezlenen poli(*o*-aminobenzil alkol) filmlerin korozyon performanslarının incelenmesi

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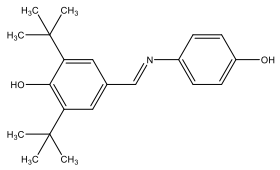
Özet

Genel bir tabirle metallerin fiziksel ve kimyasal olarak aşınması şeklinde tanımlanabilecek korozyon, günümüzün gelişen teknolojisine rağmen devletlere, endüstrilere ve insanlığa çok ciddi zararlar verebilen önemli bir olaydır. Yıkıcı bir doğal olay olan korozyon, metallerin çevreleriyle tepkimesinden kaynaklanır. Buna bağlı olarak malzemede ciddi hasarlar gözlenir. Bu zararların ve yaşanan kayıpların önüne geçmek için araştırmacılar yıllardır çeşitli yöntemler ve malzemeler geliştirmektedir. Bu malzemelerden biri çeliğin, krom ve nikel ile alaşımlanması sonucu elde edilen paslanmaz çeliktir. AISI 316 ve türevleri bu malzemelerden biridir ve ucuzluğu, kolay bulunabilirliği, kolay kullanılabilirliği, dayanıklılığı gibi sebeplerden ötürü endüstri tarafından sıkça tercih edilen paslanmaz çelik türlerindendir. Fakat krom ve nikelin kaliteli ve kararlı oksit tabakaları ile çeliğin üstün özelliklerini birleştiren paslanmaz çelikler her ne kadar pek çok ekstrem korozif ortama dayanıklı olsa da yoğun klorür ve sülfat içeren (örneğin; okyanus suyu gibi) ortamlarda beklenenden daha hızlı bir şekilde korozyona uğrayabilmektedir. Bu durumun önüne geçmek ve paslanmaz çeliğin koruyucu etkisini arttırmak için pek çok teknik bulunsa da literatürde son zamanlarda iletken polimer kaplamalar oldukça ilgi görmektedir. Özellikle polianilin ve türevleri bu konuda sıklıkla çalışılan ve başarılı sonuçlar veren iletken polimerlerdir. Bu polimerlerin çeşitli üstün özelliklerinin yanı sıra yapılarına korozyon direncini arttırabilecek organik/inorganik katkıların eklenmesi de iletken polimerleri, korozyondan koruma çalışmaları için önemli bir avantaj malzeme haline getirmektedir.[1]–[7].

Bu çalışmada anilin türevi bir monomer olan ve literatürde pek fazla çalışması bulunmayan *o*-aminobenzil alkolden elde edilen iletken polimer kullanılmış ve sentez ortamına kapalı formülü $C_{21}H_{27}NO_2$ olan literatürde daha önce çalışılmamış bir organik madde katılarak sentezlenen filmin korozyondan koruma performansının arttırılması amaçlanmıştır. Bu amaçla öncelikle asetonitril ve 0,15 M $LiClO_4$ içeren elektrolit çözücüde 0,15 M *o*-aminobenzil alkol monomeri çözülerek polimer kaplama banyosu hazırlanmıştır. Bu banyodan, platin elektrot karşıtlığındaki AISI 316 (SS) çalışma elektrodu üzerine poli(*o*-aminobenzil alkol) (PABA) filmi -0,2/1,8 V potansiyel aralığında 50 mV/s tarama hızında dönüşümlü voltametri tekniğiyle 30 segmentte sentezlenmiştir. Organik yapı katkılı polimer film (PABA+ORG) sentezi için ise aynı banyoda düşük derişimlerde $C_{21}H_{27}NO_{2(k)}$ (ORG) çözülerek aynı sentez işlemi tekrarlanmıştır. Elde edilen SS/PABA, SS/PABA+ORG elektrotların ve çıplak SS elektrodun korozyon performansları %3,5'luk NaCl çözeltisi içerisinde A.C. empedans, anodik polarizasyon ve açık devre potansiyeli – zaman teknikleri kullanılarak incelenmiştir.



Şekil 2. Kullanılan organik maddenin kimyasal yapısı

Çalışma sonucunda sentez ortamına eklenen organik katkının PABA'nın sentez davranışında değişikliklere neden olduğu görülmüştür. Korozyon performans testleri sonucunda ise PABA ve PABA+ORG filmlerinin çıplak SS elektrottaki difüzyon denetimli koruma etkisini geliştirerek SS elektrodun korozyondan koruma performansını arttırdığı ve korozyon hızını azalttığı gözlenmiştir.

Anahtar Kelimeler: korozyon; elektropolimerizasyon; *o*-aminobenzil alkol; AISI 316

Teşekkür: Bu çalışma Hatay Mustafa Kemal Üniversitesi Bilimsel Araştırma Projeleri Koordinatörlüğü (HMKÜBAP) tarafından 19.YL.005 proje numarası ile desteklenmektedir.

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➢ **ORAL PRESENTATION**

2,4-dimetilpirol ile hazırlanan bodipy temelli floresans Hg (II) sensörü

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Özet

Metal iyonlarının tespiti için floresans sensörlerin kullanımı, yüksek seçicilik ve kolay uygulanabilirlikleri nedeniyle tıp başta olmak üzere birçok bilim dalının gözde çalışma konusudur. Yakın-IR bölgede emisyon yapabilen moleküller, biyolojik ve tıbbi açıdan, dokuya kolaylıkla nüfuz ettiği ve dokuya daha az hasar verdiği için sensör olarak yaygın bir kullanıma sahiptir. Bu yüzden floresan özellik gösterebilen ve yakın infrared bölgede (NIR) emisyon yapabilen bileşiklerin tasarımı ile ilgili birçok çalışma bulunmaktadır. Bu bileşikler arasında BODIPY (boron-dipyrromethene) boyar maddeleri, bilinen ve en geniş kullanım alanına sahip, yakın infrared (NIR) bölgede emisyon yapabilen bileşiklerden biridir. Floresans bir bileşiğin herhangi bir pozisyonuna uygun fonksiyonel gruplar bağlanırsa kullanışlı floresans sensörler elde edilebilir. Sensör operasyonunun fotofiziksel mekanizması bağlanan grupların her birinin yerleşimi aynı reseptör için farklı özellikler gösterebilir. Seçimliliği artırabilmek ve kendi içerisinde enerji transferi yapabilen moleküller için anten tipi floresans bileşikler geliştirilmiştir. BODIPY bileşikleri ışık ve kimyasallara karşı dayanıklı floresans maddelerdir**.** Görünür bölgedeki ışınları yoğun olarak absorplarlar**.** Buna ilave olarak Bodipy türevleri sahip olduğu yüksek kuantum verimi, yapısal kararlılık, duyarlılık gibi üstün fotofiziksel özellikleri sayesinde birçok alanda kullanılmıştır.

Bu çalışmada, önce atom ve organik gruplar içeren Bodipy türevi hazırlanacaktır. Bu bileşiğin emilim, emisyon ve uyarma özelliklerinde meydana gelen değişiklikler daha sonra bazı metal iyonlarının varlığında incelenecektir. Böylece, bu ölçümlerde, metal iyonunun seçici olması için planlanan nihai Bodipy türevinin olduğu tespit edilmiştir. Meydana gelen bedensel bileşik, farklı metal iyonlarıyla test edildi. Fakat sadece cıva metal için bir seçicilik gösterdi. Bileşik Hg (II) iyon için bir floresan sensör kullanılabilir.

Anahtar Kelimeler: Bodipy, sensör, floresans

➢ ORAL PRESENTATION

Naphthaldehyde-derived Shiff bases and Zn (II), Co (II), Ni (II), Cu (II) and Fe (II) and characterization of complexes

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Abstract

In this study, the chloro ethylamine hydrochloride salt was dissolved in ethylacetate. 2-Hydroxynaphthaldehyde was added thereto. Triethylamine was then added. Triethylamine hydrochloride salt precipitated. There was thus obtained (E)-1-(((2-chloroethyl)imino)methyl)naphthalen-2-ol Shiff base. The complexes of this obtained Schiff base with Zn (II), Co (II), Ni (II), Cu (II) and Fe (II) metals were prepared under suitable conditions.
In the preparation of the other ligand, the bromoethylamine hydrochloride salt was dissolved in ethylacetate and 2-hydroxynaphthaldehyde was added thereto. Triethylamine was then added. Triethylamine hydrochloride salt was precipitated to give the Schiff base (E)-1-(((2-bromoethyl)imino)methyl) naphthalen-2-ol. Further, complexes of this Schiff base with Zn (II), Co (II), Ni (II), Cu (II) and Fe (II) metals were obtained.

Keywords: Schiff base, metal, complex

➢ **ORAL PRESENTATION**

Amine-functionalized graphene oxide supported effective metal nanocatalyst for dimethylamine-borane dehydrogenation in water

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Abstract

The graphene and its derivatives; due to the above mentioned properties, many studies have been carried out for various applications such as batteries, nanogenerators, photovoltaic devices and heterogeneous catalysis. In recent years, studies on the synthesis and applications of surface functionalized graphene derivatives have been extensively studied. Especially, it is understood from the literature that the amine functionalized graphene derivatives are used in such fields as industrial, biological, catalytic and sensor applications for adsorbent, solid support, composite and polymeric materials.

There are numerous solid hydrogen storage materials for chemical storage of hydrogen. One of which is dimethylamine-borane ($(CH_3)_2$-$NHBH_3$, DMAB). DMAB is appropriate materials due to their high efficiency of H_2 production, high stability, and non-toxicity. Dehydrogenation of DMAB in water produces 3 mol of H_2 per mole of DMAB. In this work, we report a facile synthesis of amine-functionalized graphene oxide supported metal nanocatalyst and its catalytic activity for the dehydrogenation of DMAB in water.

Keywords: Catalyst, Dehydrogenation, Dimethylamine-borane, Hydrogen, Nanocatalyst

➢ **ORAL PRESENTATION**

Catalytic reduction of 2-nitrophenol in water by using carbon-based material supported Metal (0) nanoparticles

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Abstract

One of the most important sources of pollution for the earth and groundwater on industrial and agricultural scale is nitroaromatic compounds. Nitroaromatic compounds are widely used in many proceses including dyes, medicines, pigments, insecticides, wood preservatives and the production of rubber chemicals. Aminophenols, which are reduction products of nitrophenols, are known to be widely used as intermediates for the synthesis of pesticides, drugs, dyes and other chemicals due to their low toxicity.

In this work, we report a facile synthesis of metal (0) nanoparticles supported on graphitic carbon nitride and its catalytic efficiency for the reduction 2-nitrophenol in aqueous media in the presence sodium borohydride. Metal (0) nanoparticles were simply and reproducibiy prepared through wet-chemical deposition and reduction technigue and then characterized by ICP-OES, P-XRD, XPS, TEM and TEM/EDX analyzes.

Anahtar Kelimeler: Environment, Nitrophenols, Pollution, Reduction, Water

➢ ORAL PRESENTATION

Functionalized graphene supported transition metal (0) nanoparticles: Effective catalysts for the catalytic reduction of thioflavin-t in water

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Abstract

Thioflavin-T, also known as basic yellow, is a cationic benzothiazole dyestuff. Thioflavin dyestuff is used to detect biological structures in tissues and proteins. Although it is known that the mechanistic background of the fluorescence increase is not completely clear, it has been speculated that the hindered rotation around the benzothiazole-dimethylaniline axis in limited environments is a determining factor.

In this study, we report our results on the ex-situ generation of transition metal (0) nanoparticles supported on functionalized graphene and their notable catalytic performance in terms of the activity, lifetime and reusability in the catalytic reduction of Thioflavin-T in water at room temperature under air. The catalytic reduction of Thioflavin-T was monitored using UV-vis spectrophotometer and these new metal (0) nanoparticles were characterized by advanced techniques.

Keywords: Functionalized graphene, Nanoparticles, Reduction, Thioflavin-T, Transition metal

2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

28-29 June 2019, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Efficient removal of radioactive uranium from aqueous solutions using high surface area metal-organic framework: UTSA-76

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Abstract

Ecological contamination and toxicity associated with radioactive uranium ion has encouraged scientists to develop efficient methods for rapid and high efficiency removal. In order to remove these radioactive contaminants from the aqueous medium, various conventional methods are used such as chemical precipitation such as hydroxide, carbonate or sulfite, and subsequently liquid-solid separation, sorption, membrane processes and reverse osmosis, electrolytic recovery and liquid-liquid extraction. Adsorption technique is the most preferred and low cost method. When the literature is examined, it is observed that composite materials such as polymer, membrane and carbon nanotube are used as adsorbents, while limited studies related with metal-organic framework (MOF) structures are found.

In this study, firstly, structural / morphological characteristics of UTSA-76 MOF structure which constitutes a very important class of porous materials were examined in accordance with the literature. Then, the adsorption properties of UTSA-76 with porous structure and large surface area in the removal of uranium (VI) cation from aqueous solutions was investigated. Advanced analytical and spectroscopic methods such as EA, XRD, TEM, TEM / EDX, NMR, FT-IR, BET and UV-vis were used to examine the properties of UTSA-76 to be prepared and the adsorption behavior of uranium ions on MOF structure. Temperature, pH, mixing time and solution concentration parameters were observed to determine optimum uranium adsorption conditions on MOF structure. The adsorption capacity of the uranium ion was determined and the kinetic, equilibrium and thermodynamic parameters were calculated and adsorption results were applied to different adsorption isotherm models.

Keywords: Adsorption, Metal-organik framework, UTSA-76, Uranium

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➢ **ORAL PRESENTATION**

Synthesis of (4-hydroxy-3-methoxybenzoyl) oxy-silver Compound; A comparative MP2 and DFT study

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Abstract

Silver compounds show activity as antibacterial, antiseptic. For this purpose, the synthesis of new compounds is studied. In this study, a new compound (4-hydroxy-3-ethoxybenzoyl) oxy) silver (HMBOS) was synthesized (Fig.1). Quantum chemical calculations of the molecule were performed by the density functional theory (DFT) and second order Møller-Plesset perturbation theory (MP2). The characterization of the molecular structure by ionic bonding with silver (I) via oxygen was investigated by a combination of DFT studies and experimental results. Nonlinear optical properties, natural bond orbitals (NBOs), frontier orbitals and electrostatic potential mapping (MEP) surfaces were also calculated. Parameters such as HOMO-LUMO band spacing (Δ), ionization potential (I) electron affinity (A) were obtained. The thermodynamic properties were calculated by the vibration analysis. Experimentally obtained FTIR analysis and theoretical values were compared and SEM techniques were used to determine the structure.

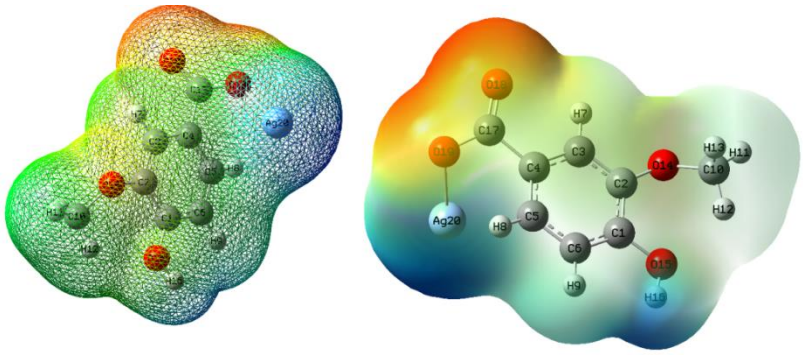

Figure 1. Molecular electrostatic potential (MEP) maps of the compound.

Keywords: DFT, MP2, HOMO-LUMO gap, Natural Bond Orbital.

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➢ **ORAL PRESENTATION**

Investigation of spectral properties of newly synthesized organometallic ruthenium complexes

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Abstract

Ruthenium (Ru) complexes are unique organometallic compounds with a wide range of uses. These complexes are promising materials in many research areas such as light emitting diodes (LEDs), electroluminescence devices, dye sensitive solar cells and solar energy conversion due to their suitable photophysical, photochemical and electrochemical properties, long luminescence lifetime, and large Stokes Shift [1, 2]. The synthesis reactions of organometallic ruthenium complexes were carried out under argon atmosphere, using dry solvents and Schlenk technique. Synthesized complexes were embedded in the selected polymeric matrices of poly (methyl methacrylate) (PMMA), polyvinyl chloride (PVC), ethyl cellulose (EC) and silicone and resulting composite materials were spread onto a 125 µm polyester support (Mylar TM type) by spin coating technique. Absorption, excitation and emission spectra of the thin films of these composite materials were recorded by spectroscopic methods.

In this work, emission based spectral properties of polymer embedded newly synthesized organometallic ruthenium complexes of [(η^6-p-cymene)$RuCl_2$(TSC)] (TSC: thiosemicarbazones) have been investigated.

Keywords: Ruthenium, organometallic compound, composite, luminescence, spectroscopy, spectral properties.

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➢ **ORAL PRESENTATION**

Elazığ ili Murat Nehrinde bor metalinin araştırılması

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Özet

Bu çalışmada, Elazığ ilinde bulunan ve su potansiyeli yüksek olan Murat Nehrinde bor konsantrasyonları İlkbahar ve Yaz sezonu boyunca tespit edildi. Murat Nehrinde bor konsantrasyonlarının belirlenmesi amacıyla su örnekleri alındı. Alınan su örneklerinde bor konsantrasyonları ICP/MS cihazı ile analiz edildi. Elde edilen verilere göre, ilkbahar mevsiminde B konsantrasyonları Mart ayından Mayıs ayına kadar çok fazla değişkenlik göstermedi. Mart, Nisan ve Mayıs aylarında ortalama B konsantrasyonu 974, 1036 ve 917 µg/L olarak tespit edildi. Yaz mevsiminde ise B konsantrasyonları Haziran ayından Ağustos ayına kadar azalma gösterdi. Haziran ayında ortalama B konsantrasyonu 804, 580 ve 489 µg/L olarak tespit edildi. Yerüstü Su Kalitesi Yönetmeliğin'de nehirler ve göller için maksimum izin verilebilir çevresel kalite standardında bor konsantrasyonlarının 1472 µg/L'yi aşmaması gerektiği belirtilmektedir. Çalışmamızda da ilkbahar ve yaz mevsiminde bor konsantrasyonları yönetmelikte verilen sınır değerden daha düşük konsantrasyonlarda olduğu tespit edildi Bu nedenle, Murat Nehri sularının bor açısından sulama suyu olarak kullanılmasında herhangi bir sakınca bulunmadığı belirlendi.

Anahtar Kelimeler: Bor, Metal, Murat Nehri, Su kalitesi, Elazığ

2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

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➢ ORAL PRESENTATION

Atıksu arıtma tesisi arıtma çamurlarında civa konsantrasyonlarının izlenmesi: Malatya ili örneği

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Özet

Bu çalışmada, Malatya İleri Biyolojik Atıksu Arıtma Tesisi (MİBAAT) arıtma çamurlarında Hg konsantrasyonları izlendi ve bazı ülkelerde verilen sınır değerlerle mukayese edildi. Elde edilen verilere göre, en yüksek Hg konsantrasyonu Eylül ayında 0,306 mg/kg olarak, en düşük Hg konsantrasyonu ise Şubat ayında 0,150 mg/kg olarak tespit edildi. Mevsimler incelendiğinde en yüksek ortalama Hg konsantrasyonu sonbahar mevsiminde 0,268 mg/kg olarak, en düşük ortalama Hg konsantrasyonu kış mevsiminde 0,151 mg/kg olarak tespit edildi. Ülkemizde arıtma çamurlarının toprakta kullanılabilmesi amacıyla Evsel ve Kentsel Arıtma Çamurlarının Toprakta Kullanılmasına Dair Yönetmelik yayımlanmıştır. Bu yönetmelikte Hg konsantrasyonu 10 mg/kg olarak belirtilmiştir. Çalışmamızda da Hg konsantrasyonları 0,150-0,306 mg/kg arasında tespit edildiğinden MİBAAT'nden çıkan arıtma çamurlarının toprakta kullanılabileceği belirlendi.

Anahtar Kelimeler: Civa, yönetmelik, izleme, arıtma çamuru, arıtma tesisi

➢ **ORAL PRESENTATION**

Sızıntı sularından elektro-fenton yöntemi ile koi giderimi

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Özet

Sızıntı suları yüksek konsantrasyonda organik ve inorganik nitelikli kirletici bileşenlere sahip olup alıcı ortama deşarj edilmeden önce mutlaka arıtılması gereken atık sulardan birisidir. Son yıllardaki literatür çalışmalarında, sızıntı sularının yüksek verimlilikte arıtılması için Elektro-fenton gibi ileri oksidasyon proseslerinin kullanımı önerilmektedir. Bu çalışmada sızıntı suyundan elektro-fenton yöntemiyle KOİ giderimi araştırılmıştır. Deneysel çalışmalarda giriş pH'sı, akım yoğunluğu, giriş H_2O_2 konsantrasyonu, elektrotlar arası mesafe ve reaksiyon süresi gibi önemli işletme parametrelerinin giderim verimleri üzerine etkileri incelenmiştir. Deneysel olarak belirlenen optimum deneysel koşullarda (pH: 2.5, akım yoğunluğu: 75 A/m^2, H_2O_2 konsantrasyonu: 2000 mg/L, elektrotlar arası mesafe:1 cm ve reaksiyon süresi: 30 dk) sızıntı suyundan 0.517 kg/m^3 anot ve 1.092 kWh/m^3 lük elektrik enerjisi tüketimleri ile maksimum % 63 oranında KOİ giderimine ulaşılmıştır. Anot (>%99.9 demir), elektrik enerjisi ve H_2O_2 tüketimi ile pH ayarlamasında kullanılan kimyasallar hesaba katılarak toplam maliyet 0.37 $\$/m^3$, 1 kg KOİ giderimi için maliyet ise 0,58 $ olarak hesaplanmıştır.

Anahtar Kelimeler: Sızıntı suyu, elektro-fenton, KOİ giderimi

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➢ **ORAL PRESENTATION**

Recovery of commodities using sequential stepwise extraction method from agroindustrial waste

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Abstract

Agro-industrial wastes are defined as non-product outputs of production and processing of agricultural products usually containing material that can benefit man, but whose economic values are less than the cost of collection, transportation, and processing for beneficial use. Winemaking, citrus, apple, tomato and onion production are the main branches of agriculture in Georgia, after recycling giving a large amount of waste, a rich source of commodity products – oils, flavor, natural pigments, antioxidants, pectin, etc. Modern concept of utilization of agricultural wastes focuses on complete utilization and use of eco-friendly separation method that require standard equipment for industrial application. The research was focused on sequential stepwise extraction method for utilization of grape/apple pomace and citrus peel. Design of sequential stepwise extraction methodology requires following preliminary studies: Selection of valuable compounds available from waste; Choice of extraction method (conventional, ultrasonic, supercritical fluid); Determination sequence of steps for extraction of selected compounds; Choice of solvents; Optimization of operational conditions. Supercritical fluid extraction for extraction of valuable compounds from citrus peel is eco-friendly separation tool. Supercritical CO_2 as solvent offers numerous advantages such as excellent mass transfer and control of density by temperature and pressure providing high selectivity of extracted products. Process relies on standard equipment and is fast. Ultrasonic sequential stepwise method were used in case of apple pomace, residues of apple juice processsing. Ultrasound-assisted extraction can offer high reproducibility in shorter time, higher yields of products, simplifies manipulation, decreases temperature during processing and lowers energy input. Conventional sequential stepwise extraction recently developed is low cost alternative to supercritical and ultrasonic method. Choice of suitable techniques depends on: desired class of compounds to be extracted, quality and yield required for product; the process conditions and economic feasibility for scaling up the process.

Keywords: Supercritical fluid, Ultrasonic, Pomace, Waste.

➢ **ORAL PRESENTATION**

Sondaj atıklarının yönetimi

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Özet

Hızla artan dünya nüfusuna paralel olarak artan yakıt ihtiyacı, petrol ve doğal gaz sondaj faaliyetlerinin artmasına ve beraberinde sondaj faaliyetleri sırasında ortaya çıkan atıklardan kaynaklanan çevre kirliliği sorunlarının da artmasına sebep olmaktadır. Hidrokarbon arama çalışmaları; hidrokarbon kaynaklarının varlığını belirlemek amacıyla, jeofizik yöntemlerin kullanılmasından, arama kuyusu açılmasına kadar olan süreci kapsar. Bu süreç içerisinde toprak, hava ve su gibi doğal ortamların kirlenmesi sözkonusudur. Bu çalışma kapsamında, petrol ve doğal gaz sondajı sırasında oluşan atıkların yönetim stratejileri üzerinde durulmuş ve sözkonusu atıkların yönetimine dair uygulama örnekleri sunulmuştur.

Anahtar Kelimeler: Atık yönetimi, Doğal gaz, Hidrokarbon, Petrol, Sondaj.

➢ **ORAL PRESENTATION**

Mikroplastikler

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Özet

Mikroplastikler, aşırı plastik kullanımı ve yetersiz atık yönetimi gibi nedenlerden dolayı önemli bir kirletici grubunu oluşturmaktadır. Bu çalışma kapsamında, mikroplastiklerin çeşitleri, özellikleri, kaynakları, bulunduğu ortamlar ve bu ortamlarda bulunma şekilleri ve çevresel etkileri değerlendirilmiştir. Mikroplastiklerin çeşitli ortamlardaki miktarlarına ait literatür bilgileri özetlenmiştir.

Anahtar Kelimeler: Deniz, mikroplastik, plastik, sediment.

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➢ **ORAL PRESENTATION**

Treatment of p-aminophenol production wastewater by electrochemical oxidation process using a boron-doped diamond anode

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Abstract

Pharmaceutical wastewater has complex pollutants to treat them effectively. Treatment of p-aminol production wastewater by electrochemical oxidation process was investigated in this paper. The effects of significant wastewater characteristics such as pH and conductivity, current density, different p-aminophenol concentrations and additive salt concentrations on the chemical oxygen demand (COD) and total organic carbon (TOC) removal efficiencies were researched. The removal efficiencies COD and TOC were high, being up to %95 and %98 respectively. Moreover, anode efficiency and instantaneous current efficiency with COD for each experiment set were calculated.

Keywords: Electrochemical oxidation, p-aminophenol wastewater, boron-doped diamond anode

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➢ **ORAL PRESENTATION**

Heavy metals' chemical partitioning in solid matrices and their use in environmental studies

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Abstract

The mobilities and behaviors of metals in the environment are determined by their specific physicochemical forms rather than by their total concentrations. Since each form has separate binding properties, chemical fractionation of the metals in the solid phase environmental samples gives a better indication of the environmental impact of them. The determination of the chemical speciation at present are based on sequential extraction procedures by using several reagents to extract the defined phases from the solids. The major methods used in the literature are the Tessier extraction method and the BCR sequential extraction scheme, which is a simplified version of Tessier procedure. Both methods define the selected fractions from labile to stable forms such as exchangeable, carbonate bound, Fe-Mn oxides bound, organic matter bound, and residual fractions. Numerous studies have been conducted in order to determine the metals' speciation in environmental samples such as soils, sediments, mining wastes, solid waste composts, sewage sludge. Among them, soils and sediments constitute the major portion of the studies, since they are the distinctive environmental medias that metal pollution can be determined. After defining the importance of chemical distribution in environment, a number of studies have been discussed in this paper investigating and explaining the metals' fractioning in sediments, soils, sludges, mining wastes, composts, and road dusts. The results highlight the significance of determination of heavy metals in chemical forms, and emphasize their environmental behaviors and polluting impacts.

Keywords: heavy metals, chemical speciation, environment, pollution

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➢ **ORAL PRESENTATION**

Environmental effects of micropollutans

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Abstract

The world population is growing rapidly and industry is also growing in order to feed and accommodate this increasing population. Growing industry has caused chemicals to enter our lives. However, this has, on the one hand, made life easier for people, while on the other hand, it has costed our health and cost an expensive life. Todays, one of these problems is mikropollutants. The source of micropollutanta are different. Micropollutants consist of pharmaceuticals, personal care products, steroid hormones, industrial chemicals, pesticides, polyaromatic hydrocarbons and other recently seen compounds. These contaminants are commonly found in very low concentration in different water bodies ranging from a few ng/l to several µg/l. Micropollutants, also called as emerging contaminants arise from natural substances and increasing variety of anthropogenic events. Drug or its metabolites are excreted out of the body with urine or feces. These are particularly effective for living organisms, because they are biologically active compounds. Besides the known negative effects of micropollutants, there are great number of micropollutants whose effects on living organisms are still unknown. As a result, removing these compounds is of a great importance both to protect environmental ecosystem and human health. The occurence of micropollutants with a significant levels in aquatic environments disrupt the aquatic ecosystems with a number of adverse effects including short-term and long-term toxicity such as endocrine disrupting effects. Considering that the conventional methods are insufficient for removing the micropollutants other alternative treatment methods including coagulation–flocculation, activated carbon adsorption, advanced oxidation processes (AOPs), membrane processes and membrane bioreactor can be applied for better removal. In recent years, Advanced Oxidation Prosesses (AOPs) have been frequently used for the treatment of xenobiotic residual pharmaceuticals which can not be treated by conventional treatment methods. AOPs can easily degrade various micropollutants which resist to biological degradation and increase the biological treatment capacity of wastewater. AOPs includes some processes such as sonoloysis, ozonation and membran filtration. As a result, removing these compounds is of a great importance both to protect environmental ecosystem and human health.

Keywords: Micropollutans, environmental effect, health effect, removal

➢ **ORAL PRESENTATION**

Ağır metal gideriminde sepiyolitin etkinliğinin araştırılması

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Özet

Ağır metaller yeryüzünde doğal olarak bulunan, kolay bozulmayan veya yok edilmesi mümkün olmayan genellikle yoğunluğu 6 g/ml'den büyük olan metaller olarak tanımlanmaktadır. Çok düşük konsantrasyonlarda bile toksik etkiye sahiptirler. Çoğunlukla oksit, silikat, karbonat ve sülfür bileşikleri halinde bulunurlar. Başlıca çevre kirletici elementler Cu, Pb, Hg, Cd, Zn, Fe, Mn, Cr, Ni, gibi elementlerdir. Ağır metaller sucul ortamdaki yüksek çözünürlüğünden dolayı canlı mikroorganizmalar tarafından adsorbe edilebilmektedirler. Besin zincirine girdikten sonra ağır metallerin fazla konsantrasyonları insan vücuduna birikebilmektedir. Bu durum ciddi sağlık sorunlarına yol açabilmektedir. Bu nedenle alıcı ortama deşarj edilmeden önce ağır metallerle kirlenmiş bu atıksuların arıtılması gerekmektedir. Ağır metallerin sudan uzaklaştırılmasında kimyasal çöktürme, filtrasyon, elektrokimyasal işlemler, mebran teknolojisi, ters osmoz ve adsorpsiyon gibi birçok yöntem kullanılmaktadır. Bu çalışmada pratik ve ekonomik olduğu için adsorpsiyon yöntemi tercih edilmiştir. Sepiyolit lifsi morfolojisi ve lif yönünde birbirini izleyen blok ve tünel yapısı ile çok çeşitli organik ve inorganik kirleticilerin tutulması için ideal bir malzemedir. Bu çalışmada doğal olarak elde edilen ve ekonomik bir meteryal olan sepiyolit kili adsorbent olarak seçilmiştir. Sepiyolit, sulu çözeltilerden bakır ve çinko metal iyonlarının adsorplama kabiliyetleri karakterize edilmiştir. Çalışmada bakır ve çinko iyonlarının potansiyel adsorpsiyonunun deneysel sonuçlarına Langmuir, Freundlich ve Temkin izoterm modelleri ve kinetik çalışmaları gerçekleştirilmiştir. Bakır ve çinko sulu çözeltilerinin sepiyolit ile adsorpsiyonu üzerine ağır metal konsantrasyonu, çözelti ph'sı, adsorbent miktarı, adsorbentin parçacık büyüklüğü ve temas süresinin etkisi incelenmiştir.

Anahtar Kelimeler: Sepiyolit, Bakır, Çinko, Adsorpsiyon

➢ **ORAL PRESENTATION**

TiO_2 –Sepiyolit nano kompozitleri ile sulu çözeltilerden çinko giderimi

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Özet

Gelişen teknoloji sayesinde dünyada ve gündelik yaşamda kullanılan teknolojik aletler her geçen gün önemli ölçünde gelişmekte ve küçülmektedir. Bugün daha küçük ve efektif elektronik cihazlar kullanabiliyorsak bu nano teknolojinin bize sundukları sayesinde mümkün olabilmektedir. Nano malzemeler, enerji, elektronik, sağlık, tekstil, savunma, çevre, gıda gibi birçok alanda yaygın bir şekilde kullanılmaktadır. Çevre alanında nano malzemeler atık suları temizlemek için kullanılmaktadır. Ağır metallerin adsorpsiyonu için sıklıkla kullanılan nano malzemeler aktif karbon, grafit, çinko oksit, magnezyum oksit, titanyum oksit gibi oksitlerdir. Ağır metallerin uzaklaştırılması için adsorbent olarak kullanılan nano malzemeler yüksek adsorpsiyon kapasitesine sahip, yüksek konsantrasyonlarda bile daha az adsorbent kullanarak kirleticileri adsorban yüzeyinden kolayca çıkarabilmekte, sayısız kez geri dönüştürülebilmekte ve adsorbe edilmiş kirleticileri emme yeteneğine sahiptirler. Bu çalışmada, mekanik olarak sentezlenmiş sepiyolit ve TiO_2 nano kompozitleri ve yüzey aktif madde aktivasyonu ile 2-mercaptobenzimidazole ile modifiye edilmiş nano-TiO_2 kompozitleri hazırlanmıştır. Hazırlanan nano kompozitler adsorbent olarak seçilmiştir. Sulu çözeltilerden çinko iyonlarının uzaklaştırılması üzerindeki etkisi araştırılmıştır. Nano kompozitlerin sulu çözeltilerden çinko iyonlarının adsorplama kabiliyetleri araştırılmıştır. Çalışmada çinko iyonlarının potansiyel adsorpsiyonunun deney sonuçlarına langmuir, freundlich, temkin izoterm modelleri ve kinetik çalışmaları gerçekleştirilmiştir. Çinko sulu çözeltilerinin Mekanik olarak sentezlenmiş sepiyolit- TiO_2 nono kompozitleri ve modifiye nono-TiO_2 kompozitleri ile adsorpsiyonu üzerine ağır metal konsantrasyonu, çözelti Ph'sı ve temas süresinin etkileri incelenmiştir.

Anahtar Kelimeler: Modifiye TiO_2 ,Öğütme, Çinko, Adsorpsiyon, Nano kompozitler

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➢ **ORAL PRESENTATION**

Effects of microplastics on environment and human health

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Abstract

Because of the development of chemistry and materials science, many kinds of plastics have entered our lives. As the use of plastic has increased over the last 50 years, plastic garbage in our environment has started to increase. This causes the accumulation of various plastic debris in the environment, including habitats in lakes and seas. The plastic wastes that are formed are transported to the water environments through rainfall, wind and rivers and land. The plastic garbage found in the lake and marine environment is a threat to wildlife. Animals may swallow plastics or otherwise experience plastic hazards. An animal that is entangled in plastic waste can be drowned, suffered by external injuries, and may lose the ability to escape from the hunter or to reach the food. Swallowed plastics and microplastics can cause damage to internal organs, malnutrition, digestive enzyme system, hormone balance, or deterioration of growth. From 1-5 mm as particulate small plastic particles can be considered as microplastic and are divided into two groups as primary and secondary microplastics. These are difficult pollutants to filter and protect. In this respect microplastics are a new indicator that today people are growing plastic footprints, which is becoming a risk for overall living health and sustainable environment. A wide range of products such as personal care products, shampoos, detergents, toothpastes, textiles, bags, shoes, tires, foodstuffs contain microplastics in their composition and emit microparticles in the air, water and environment depending on their use. The microplastics swallowed by living creatures in the water may undergo biological accumulation (biomagnification) from the primary target to the predators at the end of the nutrient. The movement of microplastics with nutrients may end in humans.

Keyword: plastic, microplastic, human health, environment

➢ **ORAL PRESENTATION**

Removal of Cu(II) from aqueous solutions by wheat bran biomass as a low cost biosorbent

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Abstract

In this study, wheat bran biomass was used for Cu(II) removal in the batch condidation from aqueous solutions. Experiments were performed to evaluate the effect of contact time, pH, biosorbent dosage, initial Cu(II) concentration and temperature on the Cu(II) removal. The results indicated that a contact time of 60 minutes, a dose of 3 g L^{-1} of biosorbents in solutions with an initial pH of 7.0, an initial Cu(II) concentration of 100 mg L^{-1} and 25 °C temperature resulted in the maximum Cu(II) removal efficiency. The successful removal of Cu(II) from the studied water samples indicates that wheat bran biomass can be used efficiently for pollution remediation of fresh water from Cu(II) and removal efficiency of 95.7% was obtained.

Keywords: Biosorption, heavy metal removal, wheat bran, Cu(II)

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➢ **ORAL PRESENTATION**

Microplastic fiber pollution in textile industry

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Abstract

When investigating the presence of microplastics (MPs) in ocean, marine, freshwater systems and soils, scientists have recently, if not earlier drawn attention to the substantial amounts of microplastics which may be present in atmospheric fallouts and indoor-outdoor environments air, and started to ask the question "are we breathing microplastics?" Microplastics from a number of sources can find their way to the atmosphere via winds and air currents, get transported from one place to another, settle on the ground, and may proceed to the lungs of people through the respiratory system, just like air pollutants and particulate matters. The present study reviews and characterizes the microplastic fibers (MFs) observed in the atmospheric fallout in the indoors-outdoors of a larger textile plant producing synthetic textile products, in an effort to reveal the impact of such fibers in the indoor air quality (IAQ), as well as the health of the workers who study the plant during the day. Furthermore, the MPs in the wastewater samples taken from influents and effluents of WWTP at the plant were analyzed, leading to an assessment of the MP amounts discharged from the textile plant to the sewer system, with a view to understanding the efficiency of the treatment systems in the textile industry in terms of MP removal.

Keywords: Fiber; Indoor air; Microplastics; Textile industry; Wastewater.

➢ **ORAL PRESENTATION**

Elektrokoagülasyon prosesi ile mezbaha atıksularından fosfat ve azot bileşiklerinin giderimi

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Abstract

Mevcut çalışmada, demir elektrotların kullanıldığı elektrokoagülasyon prosesi mezbaha atıksularının arıtımı için kullanılmıştır. Çalışmada kullanılan atıksu Tunceli'de (Türkiye) bulunan yerel bir mezbahadan temin edilmiştir. 17 cm x 18 cm taban boyutlarına ve 11 cm yüksekliğe sahip kesikli çalıştırılan elektrokoagülasyon reaktörüne 500 mL mezbaha atıksuyu ilave edilmiştir. Akım yoğunluğu 20 mA/m^2'ye ayarlanmıştır. İki elektrot arasındaki mesafe 16 mm'de tutulmuştur. Proses süresi 60 dakika olarak belirlenmiştir. Tüm proses boyunca atıksu bir karıştırıcı ile sürekli olarak 200 rpm'de karıştırılmıştır. Elektrokoagülasyon işleminden sonra, numuneler çökelme için 60 dakika karıştırılmadan bırakılmıştır. Analizden önce süpernatantlar 0.45 µm'lik bir membran filtreden süzülmüştür ve sonra fosfat (4500-P C), amonyak (4500-NH_3 F), nitrit (4500-NO_2^- B) ve nitrat (4500-NO_3^- B) parametreleri için analiz edilmiştir. Analizler standart metotlara göre yapılmıştır. Elektrokoagülasyondan sonra atıksudaki fosfat, amonyak, nitrit ve nitrat giderim verimleri sırasıyla %96, %63, %80 ve %70 olmuştur.
Sonuçlarımız, bu işlemin, mezbaha atıksularında bulunan fosfat, amonyak, nitrit ve nitratın giderilmesinde etkin bir yöntem olarak kullanılabileceğini göstermiştir.

Keywords: Elektrokoagülasyon, mezbaha atıksuları, fosfat, amonyak, nitrit, nitrat.

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➢ ORAL PRESENTATION

Merkezi kompozit tasarım ile P(Ɛ-CL-ko-MMA)/bentonit kompoziti kullanılarak bazik mavi 41 gideriminin modellenmesi

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Abstract

Boya içeren atıksuların arıtılmadan sulara deşarj edimesi hem toksikolojik hem de estetik nedenlerden dolayı önemli bir çevre sorunu oluşturmaktadır. Bu çalışmada, katyonik boya sınıfından olan yüksek toksiditeye sahip bazik mavi 41'in sulu çözeltilerden giderilmesi, kütlece %15 oranında bentonit ile katkılanmış P(Ɛ-CL-ko-MMA) polimeri kullanılarak gerçekleştirilmiştir. Bazik mavi 41'in uzaklaştırılmasını optimize etmek için merkezi kompozit tasarım kullanılmıştır. Bazik mavi 41 adsorpsiyonunu önemli ölçüde etkileyen deney değişkenleri olarak, başlangıç boya konsantrasyonu (5-20 mg/L), pH (3-9) ve temas süresi (10-120 dakika) seçilmiş ve optimize edilmiştir. Bağımsız değişkenlerin anlamlılığı ve etkileşimleri ANOVA kullanılarak araştırılmıştır. Çözeltilerde kalan boya miktarı 610 nm'de UV-Vis spektrofotometre ile belirlenmiştir. Optimum koşullarda giderim verimi % 95,59 olarak elde edilmiştir. Bazik mavi 41'in giderimi için regresyon katsayısı (R^2) 0,91 olarak bulunmuştur. Mevcut çalışmada laboratuvarda sentezlenen P(Ɛ-CL-ko-MMA)/bentonit kompozitinin bazik mavi 41 içeren atıksuların arıtımı için uygun bir alternatif olabileceği sonucuna varılmıştır.

Keywords: Bazik mavi 41, adsorpsiyon, merkezi kompozit tasarım, P(Ɛ-CL-ko-MMA)/bentonit.

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➢ **ORAL PRESENTATION**

Removal of certain dyes in aqueous media by using Bardakcı clay

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Abstract

Malachite green (MG), a cationic dye, has triarylmethane structure. It is used as anti-fungal agent in aquaculture. However, it has toxic effects and there is a grave concern regarding its use. Because it has harmful effects on human beings and animals, it is necessary to remove MG from aqueous solution. Adsorbents reported for MG removal from wastewaters include breadnut skin, sawdust, hydrochar and rice husk. In this study natural clay from Bardakçı/Van region were utilized as an adsorbent for the removal of MG which is one of the common dyes, from aqueous solution in batch experiments. Effects of initial dye concentration, contact time and temperature were investigated at the adsorption experiments. Concentration of MG in dye solution determined for 240 minute with spectrophotometer at maximum absorption wavelength of 617 nm. The adsorption experiments were conducted at seven different concentrations (10, 20, 30, 40, 50, 60, 70 ppm) and three different temperatures (298, 308, 323K). Unknown MG concentration was measured using calibration curve which was plotted between absorbance and certain concentrations of dye solutions. The data were applied to Langmuir, Freundlich and Temkin adsorption isotherms. According to the results, Freundlich isotherm model becomes more convenient option compared with other two isotherm models. Freundlich model coefficients raise as the temperature rises, showing that the adsorption process becomes favorable higher temperature. Activation parameters for instance free energy (ΔG), enthalpy (ΔH) and entropy (ΔS) values were assessed. Absolute values of free energy, enthalpy and entropy values of MG onto natural clay are calculated as 3.058 kJ/mol, 17.087 kJ/mol and 62.369 J/mol.K, respectively. It was also found that natural clay has a good adsorption capacity and data demonstrate that natural clay may be an alternative material than costly adsorbents for dye removal from wastewaters.

Keywords: dye adsorption, malachite green, thermodynamic parameters, adsorption isotherms, Bardakçı/Van clay

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➢ **ORAL PRESENTATION**

Kinetic studies of malachite green adsorption using Bardakçı/Van Clay

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Abstract

Malachite green (MG), triphenylmethane (basic green 4) is cationic dye used as colouring agent for many materials and it is also used in fish keeping to cure parasitic, fungal and bacterial diseases of fish and fish eggs. Water animals metabolize MG into leucomalachite form which after consumption shows toxic features such as carcinogenic, mutagenic and teratogenic effects. In literature studies concerning usage of cheap, waste materials of organic origin for removal of dyes from wastewaters. In this study natural clay from Bardakçı/Van region were utilized as an adsorbent for the removal of MG which is one of the common dyes, from aqueous solution in batch experiments. Effects of initial dye concentration, contact time and temperature were investigated at the adsorption experiments. Concentration of MG in dye solution determined for 240 minute with spectrophotometer at maximum absorption wavelength of 617 nm. The adsorption experiments were conducted at seven different concentrations (10, 20, 30, 40, 50, 60, 70 ppm) and three different temperatures (298, 308, 323K). Unknown MG concentration was measured using calibration curve which was plotted between absorbance and certain concentrations of dye solutions. The kinetic data were analyzed using pseudo first order (PFO), pseudo second order (PSO) and intra-particle diffusion (IPD) models. Adsorption of the MG on adsorbent at the different conditions was best fit the PSO model. The regression coefficients of PSO model were higher than the other two kinetic model coefficients and these values were found to be higher than 0.98. Kinetic constants are closer to the both temperatures and initial concentrations and qe values are increases with increasing concentration of MG. It was also found that natural clay has a good adsorption capacity and the data demonstrate that natural clay may be more precious alternative material than costly adsorbents for dye removal.

Keywords: dye adsorption, malachite green, kinetic data, PFO model, PSO model, IPD model, natural clay

This research is supported by the Van Yüzüncü Yıl University, Scientific Research Projects Department (**Project Name**: Removal of Certain Dyes in Aqueous Media By Using Bardakcı Clay, **Project Number**: FAP-2018-7614)

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➢ **ORAL PRESENTATION**

Lactarius salmonicolor as an effective biomaterial for the removal of cadmium from solutions

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Abstract

Pollution of the water sources by various pollutants such as heavy metals is a serious environmental problem. Uncontrolled discharge of metal bearing industrial effluents into aquatic environment can pose serious effects on the living systems. In this context, interest has arisen on the biosorption applications for the treatment of contaminated waters. This process is based on the physicochemical interactions between toxic metal ions and biomaterial surface. This study was undertaken to prepare an environmentally friendly biomaterial for the treatment of cadmium contaminated waters. Batch mode biosorption potential of the biomaterial prepared from *Lactarius salmonicolor* was systematically explored for the treatment of Cd^{2+} contaminated aquatic media. Initial pH, biomaterial dosage and contact time parameters were screened through the biosorption experiments. Equilibrium biosorption experiments showed that the suggested biomaterial has a good biosorption potential for Cd^{2+} at the pH values of 5.0, 6.0 and 7.0. More than 80% metal removal efficiency was obtained by using 5 g L^{-1} biomaterial. Equilibrium for the biosorption process occurred within 5 min. Langmuir model was well predicted the equilibrium biosorption data. The obtained results in this study indicated the potential applicability of *L. salmonicolor* as a low-cost and environmental friendly biomass for the removal of Cd^{2+} pollution in aquatic media.

Keywords: Biosorption, Cadmium, Fungal Biomaterial, *Lactarius salmonicolor*.

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➢ **ORAL PRESENTATION**

Lead biosorption potential of *Gibberella fujikuroi* biomass for water treatment

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Abstract

Water pollution caused by toxic metals poses a serious threat to public health and environment. Effective removal of metal pollutants from contaminated waters is a challenge for environmental protection. Biosorption is a promising alterative process to remove such pollutants from aquatic media. This study focused on the preparation of an effective and ecofriendly biomaterial for the removal of Pb2+ from contaminated aquatic solutions. In this context, a biomass was prepared from a fungal culture Gibberella fujikuroi to investigate the Pb2+ biosorption potential. Biosorption characteristics of the biomaterial were explored by means of batch mode optimization experiments. Experimental data were evaluated by isotherm and kinetic modelling studies. Biosorption was found to change by initial pH, biosorbent amount and contact time. Maximum biosorption was observed at the initial pH of 5.0. The appropriateness of the Langmuir model indicates the monolayer coverage of the Pb2+ ions onto suggested biomass. Results indicated that G. fujikuroi biomass has a good treatment potential for contaminated waters.

Keywords: *Gibberella fujikuroi*; biosorption; lead; equilibrium.

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➢ **ORAL PRESENTATION**

Determination of some biological activities of Schizophyllum commune collected from different regions

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Abstract

In this study, *Schizophyllum commune* Fr. total antioxidant levels, total oxidant levels, oxidative stress indices, antimicrobial activity on 9 different fungi and bacteria and determination of heavy metal levels were aimed. Rel Assay Diagnostics kits (TAS, TOS) were used to determine the TAS, TOS and OSI values. Antimicrobial activity tests *Staphylococcus aureus* ATCC 29213, *S. aureus* MRSA ATCC 43300, *Enterococcus faecalis* ATCC 29212, *Escherichia coli* ATCC 25922, *Pseudomonas aeruginosa* ATCC 27853, *Klebsiella pneumoniae* ATCC 700603, *Acinetobacter baumannii* ATCC 19606, *Candida albicans* ATCC 10231, *C. krusei* ATCC 34135 ATCC 13803 and *C. glabrata* were determined by modified agar dilution method against ATCC 90030 standard strains. Cr, Cu, Mn, Fe, Ni, Cd, Pb and Zn contents of mushroom samples were determined by atomic absorption spectrophotometer (AAS). As a result of the studies, it has been determined that it has an effect on microorganisms at 50-800 µg/mL extract concentrations. The highest TAS value was determined as 3.149±0.121 in the samples collected from Antalya province. The highest values of TOS and OSI were 17.722±0.121 and 0.886±0.033, respectively. In addition, as the region in which the fungus was collected, it was determined that heavy metals were deposited at different levels.

Keywords: *Schizophyllum commune*, antioxidant, oxidant, antimicrobial, heavy metal.

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➢ **ORAL PRESENTATION**

Bitlis Katı Atık Birliği (BİKA) katı atık depolama sahası sızıntı suyunun fitotoksisitesinin değerlendirilmesi

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Özet

Hızlı nüfus artışı, artan sanayi ve endüstrileşme ile birlikte oluşan atıklar gün geçtikçe büyüyen bir sorun haline gelmiştir. Atıklar oluştukları alanlarda ve düzensiz depolama alanlarında toplum sağlığını tehdit eden koşulların oluşmasına neden olmaktadır. Düzenli depolama, atıkların bertarafında en uygun, ucuz ve tercih edilen yöntemdir. Depolama alanlarının en büyük dezavantajları sızıntı sularının oluşmasıdır. Sızıntı suları çok sayıda kirleticiyi kompleks bir şekilde içermektedir. Katı atık kompozisyonu zamana ve bölgelere göre farklılık göstermektedir. Buna bağlı olarak sızıntı suyu kalitesi de farklılık göstermektedir. Bileşimi hızla değiştiği ve kirleticileri yoğun şekilde içerdiği için sızıntı suları arıtılmaları en zor olan sulardır. Değişkenlik göstermekle birlikte temel bileşiminde bulunan yüksek organic madde miktarı, azotlu maddeler, ağır metaller, organic ve inorganic tuzlar nedeni ile yeraltı ve yüzey suları ile toprak kirlenmesine neden olabilmektedirler.

Kirleticilerin çevresel etkilerinin değerlendirilmesinde kimyasal ve biyolojik yöntemler birlikte kullanılmalıdırlar. Kimyasal testler kirleticilerin birlikte etkilerini, canlılara etkilerini ve ölçülemeyen düzeylerdeki kirletici etkilerini gösteremezler. Uluslararası kuruluşlar tarafından çok sayıda çevresel kirleticilerin etkilerini göstermeye yönelik test tanımlanmıştır. Yüksek yapılı bitkilerde çimlenme ve büyüme inhibisyonunun ölçümüne dayanan fitotoksisite testleri bunlardan biridir.

Bu çalışmada BİKA Katı Atık Depolama Sahası (Bitlis) sızıntı sularının bitkiler üzerine olası etkilerini değerlendirmek amacıyla *Lepidium sativum* ile fitotoksisite testi uygulanmıştır. Sızıntı suyu toplama havuzundan alınan su örneklerinin farklı seyreltme serileri ile hazırlanmış sızıntı suyu, stok besin çözeltisi (pozitif kontrol) ve sadece sızıntı suyu (negatif kontrol) etkisinde bırakılan tohumların çimlenme oranı, kök ve gövde uzunlukları ölçülmüştür. Çalışma 3 tekrarlı olarak yapılmış ve her bir set içim toplam 30 tohum kullanılmıştır. En yüksek çimlenme oranı ile kök ve gövde uzamaları pozitif kontrolde tespit edilirken, sızıntı suyu oranı arttıkça büyümenin yavaşladığı görülmüştür. Sonuçlar ışığında Bitlis İli Katı Atık Depolama sahası katı atık sızıntı suyunun yüksek oranda fitotoksik olduğu tespit edilmiştir.

Anahtar Kelimeler: Katı atık**,** Sızıntı suyu, Fitotoksisite, *Lepidium sativum*

➢ **ORAL PRESENTATION**

Atıkların ekotoksikolojik karakterizasyonu

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Özet

İnsanların sosyal ve ekonomik faaliyetleri sonucunda işe yaramaz hale gelen, kullanım süresi dolmuş yaşadığımız ortamdan uzaklaştırılması gereken maddelere atık denmektedir. Atıkların kaynağına, bileşimine ve özelliklerine göre sınıflandırılması; toplama, taşıma ve bertaraf sistemlerinin tasarımı, tesisi ve işletilmesi, geri kazanılabilir maddelerin ekonomiye kazandırılması ve bu atıklardan enerji üretimi açısından son derece önemlidir. 29314 sayılı 2015 tarihli "Atık Yönetimi Yönetmeliği" ile 839 atık, 405 adet tehlikeli atık, 173 muallak atık tanımlanmıştır. Muallak Atıklarda tehlikeli ve tehlikesiz atıklar arasında ayrım yapmak için, Avrupa Atık Listesinde 15 tehlike kriteri belirtilmiştir. Tehlike kriteri 14 ekotoksik tehlikeyi ifade eder. Atıkların ekotoksikolojik karakterizasyonu için kimyasal ve biyolojik test yöntemleri birlikte kullanılmalıdır. Atıkların çevresel tehlikelerinin değerlendirilmesi ancak biyolojik test yöntemlerinin kullanılması ile mümkündür. Biyolojik yanıtlar EC50, LC50 ve IC50 (sıra ile; etkili derişim, öldürücü derişim ve inhibisyon derişimi) verilerinin hesaplanması ile ölçülür. Avrupa'da atık desarjlarının değerlendirilmesinde etkili derişimler esas alınmaktadır. Ülkemizde balık biyodeneylerine dayananan zehirlilik seyreltme faktörü (ZSF) kullanılmaktadır. Diğer ekotoksikolojik testlere göre pahalı, uygulanması zor ve sonuçların güvenirliği tartışmalıdır. Bu çalışma ile atıkların Avrupa Standartları kapsamında ekotoksikolojik karakterizasyonuna ait prosedür ve uygulama örneklerini içeren ilgili bilimsel çalışmalar derlenmiştir.

Anahtar Kelimeler: Atık karakterizasyonu, Tehlikeli atıklar, Ekotoksik atıklar, Biyo-deneyler

➢ **ORAL PRESENTATION**

Water quality and heavy metal pollution in Hancagiz Dam (Gaziantep, Turkey)

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Abstract

The present study was conducted to determine the water quality and heavy metal pollution in Hancagiz Dam (Gaziantep, Turkey) being an irrigation and industrial water dam. For this purpose, water sampling was performed in spring 2019 and samples taken into polyethylene bottles were used to determine the presence of heavy metals (Al, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb and Zn) using ICP-MS. The water temperature, pH, dissolved oxygen and conductivity were measured *in situ* via 8405 Combo Water Meter. The average values of water temperature, pH, dissolved oxygen and conductivity were as follows; 24.1oC, 8.63, 11.1 mg/L and 1278.3 µS cm-1, respectively. Hancagiz Dam was found to be third class water quality indicating pollution. Among heavy metals analysed levels of Cd, Co, Cr, Cu and Pb were under detection limit of 0.05 mg/L. The order of heavy metal levels in Hancagiz Dam was found as Mn>Fe>Al>Zn>Ni. According to recommended maximum element concentrations for irrigation purposes by United Nations Food and Agricultural Organization (FAO), Mn and Zn levels were found to be higher than maximum recommended level while Fe, Al and Ni were in the allowable range. A general increasing or decreasing trend was not determined in heavy metal levels.

Keywords: Hancagiz Dam, water quality, pollution, heavy metal

➢ **ORAL PRESENTATION**

Highly effective alginate-based composite cryogels as adsorbents for dye removal

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Abstract

With the development of various industries, synthetic dye effluents in waters have been causing serious environmental problems. Although various adsorbents have been successfully applied to treat dye contaminations, there is still a need to enhance the removal capacity, reusability and mechanical strength of the adsorbents[1].

Cryogelation is a simple low-temperature crosslinking method which results in macroporous gels (cryogels) that can be utilized as dye adsorbents[2]. Recently, cryogel-like materials were developed for dye removal by an approach named as quasi-cryogelation[3]. However, since freezing takes place after crosslinking, the obtained adsorbents lack of open porosity and elasticity. Herein, we utilize conventional cryogelation to produce a novel adsorbent based on alginate/montmorillonite for methylene blue recovery. Pristine alginate was crosslinked via carbodiimide chemistry at subzero temperatures. Montmorillonite (MMT) clay was included in the initial polymer solution to enhance dye removal capacity of the alginate cryogels. The effect of MMT amount on the elasticity, swelling, microstructure and adsorption performance of the samples was investigated.

The results revealed that the cryogels prepared exhibit superior swelling, toughness and open and interconnected porosity. Adsorption of methylene blue by composite cryogels followed Langmuir model and Pseudo-Second Order kinetic model, therefore high dye removal capacity (559,9457 mg g^{-1}) was obtained. In conclusion, we envisage that these alginate/MMT cryogel adsorbents have great promise as adsorbents for recovery of dyes from waste waters.

Keywords: Alginate, Cryogel, Composite, Montmorillonite, Dye Removal

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➢ **ORAL PRESENTATION**

Tekstil atıksularından elektro-fenton prosesi ile KOİ ve renk giderimi

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Özet

Tekstil sanayi atıksuları yüksek düzeyde toksikolojik özelliklere sahip boya kimyasalları içermektedir. Bu nedenle alıcı ortama verilmeden önce verimli ve ekonomik arıtma teknikleri ile arıtılmaları gerekmektedir. Bu çalışmada, tekstil atıksuyundan elektro-fenton (EF) prosesi ile KOİ ve renk giderim optimizasyonu ile optimum deneysel şartların belirlenmesi amaçlanmıştır. İşletme parametreleri olarak sırası ile pH (2.5, 3, 3.5, 4), akım yoğunluğu (80, 100, 120,140 A/m^2) ve H_2O_2 konsantrasyonu (1000, 1500, 2000, 2500, 3000, 3500, 4000 mg/L) seçilmiştir. Optimum çalışma şartlarında (Anot: demir, katot: çelik, karıştırma hızı: 250 rpm, pH=3, akım yoğunluğu 140 A/m^2, H_2O_2 konsantrasyonu 2000 mg/L) 20 dakikalık EF süresi sonunda 20.dk'da maksimum %91 KOİ giderim verimi elde edilirken 0,014 kg/m^3 anot ve 0,60 kWh/m^3 lük elektrik enerjisi tüketimi saptanmıştır. Maksimum renk giderim verimi ise 5.dakikada %88 olarak bulunmuştur ve 0,004 kg/m^3 anot ve 0,15 kWh/m^3' lük elektrik enerjisi tüketimi elde edilmiştir.

Anahtar Kelimeler: Elektro-fenton, tekstil atıksuyu, KOİ, renk, giderim

➢ **ORAL PRESENTATION**

Fenton ve foto-fenton yöntemleri ile tekstil endüstrisi atıksularından KOİ ve renk gideriminin incelenmesi

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Özet

Tekstil endüstrisi atıksuları boyama ve yıkama prosesleri sonucu açığa çıkan yüksek renk ve kimyasal oksijen ihtiyacı (KOİ) değerine sahip atıksulardır. Özellikle tekstil endüstrisi atıksularındaki boyar maddeler, kanserojenik ve toksik yan ürünler ürettiklerinden büyük ölçüde çevre kirliliğine neden olabilirler. Bu tür atıksuların arıtılması için ileri oksidasyon proseslerinin etkinliği literatürde yer almaktadır. Tekstil boyar maddeler ile boyama yapılan bir tesise ait atıksulardan kimyasal oksijen ihtiyacı (KOİ) ve renk kirletici parametrelerinin fenton ve foto-fenton yöntemleri ile karşılaştırmalı olarak giderim çalışmaları yapılmıştır. Deney koşulları olarak pH, hidrojen peroksit (H_2O_2) derişimi, demir (Fe^{+2}) iyonu derişimi ve reaksiyon süresi belirlenmiş olup, bu parametrelerin etkileri incelenmiştir. Arıtılan organiklerin (KOİ) kg maliyeti hesaplanmıştır.

Anahtar Kelimeler: Fenton, foto-fenton, KOİ ve renk giderimi, tekstil endüstrisi atıksuyu, UV

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➢ **ORAL PRESENTATION**

Modelling of sulfamethoxazole adsorption from aqueous solutions onto Fe_3O_4-MWCNTs

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Abstract

Nowadays, water pollution is a serious problem that must be resolved. One of the most important groups of pollutants of concern consists of the pharmaceutical compounds included antibiotics in wastewaters. Antibiotics are widely used pharmaceuticals for human health in medicine, animal health in veterinary medicine and protection of products in farming. However, nearly 80 % of the administered antibiotic remains unchanged or in an active metabolite state in the urine and feces of humans and other animals. The excreted antibiotics are not easily biodegraded; consequently, antibiotics are frequently detected in wastewater treatment plants and drinking water, thereby imposing a great risk to nontarget species in the ecosystems. Therefore, the removal of antibiotics from wastewater are of great significance to the environments and the protection of human health. In this study, removal of sulfamethoxazole (SMZ) antibiotic, which is frequently used in medical applications, from aqueous solutions using magnetic multi-walled carbon nanotubes (Fe_3O_4-MWCNTs) was modeled by Response Surface Methodology (RSM). Independent parameters effective on percentage of SMZ removal selected as the response variable were selected as the initial pH of solution, the concentration of SMZ solution, the concentration of Fe_3O_4-MWCNTs and the contact time. Effects of those four parameters were investigated using Central Composite Design (CCD) under RSM in order to develop the mathematical model equation of response variable. As a result of variance analysis (ANOVA), a high regression coefficient value (R^2=0.991, R^2_{Pre}=0.953) was obtained. Linear and quadratic effects of parameters which are initial pH of solution, concentration of SMZ solution and concentration of Fe_3O_4-MWCNTs were demonstrated to be very significant ($P<0.0001$) for removal of SMZ. The interaction between the initial pH of solution and the concentration of SMZ and the initial pH of solution and the concentration of adsorbent was very important ($P<0.05$).

Keywords: Adsorption, Fe_3O_4-MWCNTs, Response Surface Methods (RSM), Sulfamethoxazole (SMZ).

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➢ ORAL PRESENTATION

Adsorption of sulfamethoxazole onto Fe_3O_4-MWCNTs from aqueous solution: Kinetics, isotherm and thermodynamic study

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Abstract

Adsorption is the most widely used because of the ease of operation and it is comparatively low cost. In addition, adsorption has been proven to be more effective for the treatment of antibiotics from aqueous solutions. The adsorbents that are used for adsorption must be low cost, easily available, renewable and low toxicity. In this study, magnetic multi-walled carbon nanotubes (Fe_3O_4-MWCNTs) were synthesized chemical precipitation method and they were used to removal of sulfamethoxazole (SMZ) from aqueous solutions. Adsorption studies were conducted in 250 mL flasks. The flask, which contained the Fe_3O_4-MWCNTs and 50 mL of the SMZ solution, was placed in a water bath and mixed at 120 rpm for 60 min. The experiments were performed to determine the effect of temperature (293, 303, 313 and 323 K) for contact periods ranging from 0 to 60 min. The experimental data which were obtained from time course at different temperature were analyzed by using pseudo-first order and pseudo-second order adsorption kinetic models. The experimental data fit the pseudo-second order kinetic model. The aqueous solutions containing initial SMZ concentrations changing from 20 to 80 mg/L were contacted with Fe_3O_4-MWCNTs at the various constant temperatures (20, 30, 40 and 50 °C) and to obtained equilibrium data used for the isotherm studies. At the end of equilibrium period, suspensions were separated by a neodium magnet, and the SMZ concentration was determined with a UV-vis spectrophotometer at 267 nm. The equilibrium adsorption data were analyzed using the Langmuir, Freundlich and Redlich-Peterson Isotherm models and determined the thermodynamic parameters ($\Delta H°$, $\Delta G°$, $\Delta S°$) for the adsorption process. The results indicated that the Redlich-Peterson isotherm more fits than other applicated isotherm models the experimental results well. The thermodynamic parameters of the adsorption process also were evaluated. The negative value of $\Delta H°$ indicated that the adsorption process was exothermic.

Keywords: Adsorption, Fe_3O_4-MWCNTs, Kinetics, Sulfamethoxazole (SMZ), Thermodynamics.

➢ **ORAL PRESENTATION**

Modifiye poli(akrilamit-ko-krotonik asit) hidrojellerinin adsorpsiyon özelliklerinin incelenmesi

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Özet

Tekstil, plastik, gıda, kozmetik, halı ve kâğıt gibi çeşitli endüstriyel sektörlerde kullanılan boyaları içeren atık suların göl, nehir, akarsu gibi çeşitli su sistmelerine boşaltılması, güneş ışınlarının suyun içlerini geçişini zorlaştırmakta, fotosentezi azaltmakta, kanser gibi çeşitli hastalıklara sebep olmaktadır ve bunun bir sonucu olarak ekolojik denge bozulmaktadır. Çalışmamızın amacı atık sularda bulunan boyaların temizlenmesi amacı ile yeni bir adsorban sentezlemektir. Bu sebeple çalışmamızda ilk olarak akrilamit, krotonik asit, metilenbisakrilamit ve amonyum peroksidisülfat karışımı suda çözülmüş ve bunların 70 ^{o}C'de polimerleşmesi ile poli(akrilamit-ko-krotonik asit) hidrojelleri hazırlanmıştır. Burada akrilamit çok iyi jel formu oluşturduğu için, krotonik ise üzerindeki karboksil grupları ile bazik pH değerlerinde model boya olarak seçilen metilen mavisini adsorplaması için seçilmiştir. Hazırlanan hidrojeller adsorpsiyon kapasitesini arttırmak amacıyla hofman degradasyonuna uğratılmış ve ardından karbon disülfür ile modifiye edilmiştir. Hidrojeller FTIR, SEM, ^{13}C-NMR ve element analizi çalışmaları ile karakterize edilmiştir. Elde edilen modifiye ve modifiye edilmemiş hidrojeller metilen mavisi boyasının adsorpsiyon çalışmalarında kullanılmıştır. FTIR çalışmaları ile krotonik asitin akrilamit hidrojellerin yapısına girdiği ve hofman degradasyonu sonucunda akrilamit üzerindeki amid gruplarının amino gruplarına dönüştüğü belirlenmiştir. Hidrojellerin karbon disülfür ile modifikasyonu ise ^{13}C-NMR ve element analizi çalışmaları ile kanıtlanmıştır. SEM çalışmalarında hidrojellerin hofman degradasyonundan sonra pürüzlü bir yapı kazandığı ve karbon disülfür modifikasyonundan sonra ise üzerinde bal peteğine benzer yapılar meydana geldiği bulunmuştur. Adsorpsiyon çalışmalarında modifiye edilmemiş hidrojellerin Q değerinin 76,53 mg/g, karbon disülfür modifiye hidrojellerin ise 462,13 mg/g değerlerine ulaştığı belirlenmiştir. Modifikasyonun hidrojellerin adsorpsiyon kapasitelerini çok fazla arttırdığı yapılan çalışmala ile kanıtlanmıştır. Elde edilen sonuçlar geliştirilen adsorbanın atık sulardan katyonik boyaların giderimin de yüksek kapasite ile başarılı bir şekilde kullanılabileceğini göstermiştir.

Anahtar Kelimeler: Akrilamit, Krotonik asit, Modifikasyon, Hidrojel, Adsorpsiyon, Metilen mavisi

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➢ **ORAL PRESENTATION**

Biosorptive removal of cadmium from aqueous solutions by the biomaterial prepared from *Neurospora sitophila* cells

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Abstract

Pollution of water sources by heavy metals is a problem of global concern given their environmental impacts and potential toxicities. A significant increase has been noted in the researches related to preparing efficient and alternative materials for the treatment of metal contaminated effluents. Our study was aimed of determining the Cd^{2+} biosorption potential of *Neurospora sitophila* (*N. sitophila*) as an easily cultivated fungal strain. Biosorption potential of *N. sitophila* was investigated with respect to initial pH (1.0–6.0), contact time (5–90 min), biosorbent dosage (1.0–7.0 gL^{-1}) and initial metal ion concentration (10–250 mg L^{-1}). The biosorption yield of *N. sitophila* biomass reached up to 80% with the biosorbent amount of 5.0 gL^{-1}. At the optimum pH (6.0) the cadmium biosorption reached to equilibrium within short time (5 min) and equilibrium data was well described by the Langmuir isotherm model. The findings of batch mode biosorption experiments imply that the suggested biomaterial may find promising applications for the removal of cadmium contamination from aquatic environment.

Keywords: Biosorptive treatment, Batch process, Cadmium, *Neurospora sitophila*

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➢ **ORAL PRESENTATION**

Bitkilerin ağır metal stresine karşı hücresel düzeyde verdiği konvergent yanıtlar

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Özet

Ağır metaller, molekül kütlesi 5 gr/cm^3 ten büyük olan metallerdir. Kütleleri toprağın ortalama yoğunluğundan (2,65 gr/cm^3) daha yüksektir. Ağır metallerin bir kısmı (Fe, Mn, Zn, Co ve Mo) organizmaların büyümesi için esansiyeldir, bir kısmının (V, Ni) birkaç fonksiyonu vardır ve geriye kalan kısmı (Cd, Pb, U, TI, Cr, Ag, Hg) ise daima toksiktir. Yaklaşık 34 farklı bitki familyasında ağır metallere tolerant olan taksonlar tespit edilmiştir. Bu durum ağır metallerin toksik etkilerine karşı bitkilerin geliştirdiği hücresel yanıtların değerlendirilmesinde taksonomik ilişkilerden çok konvergensi gösteren evrimsel bir bakış açısı gerektiğini göstermiştir. Ağır metaller bitkilerde morfolojik değişiklikler, biyokimyasal değişiklikler ve serbest radikal oluşumu (Reaktif oksijen türleri (ROT) şeklinde zararlar vermektedir. Bitkilerin ağır metallerin toksik etkilerine karşı verdiği hücresel yanıtlar siderofor formasyonu, karboksilik asit sentezi, SH- grupları içeren (histidin ve glutatyon) molekül sentezi, metalotiyoninler, fitoşelatinler, ağır metal taşıyıcılar, ROT detoksifiye enzimleri ve kök morfolojisinde değişiklikler şeklindedir. Bu çalışmada bitkilerin ağır metal stresine karşı hücresel düzeyde verdiği konvergent yanıtlar değerlendirilmiştir.

Anahtar kelimeler: Ağır metal Zararları, serbest radikal, hücresel yanıt, konvergent evrim

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➢ **ORAL PRESENTATION**

Diptera fauna distribution and its relation with some physico-chemical parameters of Göksu Stream (Istanbul/Turkey)

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Abstract

This study was carried out seasonally between December 2017 and September 2018 by selecting five stations from Göksu Stream. In order to determine the diptera fauna of the Göksu Stream. pH, water temperature (°C), dissolved oxygen (mg/L), electrical conductivity (µS/cm), salinity (‰) , depth (cm), flow rate (m/s), NH_4-N (mg/L), NO_2-N (mg/L), NO_3-N (mg/L, PO_4 (mg/L), TP (mg/L), BOD (mg/L), TSS (mg/L) physicochemical parameters were measured. As a result of this study, a total of 6 family and 10 species were determined in Göksu Stream. Detection of pollution indicator species of diptera fauna and measurement physicochemical parameters results shows that Göksu Stream is threatened by intensive pollution effects.

Keywords: Diptera fauna, Physicochemical parameters, Göksu Stream, Istanbul

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➢ **ORAL PRESENTATION**

Oligochaeta and Chironomidae fauna in Dam Lake Büyükçekmece (Istanbul/Turkey) and their relationship with some environmental variables

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Abstract

In this study, Oligochaeta and Chironomidae fauna collected seasonaly from Dam Lake Büyükçekmece were investigated between July 2010 and April 2011. Five stations were selected for sediment sampling with Ekman Birge grab. Each sampling includes two subsamples. During sampling, some of the physico-chemical variables such as pH, water temperature (°C), dissolved oxygen (mg/L), electrical conductivity (µS/cm), total hardness (FS^0), salinity (‰), *secchi disk depth (m)*, NO_2-N (µg/L), NO_3-N (µg/L), PO_4 (µg/L) were analyzed. As a result of this study a total of 19 taxa were detected. 8 taxa belong to Oligochaeta, 11 taxa belong to Chironomidae. Jacckard and Sorenson similarity indices displayed high similarities between, station 2 and station 5 while stations 3 and 5 were found to be the most different from each other for the oligochaeta fauna.

Keywords: Chironomidae, Oligochaeta, Dam Lake Büyükçekmece, Istanbul

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➢ **ORAL PRESENTATION**

Comparison of aqueous extraction and bligh and dyer method on fatty acid profiles of elasmobranch fish liver

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Abstract

Aqueous extraction (AE) and Bligh and Dyer method (B&D) on fatty acid profiles of elasmobranch fish liver were investigated and compared in this current study. Guitarfish liver were chosen and evaluated. The results of fatty acid profiles of guitarfish show that there is no difference in monounsaturated fatty acid (MUFA) content which are almost same in both methods. The levels of saturated fatty acids (SFA) and polyunsaturated fatty acids (PUFA) were in higher in Bligh and Dyer method. While there are statistical differences in the fatty acid composition of SFA and PUFA ($p<0.05$), there wasn't in MUFA ($p>0.05$) contents. The levels of C14:0, C16:0, C18:0 in SFA, eicosapentaenoic acid (EPA, C20:5n3), docosahexaenoic acid (DHA, C22:6n3), n6, n3 in PUFA in B&D method were found to be higher than that of AE. In conclusion, SFA components in AE and PUFA components in B&D method give better results.

Keywords: Aqueous extraction (AE), Bligh and Dyer method (B&D), fatty acid profiles

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➢ **ORAL PRESENTATION**

A preliminary study on lipid quality of three commercially important fish species from black sea

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Abstract

Lipid quality of three commercially important fish species, anchovy (*Engraulis encrasicolus*; Linnaeus, 1758), horse mackerel (*Trachurus trachurus*; Linnaeus, 1758), and whiting (*Merlangius merlangus*; Linnaeus, 1758), from Black Sea were investigated by measuring its fatty acid profiles. The results showed that the dominant fatty acid in saturated fatty acids (SFA) was C16:0 followed by C14:0 and C18:0. The levels of C16:0 differed in species and this differences were found statistically significant between anchovy and the other two ($P<0.05$). Even though the level of C16:0 in horse mackerel was found to be higher than that of whiting, there were no significant differences between them. The average levels of fatty acid in monounsaturated fatty acid (MUFA) were C18:1n9 with the values of 16.76%, 12.60%, and 11.86% for anchovy, horse mackerel, and whiting, respectfully. The amounts of eicosapentaenoic acid (EPA, C20:5n3), docosahexaenoic acid (DHA, C22:6n3) in polyunsaturated fatty acids (PUFA) in whiting were found to be higher than those of horse mackerel and anchovy. In conclusion, all three fish rich in omega 3 fatty acids.

Keywords: Lipid quality, fatty acid profiles, anchovy, horse mackerel, whiting

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➢ ORAL PRESENTATION

The effect of different feeding frequency on growth performance and some biometric indexes in fry carp (*Cyprinus carpio*)

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Abstract

In this study, the effect of feeding frequency (2, 3 and 4 times per day) on growth performance and some biometric measurements was investigated. The study was conducted with fry carp with an average weigth of 9.39±0.53 g during 60 days in 1000 L poliester tanks; three repeats were formed for each group with 40 individuals per tank. In the study, a commercial feed containing 53% crude protein and 15% crude oil was used. At the end of the experiment, significant differences were found between groups in terms of the final body weight, live weight gain, specific growth rate (SGR), feed conversion rate (FCR) and biometric indexes ($P<0.05$). At the end of the experiment, it was observed that the feeding frequency did not affect the condition factor ($P>0.05$). As a result, the feeding frequency can be said to have a significant impact on growth rate of fry carp. Fish experiments were performed in accordance to the guidelines for fish research from the animal ethic committees at Aydın Adnan Menderes University (Protocol Number:2018/134).

Keywords: Fry carp, Feeding frequency, Growth performance, Biometric indexes

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➢ **ORAL PRESENTATION**

Sea cucumber fishery and its sustainability in Turkey

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Abstract

This study aimed to determine sea cucumber fishery and factors affecting fishery and what should be done for its sustainability in Turkey. Sea cucumbers, which play an important role in bioturbation of bottom sediment and renewal of seawater by feeding deposit feeder, also have commercial value as food especially in Asian countries due to their rich content. Sea cucumber fishery started in 1996 in Turkish waters and focused mainly on *Holothuria polii*, *Holothuria tubulosa* and *Holothuria mammata* although has been recorded eight sea cucumber species in Turkish waters. Fishing is carried out by collecting sea cucumbers between 1 and 30 m depth by one or two divers on each wooden vessel with a hookah system (surface supplied air). The catch amounts depends on the distribution and density of the species varying according to depth, current, organic input and seagrass. In recent years, total production provided by 220 boats licensed (193 of them in İzmir Province) has reached 300 tons/year.

Sea cucumber fishery in Turkey have been managed by legal regulations since 2007. Although fishing license, area and seasons bans are applied in fisheries management, there are no species ban and minimum landing size/weight. Increased demand for sea cucumbers with high commercial value (50-65 TL / kg) has led to an increase in fishing efforts and illegal fishing. A total of 47 tons of sea cucumbers caught by illegal fishery were confiscated by authorized organization in the last two years. Illegal fishery activities using the beam trawl have been concentrated in Izmir Bay (especially in Gülbahçe Bay) where the species is dense due to the presence of seagrass and organic input. For the sustainability of sea cucumber fishery, firstly scientific data on sea cucumbers and fisheries should be increased. Necessary steps should be taken in the fisheries management in accordance with the scientific data to be obtained.

Keywords: Sea cucumber, Fisheries, Sustainability, *Holothuria* sp., Turkish coasts

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➢ **ORAL PRESENTATION**

Farklı azot kaynakları ve azot dozu uygulamalarının bazı sıcak iklim çim bitkisi türlerinin gelişimi ve çim kalitesi üzerine etkileri

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Özet

Bu araştırma, farklı azot kaynakları ve dozlarının bazı sıcak iklim çim bitkilerindeki etkilerini belirlemek amacıyla Uludağ Üniversitesi Ziraat Fakültesi Uygulama ve Araştırma Merkezi'ndeki Çim Deneme Alanı'nda 2017-2018 yıllarında yürütülmüştür. Deneme bölünen-bölünmüş parseller deneme desenine göre kurulmuştur. Ana parsellere gübre çeşitleri (S_1: Floranid® yavaş salınımlı gübre, S_2: Biosmart® organomineral gübre, S_3: Arıtma çamuru ve S_4: Hexaferm® organomineral gübre), alt parsellere çim türleri [melez Bermuda çimi (*Cynodon transvaalensis x Cynodon dactylon*), kıyı yalancı darısı *(Paspalum vaginatum* Sw.), Japon çimotu (*Zoysia japonica* Steud.) ve kamışsı yumak (Festuca arundinacea Schreb.)] ve altın altı parsellere ise azot dozları (aylık N_1: 0, N_2: 2, N_3: 3 ve N_4: 4 g/m^2) yerleştirilmiştir. Her ay renk ve kalite gözlemleri alınmış ayrıca dormansi tarihleri ve kuru ot verimleri belirlenmiştir. İki yıllık araştırmanın sonuçlarına göre, organomineral gübrelerden (Biosmart® ve Hexaferm®) diğer gübrelere oranla daha yüksek renk, kalite değerleri ve kuru ot verimi elde edilmiştir. Japon çim otu en yüksek renk ve kalite değerlerini vermiş ayrıca dormansiden ilk çıkan tür olduğu tespit edilmiştir. S_2N_4 ve S_4N_4 uygulamalarının en iyi sonucu verdiği saptanmıştır. Kabul edilebilir bir çim kalitesinin elde edilebilmesinde 3 g/m^2 azot dozunun uygun olduğu belirlenmiştir.

Anahtar Kelimeler: organomineral gübre, yavaş salınımlı gübre, arıtma çamuru, sıcak iklim çim bitkileri, renk, kalite

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➢ **ORAL PRESENTATION**

By-catch characteristics and fecundity of the invasive swimming crab *Charybdis longicollis* in Turkey, the Eastern Mediterranean

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Abstract

Charybdis longicollis, swimming crab, is an invasive species from the Red Sea that invaded the Mediterranean Sea. This study aimed to assess information on by-catch per unit effort of *C. longicollis* in trawl fishery, its morphometric characteristics, size-weight relationship, and fecundity. To determine the size-weight relationship and fecundity, male and female specimens were collected from commercial trawls in Taşucu Bay (Mediterranean Sea). In the laboratory, the following somatic parts of crabs were measured by calliper: carapace width (CW), carapace length (CL), abdomen width (AW), cheliped length (CheL), and cheliped height (CheH). The data were tested for normality and homogeneity of variance using a Kolmogorov-Smirnov K-S test and Levene's test respectively. Then, accordingly parametric or non-parametric analyses were performed using the SPSS software (Version 20). Results showed that the highest mean by-catch per unit effort of *C. longicollis* was estimated as 21±1 kg/tow in spring in trawl fishery. Berried females varied in size from 24 to 37 mm CW and fecundity increased with increased crab size ($p<0.05$, $R^2 = 0.57$). Crabs that included parasite ranged from 25 and 42 mm in CW and there was no significant relationship between the weight of parasite and CW ($p>0.05$). The CW-weight relationship for the overall population (both females and males) was: $W = 0.0006CW^{2.749}$, $R^2 = 0.96$. In *C. longicollis*, cheliped symmetry was seen for the population with right chelipeds being equal in size to left chelipeds. Moreover, cheliped length in both sexes showed a strong, positive relationship with CW. In conclusion, this study provided the first detailed information on ecology of *C. longicollis* in Turkish waters. The life cycle of *C. longicollis* should be investigated based on the seasonal sampling in further research.

Keywords: Crab, fishery, size-weight relationship, parasite, egg number, Mediterranean Sea

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➢ ORAL PRESENTATION

Use of principle component analysis to evaluate the sediment quality of significant dam lakes located in thrace region of Turkey

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Abstract

Altınyazı, Karaidemir, Kayalıköy, Kırklareli, Sultanköy and Süloğlu Dam Lakes are located in the Thrace part of Marmara Region of Turkey. They were constructed by DSİ (State Water Works) in order to provide irrigation and drinking water and flood protection in general. The aim of the present study was to evaluate the sediment quality of these significant reservoirs from a statistical approach by using Pearson Correlation Index (PCI) and Principle Component Analysis (PCA). For this purpose, total of 18 macro and micro element concentrations (lithium, boron, sodium, magnesium, aluminum, calcium, vanadium, manganese, iron, cobalt, nickel, copper, zinc, strontium, molybdenum, cadmium, antimony and lead) were measured in sediments of selected total of 15 stations in spring season of 2018. According to the results of PCI, significant relations were recorded between the investigated parameters at the 0.01 and 0.05 significance levels. According to the results of PCA, 3 factors explained 88% of the total variance.

Keywords: Dam Lakes, Thrace Region, Sediment Quality, Macro – micro Elements, Principle Component Analysis.

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➢ **ORAL PRESENTATION**

Water quality comparison of drinking fountains in different localities of Meriç River Basin

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Abstract

This study was carried out to determine and comparison of the quality of drinking fountains located in upstream (Edirne Province), middlestream (Adasarhanlı Village) and downstream (İpsala District) of Meriç River Basin (Thrace Part of Marmara Region of Turkey). Water samples were taken from the fountains used commonly by local people for especially drinking in autumn season of 2018. Some physical and chemical water quality parameters including pH, dissolved oxygen, oxygen saturation, electrical conductivity (EC), total dissolved solids (TDS), salinity, turbidity, nitrate, nitrite, phosphate, sulphate and chlorine were determined. Detected data were assessed according to national and international quality criteria. According to data observed, the drinking fountains have I. – II. Class (Turkish Regulations) water quality in terms of pH, dissolved oxygen, oxygen saturation, EC, TDS, salinity, turbidity, sulphate and chlorine parameters; II. – III. Class water quality in terms of nitrite and nitrate parameters; and III. – IV. Class water quality in terms of phosphate parameter in general. It was also determined that the investigated parameter levels in water of drinking fountains were not exceeded the limit values for drinking.

Keywords: Meriç River Basin, Drinking Fountains, Water Quality.

➢ **ORAL PRESENTATION**

Şanlıurfa ilinin 1975-2010 yılları arasındaki etkili sıcaklık toplamı değerlerinin analizi

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Özet

Bir bölgenin etkili sıcaklık toplamı, o bölgeye uygun tür ve çeşitlerin seçilmesine yardımcı olmaktadır. Etkili sıcaklık toplamı, bölgedeki yetiştirilecek olan meyve tür veya çeşitlerinin ürünlerini olgunlaştırmaları ve yıllık gelişimlerini tamamlayabilmeleri için ihtiyaç duyulan önemli bir sıcaklık faktörüdür. Bu çalışmada, 1975-2010 yılları arasındaki Şanlıurfa Meteoroloji İstasyonu sıcaklık verilerine dayanarak, 1 Mart- 31 Ekim tarihleri arasında ilin etkili sıcaklık toplamı (EST) değerleri belirlenmiştir. Çalışmada; eşik sıcaklık değerleri 5, 7 ve 10 ºC olarak alınmış ve meteoroloji kayıtlarına göre her bir eşik sıcaklık değerleri için ayrı ayrı hesaplamalar yapılmıştır. Şanlıurfa ilinin uzun yıllara ait iklim verilerine göre, +5 ºC eşik sıcaklık değeri esas alınarak yapılan hesaplamalarda, Mart-Ekim dönemindeki EST değerlerinin 4111-5019 ºC-gün, +7 ºC'lik eşik değerine göre 3646-4534 ºC-gün ve +10 ºC eşik değeri esas alınarak yapılan hesaplamalarda ise 2586-3294 ºC-gün aralığında yer aldığı saptanmıştır.

Anahtar Kelimer: Etkili sıcaklık toplamı, EST, iklim değişikliği

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➢ **ORAL PRESENTATION**

Şanlıurfa ili soğuklama süresinin Dinamik Model'le hesaplanması ve diğer modellerle karşılaştırılması

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Özet

Bir bölge ve yörede ekonomik bir meyve yetiştiriciliği yapılabilmesi için o yerin soğuklama süresinin bilinmesi gerekmektedir. Öte yandan, bir bölge ve yöreye yeni bir tür ve çeşit önerirken, dikkat edilmesi gereken en önemli konuların başında, önerilecek tür ve çeşitlerin soğuklanma ihtiyaçlarının bilinmesi gelmektedir. Meyve türlerinde çiçek ve yaprak tomurcukları, sonbaharda sıcaklıkların düşmesiyle birlikte dinlenmeye girerler. Kış aylarına girilen dönemde çevre koşulları uygun olsa dahi, tomurcuklar süremezler veya açamazlar ve dinlenmede kalırlar. Meyve türlerinde dinlenmenin sona ermesi için etkili soğuklama sıcaklığı 0 °C ile +7.2 °C arasındadır. Bazı türlerde bu sıcaklık +10 °C'ye kadar yükselebilmektedir. Bitki türlerinin soğuklanma ihtiyaçlarını belirlemek veya ölçmek için bir takım model ve yöntemler geliştirilmiştir. Soğuklanma ihtiyacının belirlenmesinde en yaygın kullanılan yöntem ve modeller; klasik yöntem, Utah modeli ve Dinamik Model'dir. Klasik yöntem ile Utah modelinin, subtropik iklim özelliği gösteren koşullarda soğuklanma ihtiyacını tespit etmek için uygun bir yöntem olmadığı ifade edilmektedir. Bu çalışmada, yarı kurak iklim özelliği gösteren Şanlıurfa ilinin soğuklama süresinin hesaplanmasında, kışı ılık geçen koşullarda soğuklama süresinin hesaplanmasında diğer modellere göre daha iyi performans gösterdiği belirlenen Dinamik Model ile diğer modellerin karşılaştırılması yapılmıştır.

Anahtar Kelimer: Soğuklama süresi, soğuklanma ihtiyacı, klasik yöntem, Utah modeli, Dinamik Model

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➢ **ORAL PRESENTATION**

The short term effects of microplastic PVA on *Daphnia magna* population

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Abstract

Nowadays, microplastics (MP) have a wide usage area due to the increasing human population. The hazard to the aquatic ecosystem varies according to the properties of plastics. Microplastics can influence living things by biological, physical and chemical ways. Aquatic organisms can directly take by inhalation and ingestion system, or indirectly take contaminated prey at lower feeding level. The impacts of MPs are currently completely unknown in different organisms. The effects of microplastics on zooplankton are an increasing environmental concern. *Daphnia magna* is widely used as experimental model organisms. We studied the short term effects (96 hours) of MP-PVA (microplastic polyvinyl alcohol) exposure to *D. magna*. Short term assays were started with neonates (< 24h) taken from the same culture and laboratory condition. The maximum survivor rate was determined in the control group (53.3%). 25 mgL^{-1}, 75 mgL^{-1}, and 100 mgL^{-1} MP-PVA groups have 46.6%, 6.6% and 13.3% survivorships (respectively). 96h-LC_{50} value was 27.773 mgL^{-1} ($p<0.05$). The body morphology of *D. magna* (body length, width and spin) at the end of MP-PVA application period indicated that there was a statistically significant difference between the control and other treatments in MP-PVA ($p < 0.05$, ANOVA). Consequently, the relationships between MP-PVA accumulation within *D. magna* and its population survivorships and body morphometry for each concentration were important indicators. Its tolerance level to microplastic under laboratory conditions reflected its replacement and behaviour in the ecosystem.

Keywords: microplastics, PVA, Daphnia magna, body morphology.

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➢ **ORAL PRESENTATION**

Effects of Co magnetic nanoparticles on *Daphnia magna*

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Abstract

Recently, nanoparticles based studies and applications have gained great importance. Nanoparticles can change the community structure at the level of species that are more sensitives or tolerant to environmental contamination. On the other hand, there is insufficient information about nanoparticles' effect on the ecosystem and community structure. For this reason, different concentrations of Co magnetic nanoparticles ($npCoFe_2O_4$) were optimized (0.1, 1, 5, 10, 20, 35 and 50 mgL^{-1} $npCoFe_2O_4$) and exposure to *Daphnia magna* for short-term experiments. Experiments were started with neonates taken from the same culture and laboratory condition. The control survival was 83.333% at 72 h. *D. magna* had considerable mortality in 48 h for 50 mgL^{-1} $npCoFe_2O_4$. 96 h-LC_{50} was calculated to be 39.834 mgL-1 $npCoFe_2O_4$ ($p<0.05$). The morphological parameters (body length, body width and spine length) of *D. magna* individuals in different treatment groups were recorded every 24 hours during the exposure and were tested for differences between the control and concentration groups using Anova. Body lengths of 0.1 mgL^{-1} treatments in $npCoFe_2O_4$, was increased than the control group. The minor increase of length in 5 mgL^{-1} group was recorded in $npCoFe_2O_4$ treatment. Although the nanoparticles whose environmental impacts are evaluated do not show acute toxicity, the question marks about the accumulations that can be formed in various tissues or systems of living beings, their long-term effects and their status in the food chain cannot be fully elucidated. In this case, the relationship between nanoparticles and biological processes is getting more and more important. Consequently, the relationships between nanoparticle accumulation within *Daphnia magna* and its population structure and body morphometry for each concentration were important indicators.

Keywords: magnetic nanoparticles, *Daphnia*, morphology, ecosystem quality.

➢ **ORAL PRESENTATION**

Gaziantep ilinde sanayi atıklarına maruz kalan alanlarda yetiştirilen patlıcan ve biber ile topraklarının ağır metal içerikleri

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Özet

Gaziantep, Türkiye'de sanayi kaynaklı kimyasal kirleticilerden en çok etkilenen illerden birisidir. Bu çalışmada, Gaziantep'in kirletilmiş ve temiz alanlarından toplanan toprak ve biber-patlıcan örneklerindeki metallerin içerikleri hakkında bilgilerin verilmesi amaçlanmıştır. Bu çalışmada bitki örneklerindeki Mn, Fe, Zn, Cu, Cr, Ni, Pb, Co ve Cd seviyeleri ICP-MS ile toprak örneklerindeki seviyeleri de AAS ile analiz edilmiştir. Gaziantep'te yetiştirilen biber örneklerinin temiz ve kirli topraklarındaki metal konsantrasyonları Zn>Mn>Cu>Ni>Co>Cr>Pb>Cd ve patlıcan örneklerinin konsantrasyonları da Zn>Mn>Cu>Ni>Cr>Co>Cd>Pb sırasıyla tespit edilmiştir.

Anahtar Kelimeler: Patlıcan, biber, ağır metal, Gaziantep

Teşekkür: Bu çalışma 215O538 numaralı 'Ergene Havzası ve Gaziantep'teki (Atık Sulardan Etkilenen) Kimyasal Kirleticilerin Etkisi ve Bunların Arasındaki İlişkiler' adlı TÜBİTAK projesi tarafından desteklenmiştir.

➢ **ORAL PRESENTATION**

Gaziantep ilinde sanayi atıklarına maruz kalan tarım alanlarından alınan toprak örneklerinin fizikokimyasal özellikleri

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Özet

Bu çalışmada Gaziantep'te sanayi atıklarına maruz kalan tarım alanlarından alınan toprak örneklerinin mineralojik yapısı ve fizikokimyasal özellikleri (pH, KDK, OM seviyesi, kireç oranı, iletkenlik ve tekstür bünyesi) araştırılmıştır. Çalışma bölgelerinin toprak örneklerinin mineralojik yapısını anlamak için XRD mineralojik analizleri yapıldı. Gaziantep topraklarında çok yüksek oranlarda kalsit mineralinin etkin olduğu tespit edildi. Bu araştırmaların sonucunda tüm toprak profilinin çok kireçli, A, B ve C horizonlu olup, organik madde içeriğinin düşük, katyon değişim kapasitelerinin (KDK) ise yüksek olduğu tespit edilmiştir. Organik madde yüzeyden aşağılara doğru azalmakta, KDK' da kil içeriğine bağlı olarak alt katmanlara doğru artmaktadır. Gaziantep topraklarının bir kısmının hafif alkali ve şiddetli alkali özelliğe sahip olduğu, büyük bir kısmının ise; orta alkali olduğu tespit edildi.

Anahtar Kelimeler: Toprak, fizikokimyasal özellikler, mineralojik yapı, Gaziantep

Teşekkür: Bu çalışma, 215O538 numaralı 'Ergene Havzası ve Gaziantep'teki (Atık Sulardan Etkilenen) Kimyasal Kirleticilerin Etkisi ve Bunların Arasındaki İlişkiler' adlı TÜBİTAK projesi tarafından desteklenmiştir.

2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

28-29 June 2019, Ankara, Turkey
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➢ ORAL PRESENTATION

Effects of terbinafine on biological properties of *Drosophila melanogaster* (Diptera: Drosophilidae) in different developmental stages

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Abstract

The effect of synthetic allylamine antifungal antibiotic, terbinafine on biological properties such as survival, development, adult longevity of *Drosophila melanogaster* (Diptera: Drosophilidae) were investigated in laboratory conditions. Without control group, 150 mg / L, 300 mg / L, 600 mg / L and 900 mg / L terbinafine concentrations were used in our experiments. While survival rate of 3rd stage larva was 88.00% ± 1.41 in control group, the highest concentration of terbinafine decreased to 19% ± 2.17. The negative effects on terbinafine,were also determined at the pupae and adult survival rate. It was observed that all these antifungal concentrations significantly prolonged the third larval stage, pupa and adult developmental time.. While developmental time of pupa was 5.95 ± 0.42 days in the control diet, this period was reduced 8,31 ± 0,24 days in the 900 mg / L diet. Compared to the control diet, it was determined that developmental time of pupa and adult stage was extended by about 3 days.. This study showed that depends on terbinafine concentrations had a negative effect on biological properties of *D. melanogaster* in different developmental stages.

Keywords: *Drosophila melanogaster*, terbinafine, survival rate, development time.

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➢ **ORAL PRESENTATION**

Mechanization level of agricultural farms in three-irrigation plains of Çanakkale province

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Abstract

This study was conducted to determine structure farm and mechanization level in agricultural farms in the Bayramiç-Ezine-Kumkale irrigation plains located in Çanakkale province. For this purpose, a questionnaire was carried out randomly selected 401 farms of 30 villages according to farmers recording system in 3-irrigation plain. Results indicated that the agricultural farms had only one-tractor regardless of power and brand on average 3-irrigation plain, but 19.20% of farms had more than one tractor which was highest in Bayramiç plain by 41.67% because there are different production branches such as field and horticulture crops as well as livestock production. This rate was 20.54% in Kumkale and 8.41% in Ezine. On the other hand, the highest tractor number (including both one and more than one tractors) was recorded in Kumkale (70.07%), followed by Bayramiç (11.97%) and Ezine (11.47%).
When the age of tractors was considered, 12.33% of tractors were determined as older than fourth-four years such as MF-135, Universal and Fiat (54C, 480). The most used tractor brands were determined as New Holland (33.87%) and it was respectively followed by Massey Ferguson (17.87%), John Deer (8.00%), Fiat (6.67%), Steyr (6.67%), Case (6.40%), Same (5.87%) and Tümosan (4.00%) and others (9.34%) such as Ford, Erkunt, Başak, Deutz, Universal, Kubato, Landini, Valtra and Hattat. Kumkale plain has more tractors with 63.56% than Ezine (28.22%) and Bayramiç (8.22%). On average 3-irrigation plan, 77.03% of the farms were purchased new tractors, 22.97% of the remaining farms have been used the second-hand type tractors. On the other hand, tractor per farm was 0.94 on average 3-plain, but it was the highest in Ezine (0.96) followed by Kumkale (0.93) and Bayramiç (0.92). Arable land per tractor were found 124 da/tractor on average 3-plain while it was the highest in Kumkale (134 da/tractor) followed by Bayramiç (116 da/tractor) and Ezine (101 da/tractor).

Keywords: Mechanisation properties, agricultural farms, agriculture systems

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➢ ORAL PRESENTATION

Comparison of energy use in Mediterranean olive cultivation: A case study of Çanakkale olive orchards (Turkey)

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Abstract

The aim of this study was carried out on use of energy input and output olive production under traditional-flat/sloping olive orchards and intensive or full mechanized-flat orchards in Çanakkale province located south Marmara region, the one of the origin of olive growing in western Turkey. Data were collected from olive farms through personal interviews of farmers in all districts of province. The results show that olive yield per unit area was very low with Ayvalık variety, especially under sloping orchards and non-irrigated-flat orchards of traditional systems.

Total energy outputs from olive and its pruning residues was the highest for intensive-flat orchards by 36.55 GJ/ha due to fairly high olive and pruning yield because of receiving usually fertilising, irrigation, spraying, etc., but the energy output in the traditional-flat corresponds to almost the half of the intensive-flat with 19.73 GJ/ha, and followed by traditional-sloping with 10.50 MJ/ha. Total energy inputs, farm operations and machinery, was found 31.09, 13.22 and 7.38 GJ/ha for intensive-flat, traditional-flat and sloping olive orchards, respectively. Energy ratio were higher for intensive-flat by 1.46, while it is 1.32 and 1.31 in both flat and sloping of traditional, respectively. Energy productivity is the highest in the intensive-flat by 0.93 MJ/ha, and the lowest in traditional-sloping by 0.69 MJ/ha, while traditional-flat is 0.90 MJ/ha. Specific energy increased in traditional-sloping by 1.46 MJ/kg due to the lowest olive yield followed by traditional-flat with 1.11 MJ/kg and intensive-flat with 1.07 MJ/kg having the highest olive yield.

Keywords: Olive, production system, input-output energy.

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➢ **ORAL PRESENTATION**

Effects of *Cauliflower mosaic virus* on morphological parameters of kale

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Abstract

Kale (*Brassica oleracea* var. *acephala* L.) is one of the most important leafy herbaceous vegetables consumed in Turkey. Virus diseases cause serious losses in yield of brassica crops worldwide. *Cauliflower mosaic virus* (CaMV) is one of the most common viruses in brassica crops in Turkey. This study was carried out in controlled conditions at the Experimental field of Faculty of Agriculture, Ondokuz Mayis University in order to determine the effect of CaMV on some morphological parameters of kale plants. Relationships between CaMV infection and kale plant-root height, leaf length-width, stalk length, plant-root fresh weight and plant-root dry weight, and the virus's effect on the contents of leaf chlorophyll and water. According to the results obtained, in CaMV-infected plants have reduced plant (14.6%) and leaf (16.9%) height, leaf (3.4%) width, stalk height (8.0%), root (15.8%) height, plant fresh (17.77%), dry weight (13.1%); root fresh (18.4%), dry weight (7.14%), and leaf chlorophyll (32.45%) contents.

Key words: Brassica, CaMV, morphological parameters, kale

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➢ **ORAL PRESENTATION**

Evaluation of turnip plants reaction to *Cauliflower mosaic virus*

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Abstract

Cauliflower mosaic virus (CaMV), a member of the genus Caulimovirus, is one of the most important viruses the Brassicaceae family. Objective of the present study was to determine the reactions to CaMV of turnip (*Brassica rapa* var. *rapa*) plants. A study was conducted at Faculty of Agriculture, the University of Ondokuz Mayis, Samsun, Turkey. The saps obtained by grinding CaMV-infected leaves in 0.01 M phosphate buffer (pH: 7.0) were mechanically inoculated to turnip plants using carborundum powder as abrasive. Observations were recorded according to the disease rating scale (0-9) throughout 60 days of each experiment. The results of study showed that the incidence of virus in turnip crop was 94.4%. The plants showed systemic symptoms developed at two weeks post inoculation (wpi). For eight weeks, the average weekly scales were 0, 0.1, 0.6, 1.3, 2.6, 4.2, 4.8, and 5.1, respectively. The virus infections were detected in turnip plants using double-antibody sandwich enzyme-linked immunosorbent assay (DAS-ELISA).

Keywords: *Brassica*, reaction, turnip, virus, CaMV

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➢ **ORAL PRESENTATION**

Mısır bitkisinin farklı bölümlerinin besin madde kompozisyonunun tespiti

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Özet

Bu çalışma, mısır bitkisini oluşturan farklı bölümlerin besin madde kompozisyonlarındaki değişiklikleri tespit etmek için düzenlenmiştir. Bu çalışma; Doğu Akdeniz Tarımsal Araştırma Enstitüsü arazilerinde Doğankent lokasyonunda ana ürün mısır koşullarında yürütülmüştür. Mısırlar ekimden 140 gün sonra hasat olgunluğuna gelmiş ve 13 Ağustos 2018 tarihinde hasatları yapılmıştır. Mısır üretim alanında bitkiler hasat olgunluğuna geldiğinde ekim sıklığını temsil eden yerlerden dört tekrarlamalı bitki örnekleri alınmıştır. Alınan bitki örnekleri 7 farklı bölüme (*Tüm bitki, tepe püskülü, üst sap, orta sap, dip sap, koçan ve yaprak*) ayrılarak, kurutulmuş ve yem besin madde analizleri için öğütülmüştür. Hasat sonrası alınan örnekler analizler için hazırlanmış ve gerekli olan değerlendirmeler yapılmıştır. Elde edilen sonuçlar; JUMP 5.0 istatistik programında önce normalite testine sonra da varyans analizi ile LSD testine tabi tutulmuştur. Elde edilen sonuçlara göre, mısır bitkisinin farklı bölümleri, besin madde içerikleri bakımından birbirinden farklılık göstermiştir. En yüksek ham protein, %14.45 ile koçanda bulunurken, bunu %13.09 ile yaprak izlemiştir. Kuru madde, mısır bölümleri arasında %87.76-91.54 arasında değerler almıştır. En yüksek NDF %91.86 ile dip sapta; en düşük NDF'de %40.15 ile koçanda tespit edilmiştir. ADF'de buna benzer çıkmıştır. Mısır bitkisinin farklı bölümlerinde fosfor, kalsiyum, potasyum ve magnezyum, istatistiki olarak farklılık oluşturmuştur.

Anahtar Kelimeler: Mısır, besin madde, bölümler, protein, mineraller

➢ **ORAL PRESENTATION**

Dünya'da ve Türkiye'de uçucu yağ pazarı

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Özet

Uçucu yağlar, gıda endüstrisinde lezzet verici ajanlar olarak, parfüm endüstrisinde ve ilaç endüstrisinde yaygın olarak kullanılır. 2018 yılında Dünya' da uçucu yağ talebi 226.9 bin ton olmuştur. Son yıllardaki yiyecek, içecek, kişisel bakım ve kozmetik gibi endüstri alanlarının büyümesi ve aromaterapi ürünlerine olan talebin artmasından dolayı tahmini olarak 2019' dan 2025 yılına kadar bu değerin % 8.6 oranında artması beklenmektedir. Aromaterapiye ilgi gösteren insan sayısının artması ile birlikte sağlık açısından doğal kaynaklı uçucu yağların farkındalığı, pazar piyasasında bir yükseliş sağlayacağı tahmin edilmektedir. Ar-Ge faaliyetlerinin artırılmasının yanı sıra, ekstraksiyon tekniklerindeki yeniliğin, gelişmekte olan ekonomilerde pazarın büyümesini desteklemesi beklenmektedir. Hindistan, Çin Meksika ve Brezilya'daki yüksek sanayileşme ve kentleşme oranları, bölgedeki son kullanım endüstrilerini etkilemiş ve bu da aromatik bitkilere olan talebin artmasına neden olmuştur. Dünya' da 2018 yılında en önemli uçucu yağ talebi portakal yağına (52.1 bin ton) olmuştur. Sentetik olarak elde edilen uçucu yağlara oranla tıbbi bitkilerden elde edilen uçucu yağlar insan ve çevre sağlığını tehdit etmemesi ve birçok endüstri alanında kullanılabilmesinden dolayı dünyada her geçen yıl tüketimi artmaktadır. Son yıllarda Türkiye' nin uçucu yağ ihracatı, dünya fiyatlarına ve ekime bağlı olarak artış göstermektedir. Uçucu yağ ihracatı, 2017 yılında 49 milyon ABD Dolarına ulaşmıştır. Türkiye uçucu yağ ihracatının büyük kısmı gül yağından oluşmaktadır. Gül yağı ihracatının değeri 2016'da 15,6 milyon ABD dolarından 2017'de 18,5 milyon ABD Dolara yükselmiştir. İhracatın büyük bir kısmı Fransa, İngiltere, Almanya, İsviçre, İspanya, Bahreyn, ABD ve Çin'e yönelik yapılmaktadır. Bu çalışmanın amacı, uçucu yağların üretimi, dünya ticareti ve pazar payı hakkında detaylı bilgiler vermektir. Araştırma verileri ITC, FAO ve TÜİK kayıtlarından tarama, süzme ve gruplandırma usulüyle elde edilmiş ve özet olarak sunulmuştur.

Anahtar Kelimeler: Uçucu yağ, ithalat, ihracat, tıbbi bitki

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➢ ORAL PRESENTATION

Kişniş (*Coriandrum sativum* L.) tohum uçucu yağının kullanım alanları ve uçucu yağ kompozisyonu üzerine diurnal varyabilitenin etkisi

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Özet

Kişniş (*Coriandrum sativum* L.) Umbelliferea familyasından dünya genelinde yetiştiriciliği yapılan önemli bir baharat ve uçucu yağ bitkisidir. Tek yıllık otsu yapıdaki bitkinin hem yeşil aksamı hem de tohumları farklı şekilde değerlendirilirken, tohumları gıdalara aroma kazandırmak için kullanılmaktadır. Tohumlarının bünyesinde %0.84'e kadar ulaşabilen uçucu yağ bulunmaktadır. Uçucu yağın ana bileşeni olan linalool gıda, ilaç ve kozmetik ürünlerinde kullanılmaktadır. Bununla birlikte kişniş uçucu yağı diüretik, gaz giderici, kas gevşetici vb etkilerinden dolayı halk hekimliğinde de önemli bir yere sahiptir. Bu çalışmada, Yozgat ekolojik koşullarında yetiştirilen iki adet kişniş (küçük taneli-Gürbüz ve iri taneli-Arslan) çeşidinin tohum uçucu yağ içeriği ve kimyasal kompozisyonu üzerine diurnal varyabilitenin etkisi incelenmiştir. 21.04.2017 tarihinde ekilen çeşitlerin tohum hasadı 12.08.2017 tarihinde yapılmıştır. Olgunlaşan bitkiler dört faklı zamanda (saat 07:00, 11:00, 15:00 ve 19:00) hasat edilmiştir. Hasat edilen tohumlar öğütülmüş ve Clevenger cihazıyla su distilasyonuna tabi tutulmuştur. Buradan elde edilen uçucu yağların kimyasal kompozisyonu GC/MS ile analiz edilmiştir. Araştırma sonucunda, Arslan çeşidinin uçucu yağ oranı %0.32-0.33, Gürbüz çeşidinin ise %0.36-0.47 arasında değişmiştir. En yüksek uçucu yağ oranı saat 19:00'da hasat edilen bitkilerden alınmıştır. Her iki çeşide ait uçucu yağda ana bileşen linalool (ortalama %74) olarak kaydedilmiştir. Bu bileşeni gamma-terpinene, geraniol ve camphor takip etmiştir.

Anahtar Kelimeler: Kişniş, uçucu yağ, GC/MS, linalool

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➢ **ORAL PRESENTATION**

Pre-treatment of seed dormancy in judas trees (*Cercis siliquastrum* L.)

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Abstract

Judas Trees (*Cercis siliquastrum* L.) has a wide geographical distribution area in our country. Therefore, it has a widespread use due to its decorative appearance especially in landscaping works. However, there are some important problems in the cultivation of the species with high value of landscape use from seed. In order to solve these problems, some pre-treatments with plant growth regulators have been applied to eliminate seed germination and to increase production potential. In this research made from Gökçebey Forest Nursery; **1-** 6 hours of treatment with glass fractures + 3 hours H_2SO_4 + 3 hours 400 mg / l Baikal EM1, **2-** 6 hours of treatment with glass fractures + 2 hours H_2SO_4 + 4 hours 400 mg / l Biohumus, **3-** 6 hours with glass fractures treatment + 2 hours H_2SO_4 + 4 hours Baikal EM1 + Biohumus and no pretreatment (control). According to the results of the variance analysis applied to the results of germination tests carried out for one month using the samples taken from the seeds from which these applications were performed, a statistically significant difference was found at $P < 0.01$ confidence level. In this context, Duncan range test performed with the aim of grouping 73.4% germination percentage with 3% pre-treatment in the first group, 68.7% with the percentage of pre-treatment in the second group, 51.3% with the percentage of germination 1. pre-treatment the third group and the control group were listed in the fourth group

Keywords: Judas Trees, Pre-Treatment, Seed Dormancy, Germination

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➢ ORAL PRESENTATION

The effect of some pretreatments on the rooting success of american ivy (*Parthenocissus quinquefolia* L.) Cuttings

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Abstract

The relaxing effect of plants has an important role in the protection of the biological and psychological health of the people who constitute the society in the industrialized and densely populated areas. For this reason, the most effective landscape techniques are used in the big cities where the business life and life struggle is intense, and landscape and landscaping practices are needed to make new parks and environmental arrangements. In this sense, it is necessary to use spreading species which develops rapidly and eliminates the cold and negative effects of concrete structures. There are vines at the beginning of these species. In this research, the effect of some biochemical components used in pretreatment on the success of rooting of cuttings in the process of production of American Ivy (*Parthenocissus quinquefolia* L.) species with hard body steel was investigated. In this research carried out in Gökçebey Forest Nursery; taken to **1-** 24 hours 400 mg / l Baikal EM1, **2-** 24 hours 400 mg / l Biohumus, **3-** 24 hours Baikal EM1 + Biohumus, **4-** 2 hours 350mg / l Indole 3 butyric acid (IBA) and no pretreatment 5 different applications were carried out. According to the results obtained from the variance analysis applied to the percentages of rooting determined in the steels where these applications were performed, a statistically significant difference was found in P <0.01 confidence level between the pretreatments. As a result of the Duncan test performed in order to group pretreatments in this scope, 82.6% of the rooting percentage was 3. and 79.8% of the rooting percentage were in the first group. In the first group of rats with a rate of 58.7% and in the third group and 12.5% in the control group rooting percentage were listed in the fourth group.

Keywords: Pretreatments, Cutting, American Ivy, Landscape, Rooting Percentage

➢ ORAL PRESENTATION

Hümik asidin Yalancı akasya (*Robinia pseudoacacia*) ve iğde (*Elaeagnus angustifolia*) fidanlarının kök boğazı çapı ve fidan boyuna etkileri

Bülent Toprak[1*], Oktay Yıldız[2], Murat Sargıncı[2], Bilal Çetin[2], Burçin Soysaldı[2]

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Özet

Türkiye'de kurak sahalarda gerçekleştirilen ağaçlandırma çalışmalarının başarısı oldukça düşüktür. Kurak sahalarda fidanların tutma oranlarının düşük olması ve tutan fidanların da yavaş büyümesi maliyetleri arttırmaktadır. Kurak sahalardaki ağaçlandırma başarısını arttırmada kaliteli fidan kullanımı önemlidir. Bu sebeple çalışmanın amacı İç Anadolu'daki ağaçlandırma çalışmalarında kullanılabilecek kaliteli fidan üretimine katkı sağlamaktır. Çalışmada humik asit, Yalancı akasya (*Robinia pseudoacacia*) ve iğde (*Elaeagnus angustifolia*) fidanlarının tohumlarına uygulanmıştır. Kontrol fidanlarına göre hümik asit uygulanan akasya fidanları %21 daha kalın çapa ve iğde fidanları ise %38 daha uzun boya sahip olmuştur.

Anahtar Kelimeler: Hümik asit, yalancı akasya, iğde

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➢ **ORAL PRESENTATION**

İğde (*Elaeagnus angustifolia*) fidanlarının besin içeriklerine hümik asit ve mikorizanın etkileri

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Özet

Mikoriza ve hümik asit kök gelişimini ve topraktaki tüketim zonlarını arttırdığından dolayı kurak sahalardaki ağaçlandırma başarılarına önemli katkı sağlayabilmesine rağmen Türkiye'de bu konudaki elde edilen veriler oldukça kısıtlıdır. Bu çalışmanın amacı mikoriza ile hümik asidin, İç Anadolu'nun kurak ekosistemlerindeki ağaçlandırma çalışmalarında en çok kullanılan iğdelerin besin içeriklerine etkilerinin belirlenmesine yönelik bulunan araştırma eksikliğini gidermektir.

Çalışma için karasal iklime sahip olan Ekecik, Acıpınar, İncesu, Emirgazi, Karapınar ve Meke Gölü civarındaki ağaçlandırma sahalarında bulunan iğdelerin (*Elaeagnus angustifolia*) rizosfer bölgelerinden toprak örnekleri alınarak, yerel mikorizalar izole edilmiş ve elde edilen mikorizal sporlar tuzak kültür yöntemiyle saksılarda konukçu bitki olarak mısır yetiştirilmesiyle çoğaltılmıştır. Çoğaltma işlemi sonrasında spor sayımı yapılarak farklı özelliklerdeki altı farklı sahaya ait topraklardan eşit sayıda mikorizal spor alınarak karışım oluşturulmuştur. Oluşmuş olan yerel mikorizal karışım ile hümik asit ve ticari mikorizal karışımlar iğde fidanlarına uygulanmıştır. Çalışmada tamamen tesadüfi parseller yöntemi kullanılmıştır. Yapraktaki C, N, P, K, Ca, Mg, Fe, Cu, Zn, Mn ve B analizleri yapılmıştır.

Yaprakların C, N, P, K, Ca, Mg, S, Fe, Mn, Cu, Zn, B yoğunlukları bakımından işlemler arasında farklılıkların olduğu tespit edilmiştir (P-değerleri sırasıyla 0,0020; <0,0001; <0,0001; <0,0001; <0,0001; 0,0002; <0,0001; <0,0001; <0,0001; <0,0001; <0,0001).

Anahtar Kelimeler: İğde, *Elaeagnus angustifolia*, hümik asit, mikoriza, besin elementleri

Teşekkür
Bu çalışma 216O014 No'lu "Arbusküler Mikorizal Mantar ve Hümik Asitin Yalancı Akasya (*Robinia Pseudoacacia*) ve İğde (*Elaeagnus Angustifolia*) Fidanı Üretiminde Kullanımı" adlı TÜBİTAK projesi tarafından desteklenmiştir.

➢ **ORAL PRESENTATION**

PLA/boynuz biyokompozitlerin termal ve mekanik özelliklerinin incelenmesi

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Özet

Boynuz, kalın keratin kaplama ile çevrili kemik çekirdeğinden oluşmaktadır. Boynuzun yapısında bulunan keratinler yüksek stabilite ve düşük çözünürlüğe sahip proteinlerdir. Kasaplık ve tekstil alanlarındaki yün, kıl, gaga, tüy, boynuz vb. atıklar keratin içermektedir. Bu çalışmada manda boynuzu atık maddesi ve biyobozunur özelliğe sahip polilaktik asit (PLA) polimeri ile biyokompozit malzeme elde edildi. Biyokompozit malzeme PLA/Boynuz oranı ağırlıkça 75/25 olacak şekilde üretildi. Kompozit üretimi 40 L/D çift vidalı ekstruder ile maksimum 180°C'ye çıkılara yapıldı. Ekstrüderlenmiş granüller, ısıtmalı soğutmalı presle levha haline getirilip, lazer kesiciyle test örnekleri hazırlandı. Üretilen biyokompozit malzemeye çekme ve eğilme testleri yapıldı. Kimyasal özellikleri için FTIR spektroskopisi ve termal özellikleri için TGA analizi yapıldı. Kullanılan atık manda boynuzu kompozit malzemenin yoğunluğunu düşürdüğü gözlemlendi. PLA/Boynuz kompozitinin çekme ve eğilme dayanımlarının düştüğü ancak çekme ve eğilme modülü değerlerinde değişim olmadığı gözlemlenmiştir. Bu tip kompozitlerin daha hafif plastik malzeme gerekliliği olan otomobil, bilgisayar, yapı ve ev eşyaları sektörlerinde kullanılabileceği düşünülmektedir.

Anahtar Kelimeler: Polilaktik asit (PLA), boynuz, keratin, biyokompozit.

➢ **ORAL PRESENTATION**

PLA/bazalt ve PP/bazalt kompozitlerin performans özelliklerinin incelenmesi

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Özet

Bazalt lifi çevre dostu, yüksek performanslı inorganik bir malzemedir. Ülkemizde yoğun olarak bulunan bazalt taşından elde edilebilir ve termal özellikleri, dayanımı onu öne çıkaran özellikleridir. Bu çalışmada aynı ağırlık oranlarında bazalt lifi (%75 polimer - %25 bazalt lifi) ile, biyobozunurluk özelliğiyle dikkat çeken polilaktik asit (PLA) ve mekanik özellikleriyle öne çıkan polipropilen (PP) polimerleri kompozit yapmak üzere kullanılmıştır. Kompozitler, çift vidalı ekstrüder ile üretilmiştir. Kompozitlerin gösterdiği mekanik özellikleri incelemek için çekme ve eğilme testleri yapılmıştır. Kompozitlerin kimyasal özellikleri için FTIR spektroskopisi, termal özellikleri için TGA analizi yapılmıştır. Bazalt lifinin yoğunluğu, kullanılan polimerlerden yüksek olduğu için üretilen kompozitlerin yoğunluğunun arttığı gözlemlenmiştir. Üretilen kompozitlerde çekme ve eğilme modülü değerlerinde artış elde edilmiştir. Bazalt lifinin PLA matrisiyle olan uyumluluğunun, PP matrise göre daha az olduğu, bu yüzden çekme ve eğilme dayanımındaki olumsuz etkinin daha fazla olduğu gözlemlenmiştir.

Anahtar Kelimeler: PLA, PP, bazalt lifi, kompozit, mekanik özellikler, termal özellikler

➢ **ORAL PRESENTATION**

Yarı kurak alanlarda yapılan ağaçlandırmaların toprak özellikleri üzerine etkilerinin belirlenmesi

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Özet

Bu çalışma Artvin ili Ardanuç ilçesi sınırlarında yapılan ağaçlandırmaların toprak özellikleri üzerindeki etkilerini ortaya çıkarmak için yapılmıştır. Bu amaçla 2013 yılında ağaçlandırma yapılan, yalancı akasya ve sedir ağaçlandırma alanları ile bitişiklerindeki ağaçlandırma yapılmayan (kontrol) alanlardan toprak örnekleri alınmıştır. Toprak örnekleri 0-15cm derinlik kademesinden alınmıştır. Alınan toprak örneklerinde, toprak tekstürü, pH, Ec, kireç, organik madde azot, C/N oranı, dispersiyon oranı, iskelet içeriği, hacim ağırlığı ve agregat stabilitesi gibi toprak analizler yapılmıştır. Analizler sonucunda elde edilen bulgularda SPSS 19,0 istatistik programında varyans analizi yapılmıştır. Yapılan varyans analizi sonucunda akasya ve sedir dikim sahaları ve kontrol alanları arasında, toz değeri haricinde yapılan tüm toprak analizleri için farklılık önemli düzeyde çıkmıştır. Analiz sonucunda topraktaki kil, toz, kireç, organik madde, toplam azot, C/N oranı ve agregat stabilitesi gibi özellikler artarken, kum, pH, kireç dispersiyon oranı, iskelet içeriği, hacim ağırlığı gibi özelliklerde azalma görülmüştür. Ağaçlandırma çalışmaları ile birlikte toprak özelliklerin iyileştiği görülmektedir. Çalışma sonucunda elde edilen verilere göre, yarı kurak bölgelerde ağaçlandırılması mümkün alan yerlerde ağaçlandırılma çalışmalarının geciktirilmeden yapılması gerektiği, aksi takdirde erozyon ile birlikte çevresel tahribatın daha fazla olacağı düşünülmektedir.

Anahtar Kelimeler: Yarı kurak alan , ağaçlandırma, toprak analizi, erozyon, Ardanuç

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➢ **ORAL PRESENTATION**

Baraj çevresi yapılan ağaçlandırmaların toprak özellikleri üzerine etkilerinin belirlenmesi

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Özet

Bu çalışma Artvin ili Borçka ilçesi sınırlarında yapılan Borçka Barajı çevresinde yapılan ağaçlandırmaların toprak özellikleri üzerindeki etkilerini ortaya çıkarmak için yapılmıştır. Bu amaçla 2011 yılında ağaçlandırma yapılan sarıçam, yalancı akasya ağaçlandırma alanları ile bitişiklerindeki orman ve ağaçlandırma yapılmayan(kontrol) alanlardan toprak örnekleri alınmıştır. Toprak örnekleri 0-10cm ve 10-20 cm derinlik kademelerinden alınmıştır. Alınan toprak örneklerinde, toprak tekstürü, pH, Ec, kireç, organik madde azot, C/N oranı, dispersiyon oranı, iskelet içeriği, hacim ağırlığı ve agregat stabilitesi gibi toprak analizler yapılmıştır. Analizler sonucunda elde edilen bulgularda SPSS 19,0 istatistik programında varyans analizi yapılmıştır. Yapılan varyans analizi sonucunda akasya ve sarıçam dikim sahaları, orman ve kontrol alanları arasında, her iki derinlik kademesinde de yapılan tüm toprak analizleri için farklılık önemli düzeyde çıkmıştır. Baraj yapımı ile birlikte alanda toprak özellikleri bakımından ciddi tahribat olmakla birlikte ağaçlandırma faaliyetleri ile birlikte bu tahribatın kısmen iyileştirildiği görülmüştür Çalışma sonucunda elde edilen verilere göre, özellikle baraj çevresi ağaçlandırılma çalışmalarının geciktirilmeden yapılması gerektiği, aksi taktirde erozyon ile birlikte baraj ömrünün kısalacağı ve çevresel tahribatın daha fazla olacağı sonucu kaçınılmaz olacaktır.

Anahtar Kelimeler: Baraj, ağaçlandırma, dispersiyon oranı, erozyon, Borçka.

➢ **ORAL PRESENTATION**

Misel bazlı biyo-bozunabilir yalıtım levhasının teknolojik özellikleri

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Özet

Bu çalışmada; eşit oranda karıştırılmış yapraklı ve iğne yapraklı ağaç lifleri beyaz çürüklük mantarı ile aşılanıp inkübasyona bırakıldıktan sonra biyo-bozunabilir yalıtım levhası elde edilmiştir. Üretilen yalıtım levhasının yoğunluğu ASTM C303 (2012), eğilme direnci ve elastikiyet modülü ise ASTM C203 05a (2012) standardında belirtilen esaslara göre tespit edilmiştir. Elde edilen bulgulara göre yoğunluk ve mekanik direnç değerleri standartlara uygun olduğu belirlenmiştir.

Anahtar Kelimeler: Mantar; biyo bozunabilir malzemeler; yalıtım malzemesi; fiziksel ve mekanik özellikler

➢ **ORAL PRESENTATION**

Mantar misel bazlı biyo-bozunabilir kompozitlerin fiziksel ve mekanik özellikleri

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Özet

Mevcut fiziksel ürün ekonomisi, kullanım süresini ve çevresel etkilerini göz önünde bulundurmadan sınırlı olan değerli kaynakları kullanarak malzemeler üretmektedir. Biyo-bozunabilir mantar miseli bazlı kompozitler, lignoselülozik materyallerin ve atıkların değerlendirilmesine ve mantar organizmasının doğal büyümesine dayanan gelişmekte olan bir biyo-kompozitlerdir. Mantarlar, mantar hücrelerinin uç uca ilavesiyle oluşan mikroskobik iplikçikler halinde hüfleri oluşturur. Misellerin yapısında bulunan hüflerin büyümesi ve ağ yapısının genişlemesiyle yapısal olarak bağlama özellikleri sağlar. Yalıtım panelleri, ambalaj malzemeleri ve yeni tasarım malzemeleri üretmek için özel kalıplar kullanarak şekillendirilebilir/üretilebilir. Mevcut literatüre göre, dünyadaki sadece birkaç öncü şirket malzeme karakterizasyonunu sağlama yeteneğini de elinde tuttuğun dolayı endüstriyel gizlilik nedeniyle teknik detay ortaya çıkmamıştır. Biyo-kompozitler, düşük yoğunluğa sahip olmaları, iyi yalıtım özelliklerine sahip olmaları, ekonomik olmaları, üretim aşamasında daha az enerji gereksinimleri sentetik yapıştırıcı kompozitler ile kıyaslandığında daha düşüktür.

Bu derleme çalışmasında; mantar miseli bazlı biyo-bozunabilir kompozitlerin fiziksel ve mekanik özellikleri irdelenmiştir.

Anahtar Kelimeler: Mantar; Mantar miseli; biyo-bozunabilir kompozit; yalıtım malzemesi; ambalaj malzemeleri; yeni tasarım malzemeleri.

➢ **ORAL PRESENTATION**

Ladin ve kızılağaç odunlarında çeşitli ağartıcıların yüzey pürüzlülüğü üzerine etkisi

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Özet

Bu çalışmanın amacı, ağartma işlem uygulamasının ülkemizde ticari öneme sahip ağaç türleri odunlarında yüzey pürüzlülüğü ve renk değişimi üzerine etkileri araştırılmıştır. Bu amaçla yapraklı ağaç türlerinden Kayın, iğne yapraklı ağaç türlerinden Göknar ve ağartma maddesi olarak oksalik asit, perasetik asit kullanılmıştır. Standartla belirtilen boyutlarda deneme örnekleri hazırlanmış ve örnekler üzerinde yüzey pürüzlülüğü ve renk değişimi ölçümleri yapılmıştır. Sonuç olarak, göknar ve kızılağaç odunlarında perasetik asit ile ağartmada yüzey pürüzlülük değerleri ve renk değişimi ölçümleri oksalik asit ile ağartmaya göre daha iyi sonuçlar vermiştir.

Anahtar Kelimeler: Göknar, Kayın, OksalikAsit, Perasetik Asit

➢ **ORAL PRESENTATION**

Ön işlemlerin vernikli odun plastik kompozitlerinin aşınmada meydana gelen ağırlık kayıpları üzerine etkisi

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Özet

Odun plastik kompozitlerin (OPK) kullanım alanları ve kullanımı her geçen gün artmaktadır. Plastiklerin boyanabilme kabiliyetlerinin artırılması için örnek yüzeylerinde farklı ön işlemler işlemleri uygulanmış ve bu özellikleri belirli oranda iyileştirilebilmiştir. Bu çalışmanın amacı, farklı boya türleri ve ön işlemler kullanılarak OPK'nın aşınmada meydana gelen ağırlık kayıpları değerlerinin belirlenmesidir. Bu amaçla 2 farklı boya (sentetik ve su bazlı) ve 4 farklı ön işlem (zımparalama, asit muamelesi, UV, mikrodalga) kullanılmıştır. OPK malzemelerin yüzeylerine farklı ön işlemler ve boyama yapılarak test örnekleri hazırlanmıştır. Boyanmış örnekler üzerinde aşınma indeksi ölçümleri yapılmıştır. Sonuç olarak, ön işlem uygulamalarının aşınma indeksi değerini etkilediği, vernik türlerinde ise su bazlı verniklerin daha iyi sonuçlar verdiği belirlenmiştir.

Anahtar Kelimeler: Odun plastik kompozit,boyanma özellikleri, aşınma direnci

➢ **ORAL PRESENTATION**

Investigation of UV-B induced oxidation kinetics and fatty acid content of canola and soybean oil emulsions

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Abstract

In this study, the effects of UV-B (50 µW/cm2) radiation at 306 nm on lipid peroxidation in oil emulsions (O / W) in the presence and absence of ionized Cu (II) was investigated. The oxidation rates of water-emulsified canola oil, soybean oil and linoleic acids at pH 7.0 and 37 ° C were determined using iron (III) thiocyanate and thiobarbituric acid methods for the determination of hydroperoxides and malondialdehyde, respectively. Oxidation rates followed the sequence of LA / Cu (II)> LA> Canola Oil / Cu (II)> Canola Oil> Soybean Oil / Cu (II)> Soybean Oil for both products. In addition, simultaneous measurements were taken to determine the change in fatty acid content during oxidation. It was observed that the fatty acid changes did not follow a regular order with the increase of oxidation, while the small unsaturated fatty acid contents were increased for each emulsion sample.

Keywords: Canola oil, UV-B, Lipid peroxidation, Fatty acid composition, O/W emulsion.

➢ **ORAL PRESENTATION**

Doğal ve hızlandırılmış yaşlandırma testlerinin ahşap kaplamanın yüzey özelliklerine etkisi

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Özet

Ahşap kaplamalar, dış mekan uygulamalarında, fotodegradasyona uğrayarak yüzeylerinde bozunmalar meydana gelmektedir. Bu etkileri araştırmak, kaplamaların ticari değerini tanımlamak için önemlidir. Bu çalışmada, 1512 saat hızlandırılmış ve 150 günlük doğal hava koşullarına maruz kalan kayın kaplama örneklerinde, yüzey pürüzlülüğü, renk değişimi ve parlaklık değişimi gibi yüzey özelliklerine etkiler incelenmiştir. Hızlandırılmış yaşlandırma testine ait örneklerde 2, 4, 6, 8, 10, 12, 16, 20, 24, 36, 48, 60, 72, 84, 96, 108, 120, 132, 144, 156 ve 168 saat sonunda ölçümler yapılmış, daha sonraki ölçümler testin sonuna kadar haftada 2 kez alınmıştır. Böylece bu örneklerde toplam 37 kez periyodik ölçümler yapılmıştır. Doğal dış ortam yaşlandırmada ise örnekler 4 saat, 1, 2, 3, 5, 7 gün sonunda ölçülmüş, daha sonra bu ölçümler ilk 2 ay boyunca her hafta ve sonrasında ise 2 haftada bir gerçekleştirilerek toplamda 24 ölçüm alınmıştır. Hızlandırılmış yaşlandırma testi sonuçları, örneklerde ΔL* değerinin 24. saatte belirgin olarak koyulaştığını göstermektedir. Doğal yaşlandırma testi boyunca görülen en belirgin ΔL* değeri 35. günde gözlenmiştir. Örneklerdeki parlaklık değerlerinde azalmalar test süresi boyunca devam etmiştir ama belirgin değişiklik verdiği gözlenmemiştir. Örneklerin yüzey pürüzlülük değerleri, hem doğal hem hızlandırılmış yaşlandırmaya tabi tutulma süresi boyunca artış göstermiştir. Yaşlandırma testleri ile yüzey renginin önemli ölçüde değiştiği, parlaklığın kaybolduğu ve daha pürüzlü yüzeyler elde edildiği gözlenmiştir. Kayın kaplama örneklerinin yüzey özelliklerinde, laboratuvar koşullarındaki hızlandırılmış yaşlandırma testinin, doğal dış ortam testine göre daha fazla değişime neden olduğu bulunmuştur. Çalışma sonucunda elde edilen veriler ile kayın kaplamanın herhangi bir işlem görmeden dış ortam koşullarında degradasyonu incelenmiş ve hizmet ömrünün arttırılması için dış etkenlere karşı kaplamanın kimyasal değişimini azaltabilecek yüzey işlemleri ya da emprenye maddeleri ile korunması önerilmiştir.

Anahtar Kelime: Kayın kaplama, hızlandırılmış yaşlandırma, doğal yaşlandırma, renk değişimi, parlaklık, yüzey pürüzlülüğü

➢ **ORAL PRESENTATION**

Nanoparticle containing coating of timber in outdoor applications

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Abstract

Timber as a construction and building material represents warmth, naturalness and provides a comfortable natural climate. The service life of timber in outdoor applications is influenced by both timber-inherent properties and environmental factors. Coatings are shown to be effective to protect timber against degradation agents. However, coatings without ultraviolet light absorbers and radical scavengers start to crack and peel in service lifetime of 1 or 3 years. In the last years, organic-inorganic hybrid materials containing of nano metal particles and organic coatings have received significant interest in timber protection industry.

In this study, it is aimed to improve weathering resistance of Scots pine samples by opaque coating containing zinc oxide nanoparticles. Samples were coated with nanoparticle containing coatings, and then were exposed to artificial weathering for 1512 h. Gloss, color and surface roughness changes were evaluated periodically during the test in comparison to initial stage of samples. At the end of the test, control samples had erosion, cracks and checks on the surface, furthermore, they all showed remarkable change in color and surface roughness measurements. In the case of coated samples no visible surface degradations were recorded during the test. In addition, nanoparticle containing coating protected samples against color changes. Smooth surfaces were also recorded for coated samples. Results showed that nanoparticle addition to coating improved surface performance of samples against outdoor degradation agents. It is recommended to use zinc nanoparticles in wood coating systems for better weathering performance and to extend the service life of timber constructions in outdoors.

Keywords: Weathering, timber, nano zinc oxides, coatings, color change

➢ **ORAL PRESENTATION**

Kayın-kestane karışık ormanlarında yaprak ayrışmasının uzun süreli değişimi

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Özet

Bu çalışmanın amacı Batı Karadeniz Düzce-Akçakoca bölgesi kayın ve kestane ormanlarındaki yaprak ölü-örtüsünün ayrışmasının uzun vadeli (4 yıl) değişiminin belirlenmesidir. İklimsel olarak Batı Karadeniz kıyı kesimini temsil eden sahada farklı yükselti ve bakıdaki kayın ve kestane ormanlarında yaprak ölü-örtüsü ayrışmasına ilişkin veriler toplanarak, bu parametrelerin açıklanmasında etkili olan değişkenler belirlenmiştir. Örnekleme alanları doğu ve batı olmak üzere iki farklı bakıda 420-1050m yükseltiler arasında 4 farklı yükselti basamağında seçilmiştir. Bu sahalarda toprak pH'ı 4,5-6,5 arasında değişmekte olup, ağırlıklı olarak balçık ve killi balçık özellikleri göstermekte ve USDA toprak sınıflandırma sistemine göre Inceptisol topraklar arasında yer almaktadır. Ormanlarda tepe tacı kapalılığı %75 ve üzerindedir. Her yükselti basamağındaki 3 örnekleme noktası seçilmiştir. Her bir meşçerede 20*20= 400 m^2'lik bir alanda ölü-örtü ayrışma oranının belirlenebilmesi amacıyla mineral toprak üzerine yerleştirilen kapanlarla toplanmış ölü-örtü örneklerini içeren keseler toplanarak laboratuara getirilip kütle kaybı hesaplanmıştır. Buna göre 4. yılsonunda kestane sahalarında toplam kütlenin %30'unun, kayın sahalarında ise %40'ının geriye kaldığı bulunmuştur. Aynı periyotta bakılar arasında sadece kayın sahalarında doğu ve batı bakı arasında farklılık görülürken, kestane sahalarında doğu ve batı bakı arasında belirgin bir farlılık görülmemiştir. Kayında dördüncü yılsonundaki yüzde kalan kütle miktarları yükselti basamakları arasında istatistiki olarak anlamlı bir farklılık gösterirken, kestanede böyle bir durum oluşmamıştır. Dördüncü yılsonu karbon ve azot oranları türler arası farklılıklar göstermemiştir. Bütün bu veriler ayrışmanın türler arasında farklılık gösterdiği gibi, farklı yükselti ve bakılarda aynı tür içerisinde de farklılıklar oluşabileceğini göstermektedir. Dolayısıyla ayrışmanın hem organik materyalin kimyasal özelliklerine bağlı olarak hem de çevresel koşullara bağlı olarak değişkenlikler gösterebileceği ortaya çıkmaktadır. Bu durum benzer ekosistemlerin yönetim süreçlerinde alınacak olan uzun vadeli kararlarda etkili bir karar destek mekanizması olarak kullanılabilir.

Anahtar Kelimeler: Kayın, Kestane, Ayrışma, Karadeniz.

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➢ **ORAL PRESENTATION**

Türkiye Batı Karadeniz Bölgesi'ndeki kayın-kestane karışık ormanlarında ağaçlarda göğüs yüzeyindeki çapa bağlı azot içeriğinin değişimi

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Özet

Bu çalışmanın amacı iklimsel olarak Batı Karadeniz kıyı kesimini temsil eden Düzce-Akçakoca bölgesi kayın (*Fagus orientalis* Lipsky) ve kestane (*Castanea sativa* Mill.) karışık meşçerelerindeki farklı çap ve boylardaki ağaçların toprak altı (kök) ve toprak üstü (gövde, dal, kabuk, yaprak) kısımlarının içerdiği azot (N) oranlarının belirlenmesidir. Araştırma sahaları Avrupa-Sibirya (Euro-Siberian) flora bölgesinin Öksin (Euxin) kesiminde yer almaktadır ve Batı Karadeniz iklim tipi içerisinde yer alan sahil kesimini temsilen doğu kayını ve Anadolu kestanesinin yayılış gösterdiği Bolu Orman Bölge Müdürlüğüne Bağlı Akçakoca İşletme Müdürlüğü, Deredibi Orman İşletme Şefliği'ndeki Kaplandede dağ kesitinden seçilmiştir. 24 adet kayın ağacı ve 24 adet kestane ağacında azot içeriği hesaplanmıştır. Azot oranı en yüksek yaprakta ve en düşük oranda köklerde olmasına rağmen biyokütleye bağlı olarak en yüksek azot miktarı köklerde, en düşük azot miktarı ise kayın ve kestanede kabuklarında belirlenmiştir. Çapa bağlı olarak, tüm ağaç bileşenleri (dal, yaprak, gövde ve kök) azot miktarlarının yanı sıra toplam miktarları hesaplayabilmek için regresyon denklemleri oluşturulmuştur. Kayın ve kestane toplam azot miktarı için regresyon denklemleri sırasıyla N (kg) = 0.1083 x çap - 1.2855 (r^2=0.9116) ve N (kg) = 0.0717 x çap - 0.8435 (r^2=0.7551). Bu değerler sürdürülebilir iklim yönetimi besin hesaplamaları ile ilgili alan verimliliğinde kullanılabilir. Ağacın sadece çapını bilen uygulamacılar ve araştırmacılar, N değerlerini çok geniş bir alanda kolayca hesaplayabilecektir. Ek olarak, bu veriler bölge için uzun vadeli bilgi olarak saklanabilir.

Anahtar Kelimeler: Kayın, kestane, biyokütle, azot.

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➢ **ORAL PRESENTATION**

Annual rings of woody plants as indicators of climatic environmental conditions

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Abstract

Currently, the problem of changes in the natural environment and climate has become an important area of research. Large amounts of instrumental meteorological observations have been accumulated, the analysis of which shows that indeed over the last century there have been significant climate changes both on the whole planet and on the territory of Kazakhstan. However, there is a problem of comparing the state of the environment and climate of the last 100 years with those of the past centuries and millennia. Thus, to give a correct assessment of modern changes in the historical aspect or to make reliable forecasts of the development of the natural environment and climate system, based on short series of instrumental observations, seems problematic.

Indirect information sources help to solve the problem of climate and natural environment data of the past. One of such sources - annual rings of trees. The lifespan of trees can reach several thousand years in the annual rings of trees contains information about the climate, hydrological regime and other environmental changes, while woody vegetation can be a reliable indicator of the environmental conditions and natural processes. The most complete indicator capabilities of trees are used in the tree-ring analysis, which allows to estimate the magnitude of the radial growth of trees changes in the main climatic variables - air temperature and precipitation, as well as hydrological, geomorphological, permafrost and seismic processes and changes. Dendrochronology (obtaining and analyzing tree-ring chronologies) is the most accurate method of research, which allows us to restore the weather sequence of changes in climate and environmental conditions of the past years within a specific territory, a large region or even on a global scale for several centuries and millennia (Esper, Schweingruber, Winiger, 2002).

Woody communities in the inland mountains grow in extreme conditions and are highly sensitive to even minor changes in climatic factors, relatively small anthropogenic impact. The organization of the database of dendrochronological geodata and analysis of factors limiting the growth of tree rings, makes it possible to trace the long history of spatial and temporal variability of various landscape components in a complex mountainous terrain and mosaic climatic conditions, as well as to predict future changes (Mazepa, 2000).

Keywords: Dendrochronology, core, annual growth, growth index, dating of rings

➢ **ORAL PRESENTATION**

Kentsel alanlarda ağaç transplantasyon çalışmaları

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Özet

Kentsel dokuya can veren ağaçlık alanlar ve yeşil çevrenin korunması çok önemlidir. Özellikle büyük şehirlerde yeşil alanlar ve parklar görsel güzelliği yanında, insanların kullanımı ve nefes alabilmeleri için olmazsa olmaz alanlardır. Park alanlarında, inşaat alanlarında, korularda ve yol kenarındaki alanlarında mevcut ağaçların yerinden sökülerek başka bir alana çeşitli tekniklerle taşınması ağaçların transplantasyonu adını almaktadır. Kentiçi park alanlarında ağaçların transplantasyon (nakil) çalışmaları son yıllarda önemli bir hal almıştır. Her ağaç bir yerden diğer bir yere taşınabilir. Ancak bu taşıma işlemleri için sıkı sıkıya uyulması gereken kurallar ve teknikler bulunmaktadır. Sonuçta taşınan canlı bir varlıktır. Ağaçların taşınması esnasında öncelikle ağaçların taşınma mevsimine dikkat edilmelidir. Ülkemizde iklimsel özelliklerine göre değişmekle birlikte ağaçların taşınma dönemleri kasım - şubat ayları arasında gerçekleştirilmelidir. Bunun yanında, taşınacak ağaçların türü, boyu, göğüs yüksekliği çapı, tepe tacının büyüklüğü, genel gövde durumu, eğikliği ve taşınması durumunda sağlayacağı katkı maliyet analizi çok önemlidir. Ağaçların sayılan bu özellikleri göz önüne alınarak makinalı taşıma, bohçalama, kasalama vb. birçok teknik ile ağaçların taşınması çalışmaları yapılmaktadır. Ülkemizde ağaç transplantasyon çalışmaları belediyeler ve serbest orman mühendisliği büroları tarafından gerçekleştirilmektedir. Burada önemli olan ağacın taşınmasından önce yapılması gerekenler, ağaç taşınırken göz önüne alınması gerekenler ve ağaç dikimi yapıldıktan sonra yapılması gerekenlerdir. Bu çalışmada, kentsel alanlarda ağaçların transplantasyonu için uyulması gereken teknik özellikler açıklanacak, yapılan çalışmalar incelenecek ve çeşitli öneriler getirilecektir.

Anahtar Kelimeler: Transplantasyon, ağaç, taşıma mevsimi

➢ **ORAL PRESENTATION**

Offroad'un orman yolları ve ormanlık alanlardaki etkisi (Belgrad ormanı örneği)

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Özet

Belgrad ormanı İstanbul ilinin kuzey kesiminde yer alan, yaklaşık 5000 ha'lık bir alana sahip koruma ormanıdır. Bu ormanlık alan İstanbul'un akciğerleri olup, çevresindeki iklimi olumlu yönden etkileyen bir ekosistemdir. Aynı zamanda, 16 milyondan fazla bir nüfusa sahip böyle bir metropolün tüm sosyal aktivitelerinin gerçekleştirildiği bir öneme sahiptir. Belgrad ormanı içerisinde ham orman yolu, stabilize ve asfalt orman yolları şeklinde oldukça yoğun bir yol ağı bulunmaktadır. Bu durum, ormanlık alanlara insanların rahatlıkla ulaşmasını sağlaması yanında ormanlık alana farklı zararların verilmesine neden olmaktadır. Bu zararlar, alanların bilinçsiz kullanılması, yangın riski, kirlilik, toprağa ve ağaçlara verilen zararlar vb. şeklinde çeşitlenebilir. Offroad olarak isimlendirilen aktiviteler 4x4 çeker araçlarla yol dışında arazi üzerinde yapılan sürüş ve yarışmalardır. Belgrad ormanı içerisinde bu özelliğe sahip araçlar ile orman alanı içerisinde, üretim amaçlı kullanılan sürütme yol ve şeritleri üzerinde ve ormanın her yerine girerek offroad yapılmaktadır. Offroad için özellikle yağışlı veya yağış sonrası dönemlerde zor arazi koşulları tercih edildiğinden ormanlık alanlar içerisinde sürücüler araçları ile ormana, toprağa ve çevredeki ağaçlara zarar vermektedir. Özellikle, orman toprağının sıkışması nedeniyle ilerleyen zamanlarda böyle alanlarda yüzeysel erozyon riski oldukça artmaktadır. Aynı zamanda, ham orman yolu şeklinde bulunan yollarda bu araçların yağış mevsiminde dolaşması yolların yüzeyinin oldukça zarar görmesine ve deformasyon olmasına neden olmaktadır. Bu yollar daha sonra ormancılık çalışmaları için veya sosyal aktiviteler için kullanılamamaktadır. Bu bölgelerde ayrıca yangın riski olduğundan bu yolların acil durumlarda da kullanımı oldukça zor olmaktadır. Bu çalışmada Belgrad ormanı içerisinde yapılan offroad aktivitelerinin sonuçları anlatılacak ve bu aktivitelerin çevresel zararlarından bahsedilecektir.

Anahtar Kelimeler: Offroad, orman yolu, toprak zararları

➢ **ORAL PRESENTATION**

Orman yönetiminde insansız hava aracı uygulamaları

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Özet

Uydu ve hava araçları yardımıyla elde edilen görüntüler, uzaktan algılama teknikleriyle dönüştürüldükten sonra ormancılıkta çeşitli alt faaliyet dallarında yaygın olarak kullanılmaktadır. Son zamanlarda bu kullanılan araçlara İnsansız Hava Araçları (İHA) da eklenmeye başlamıştır. İHA, diğerlerine oranla düşük maliyetlerle elde edilmesi ve pratik kullanımı sayesinde karşılaşılan problemlere uygun ve hızlı çözümler getirmektedir. Ormancılık çalışmalarında izleme, yönetme ve karar verme süreçlerinde İHA'lardan elde edilen veriler kullanılabilmektedir. Bu çalışmanın amacı, her geçen gün yaygınlaşan İHA kullanımının Türkiye ve dünya literatüründe zamansal ve mekansal olarak nasıl bir seyir içerisinde olduğunu, hangi alanlarda kullanıldığını ve orman yönetiminde yaygın olarak hangi alanlarda tercih edildiğini ortaya koymaktır. Bu çalışmada, Scopus ortamında İHA kullanımı ile ilgili anahtar yapılar kullanılarak (drone forestry, UAV forestry, UAS forestry, and aircraft forestry) 2007 ile 2019 yılları arasında üretilen çalışmaların ülkelere (ilk 10 ülke ve Türkiye şeklinde), yıllara, çalışma yapılan bilim alanına ve üretilen yayın tipine göre dört farklı başlık altında gruplanarak ifade edilmiştir. Toplam 1265 esere ulaşılmış ve "UAV" ve "Forestry" ikili anahtar kelime kullanımının diğerlerine oranla (596 adet) sayıca yaygın kullanıldığı görülmüştür. Ayrıca bu çalışmada, İHA kullanımının ormancılık sektörü içerisinde potansiyeli ortaya konularak sektörün geliştirilmesine yönelik çeşitli öneriler sunulmuştur.

Anahtar Kelimeler: Ormancılık, insansız hava aracı, drone.

➢ **ORAL PRESENTATION**

Acarlar Longoz Ormanı çevresindeki yerel halkın ekourizme yönelik bakış açılarının incelenmesi

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Özet

Doğal ve kültürel kaynaklara zarar vermeden, sürdürülebilirliğini sağlayarak ve yerel halkın sosyo-ekonomik gelişimine katkıda bulunarak gerçekleştirilen ekoturizm; el değmemiş doğal yerlere yapılan, çevresel açıdan sorumlu ziyaretlerin genel adı olarak kullanılmaktadır. Bu araştırmanın amacı kendine özgü doğal güzellikleri, flora ve fauna çeşitliliği ile ulusal ve uluslararası öneme sahip, dünyanın beşinci Türkiye'nin ikinci büyük subasar ormanı olan Acarlar Longoz Ormanı Çevresindeki yerel halkın ekoturizme yönelik bakış açılarının belirlenmesidir. Çalışmada yöntem olarak 360 kişiyle yüz yüze görüşülerek anket uygulaması yapılmıştır. Yerel halka uygulanan anket çalışması sonucunda ekoturizme yönelik bilgi ve düşünceleri elde edilmiş, ayrıca araştırma alanındaki olumsuz çevre faktörleri hakkında da fikir sahibi olunmuştur. Araştırmada ortaya çıkan sonuçlar neticesinde Acarlar Longoz Ormanı'nda doğal ve kültürel değerleri koruyarak sürdürülebilir turizm gelişimi için öneriler sunulmuştur.

Anahtar Kelimeler: Ekoturizm, Acar Longoz Ormanları, Sürdürülebilirlik

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➢ **ORAL PRESENTATION**

Selective determination of Bisphenol A via surface imprinting approach on silica nanoparticles

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Abstract

Bisphenol A, [2,2-bis(4-hydroxyphenyl) propane], is an important pollutant in the plastic industry. Yet, many evidences have shown that BPA has toxic properties, inducing estrogenic endocrine disruption and promoting tumor progression and an extremely low concentration (0.23 pg mL^{-1}) BPA can initiate the derangement of corpuscular functions, hence altering the estrogenic hormone secretion. For that reason, the detection of trace amounts of BPA is very important in maintaining an awareness of pollutants in our immediate environments.

Herein, it was synthesized BPA imprinted poly (methacrylic acid) on silica nanoparticles via surface-initiated polymerization for selective detection of BPA in water samples. For this purpose, silica nanoparticles were firstly modified by a polymerization agent. Then, the imprinted polymers were prepared in the presence of monomer, cross-linker, initiator and template molecule. The surface characterization of the polymers was carried out by fourier transform infrared spectroscopy, X-ray photoelectron spectroscopy, scanning electron microscopy. Moreover, several imprinting parameters such as binding isotherms, selectivity and recycle number were also investigated. The results indicated that the prepared BPA imprinted polymers could be open a new way for selective detection of BPA.

Keywords: Bisphenol A, Molecular imprinting, surface-initiated polymerization

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➢ **ORAL PRESENTATION**

Synthesis and characterization of amorphous and nano-sized $HoBO_3.2.8H_2O$ compound

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Abstract

In this study, amorphous and nanostructured $HoBO_3.2.8H_2O$ compound was successfully synthesized by using a buffered-precipitation method. It was determined that the synthesized product was amorphous by XRD analysis. The Ho/B ratio in the compound was calculated as 1.02 using by ICP/MS. According to thermal gravimetric analysis, there is a mass loss (17.5%) in the temperature range of 303K and 523K, which shows 2.8 mol crystal water in the structure of the compound. Three basic vibration bands were observed in the wave numbers of 1393 cm^{-1} (asymmetric stretching [BO_3]), 935 cm^{-1} ([BO_3] symmetric stretching) and 681 cm^{-1} ([BO_3] out-of-plane bending) in the FTIR spectrum of the synthesized compound. These vibration bands revealed that trigonal plane [BO_3] groups were present in the chemical structure of the $HoBO_3.2.8H_2O$ compound. The second mass loss (about 4%) in the range of 523 K and 693 K revealed that PEG-2000 molecules were retained on the surface of nano-particles. The mean particle size of the nano-particles was 15 nm with 6nm standard deviation and the shape was similar to the sphere according to the SEM and TEM photographs. Optical reflectance measurement was performed by ultraviole-visible spectroscopy. Based on the Kubelka–Munk function, it was determined that the $HoBO_3.2.8H_2O$ nanostructures have a direct band gap of 5.3 eV.

Keywords: Holmium borate, nanostructure, amorphous, buffered-precipitation method.

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➢ **ORAL PRESENTATION**

Synthesis and characterization of nitrogen and sulfur-doped graphene quantum dots

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Abstract

In recent years, graphene and its derivatives have remarkable optical / electronic and biocompatibility properties. Nanometer-sized graphene derivatives are called graphene quantum dots (GQDs) and have become the focus of research due to their outstanding physical, mechanical, optoelectronic properties. In this study, the nitrogen and sulfur doped quantum dots having high quantum yields were synthesized by the pyrolysis of amino acid mixtures for the first time. The effect of pyrolysis time, type and amount of amino acids were investigated for the quantum yield. Quantum yields of synthesized graphene quantum dots were determined by absorbance and emission measurements. Structural characterization and formation mechanism was performed by Fourier Transform Infrared Spectroscopy (FTIR) and Elemental Analysis Device. Crystallinity properties and size distributions were determined by X-Ray Diffraction Diffractometer (XRD), RAMAN, Zetasizer analyzes and Transmission Electron Microscopy (TEM).

Keywords: graphene quantum dots, quantum yield, pyrolysis, amino acid, absorbance, fluorescence

➢ ORAL PRESENTATION

Pleurotus ostreatus tarafından Cr(VI) iyonunun biyosorpsiyonu ve bazı fizikokimyasal parametrelerin incelenmesi

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Özet

Bu çalışmada, uygun koşullarda kütük üzerinde kültive edilen *Pleurotus ostreatus* mantarı kullanılarak sulu çözeltilerden Cr(VI) iyonunun biyosorpsiyonu çalışılmıştır. Kültivasyon koşulları 24 ºC'de karanlık ortamda 2 ay mayalanma ve 7 gün büyüme süresi olarak tespit edilmiştir. Hasat edilen mantarların sulu çözeltilerden Cr(VI) biyosorpsiyonu için kullanılabilirliği araştırılmıştır. Bunun için optimum pH, başlangıç Cr(VI) derişimi, sıcaklık, süre, biyosorbent miktarı, ve desorpsiyon işlemleri gerçekleştirilmiştir. Daha sonra biyosorpsiyonun doğasının aydınlatılabilmesi için kinetik, izoterm ve termodinamik parametreler incelenmiştir. Buna göre pH:2.0, 45 ºC'de maksimum biyosorpsiyon kapasitesi (q_e) 179.13 mg g^{-1} olarak bulunmuştur. Biyosorpsiyonun Freundlich izoterm modeline ve yalancı-ikinci derece kinetik modele uyduğu belirlenmiştir. Son olarak biyosorpsiyon mekanizması için termodinamik parametreler (standart serbest enerji, standart entalpi ve standart entropi) hesaplanmıştır.

Anahtar Kelimeler: *Pleurotus ostreatus*, Cr(VI), biyosorpsiyon, biyosorbent

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➢ **ORAL PRESENTATION**

Ferro glukonat'ın sitotoksik etkisinin *Allium cepa* testi ile belirlenmesi

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Özet

Araştırmamda, olgun siyah zeytinde depolama sırasındaki renk bozulmalarını önlemek için siyah rengin korunmasında kullanılan bir gıda katkı maddesi olan ferro glukonat (E579) ve bitkisel materyal olarak *Allium cepa* L. kullanılmıştır. *A. cepa* kök uçları, farklı konsantrasyonlardaki ferro glukonat çözeltileri (0.016, 0.02, 0.028, 0.032, 0.04, 0.048, 0.06, 0.068, 0.075, 0.85 g/l) ile belirli bir süre muamele edilmiştir. Bu konsantrasyonların kök ucu uzamasına etkisi değerlendirilmiştir, *A. cepa* kök ucu uzunlukları ölçülmüştür. Bu ölçüm sayesinde, kontrolle karşılaştırıldığında kök uzamasını %50 azaltan konsantrasyon olan EC_{50} (etkili konsantrasyon) değeri 0.068 g/l olarak belirlenmiştir. Ardından yeniden oluşturulan test sisteminde *A. cepa* L. kök uçları $EC_{50}/2$ (0.034 g/l), EC_{50} (0.068 g/l), $2XEC_{50}$ (0.136 g/l) dozları ile 24, 48, 72 saat süresince muamele edilmiştir. Belirlenen sürelerin sonunda kök uçları kesilerek mitotik preparat hazırlama yöntemine göre ışık mikroskobunda gözlem için hazırlanmıştır. Işık mikroskobundaki incelemelerde her lamda kontrol ve muamele grupları için en az 1000'er hücre sayılmıştır. Kontrol gruplarında da, her bir muamele süresi ve doz kombinasyonu için de en az 5000 hücre sayımı yapılmıştır. İnterfaz, profaz, metafaz, anafaz ve telofazdaki hücreler ışık mikroskobu ile 1000X objektifte gözlenerek kök uçları değerlendirilmiştir. Sitotoksisite, mitotik indeks (MI) belirlenerek değerlendirilmiştir. MI=Bölünen hücre sayısı/Toplam hücre sayısıX100 formülü ile hesaplanmıştır. Sitotoksisite üzerine zaman ve doz'un birlikte etkisini incelemek amacıyla tekrarlanan ölçümlü ANOVA'dan yararlanılmıştır ve TUKEY çoklu karşılaştırma testi kullanılmıştır. Dozlar arasındaki farklılık muamale süresine göre değişmektedir. Mitotik indeks bakımından, tüm muamele sürelerinin sonunda kontrol dozlarının ortalaması $EC_{50}/2$, EC_{50}, $EC_{50}X2$ dozlarından önemli derecede yüksek olduğu ve doz artışıyla birlikte azaldığı belirlenmiştir. $EC_{50}X2$ dozunun 24, 48 ve 72 saat muamelesi sonucunda, istatistiki bakımdan muamele süresi artışına bağlı olarak mitotik indeksin azaldığı belirlenmiştir. Kontrol grubuyla kıyaslandığında ferro glukonatın *A. cepa* kök uçlarında mitoz bölünmeyi azalttığı saptanmıştır. Bu şekilde ferro glokonatın sitotoksik etkisinin bulunduğu; muamele süresine ve doz artışına bağlı olarak sitotoksik etkisinin arttığı ve mitotik indeksin azaldığı belirlenmiştir.

Anahtar Kelimeler: *Allium cepa* testi, ferro glukonat, sitotoksisite

Teşekkür

Bu çalışma, Çanakkale Onsekiz Mart Üniversitesi Bilimsel Araştırma Projeleri Koordinasyon Birimince FBA-2018-1443 nolu projeden desteklenmiştir.

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➢ **ORAL PRESENTATION**

Zinc-selective fluorescent sensor based on Schiff base

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Abstract

Zinc is one of the essential trace element for all organisms, because of its varied role in many enzymes; and it plays an important role in many biological, physiological and pathological processes [1]. It helps the immune system to work properly. It is essential for the cell division, cell growth and wound healing. Therefore, the detection of Zn^{2+} in biological samples is important. Many different fluorescent chemosensors have been developed for Zn^{2+}, but some of them include complex synthesis steps [2]. Schiff bases are a good chelating agent especially for transition metals. Schiff base ligands are considered to be one of the most potential group of chelators for the easy preparation of metal-organic complexes. Numerous Schiff bases and their metal complexes are of great interest due to their anti-tumor, antibacterial and anti-carcinogenic properties and catalytic activities [3]. Schiff base ligands with N,O-donor and chromophore groups are important building blocks to form luminescence complexes [4].

In this study, neutral metal complexes were prepared (Fig.1) by the reaction of zinc or cadmium salts with the N,O-donor Schiff base ligand HL, where HL= (E)-2-((benzylimino)methyl)phenol. The ligand was obtained by 1:1 condensation of 2-hydroxybenzaldehyde and benzylamine, and examined for its potential as fluorescent chemosensors for the detection of Zn^{2+} in aqueous samples. The fluorescence properties of the Schiff base ligand and its metal complexes were investigated at room temperature in ethanol–water solutions. There is no significant emission observed for the free Schiff base ligand at the excitation wavelengths between 240 and 480 nm. It was confirmed that Schiff base ligand HL could be used to determination of Zn^{2+} ions in real samples by fluorescence spectrometry.

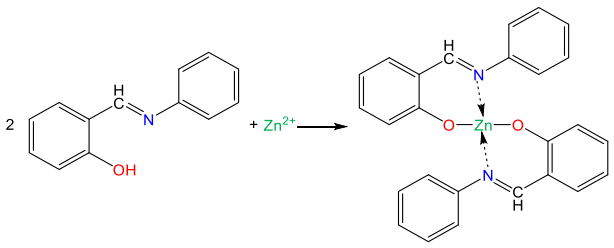

Fig. 1. Synthesis of Zn^{2+}-HL complex

Keywords: Zn (II) ion, Schiff bases, Fluorescence spectrometry

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➢ **ORAL PRESENTATION**

Magnetit nanoparçacıklar varlığında nitroaromatik enerjetik madde trinitrotoluenin spektroskopik tayini

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Özet

Nanoteknoloji ve nanoyapılı materyaller her geçen gün bilimde önemli rol oynamasının yanı sıra araştırma ve geliştirmede, günlük yaşamda kullanımı giderek artan nanoyapılı materyal temelli ürünler piyasada yerini almaktadır. Materyallerin fiziksel ve kimyasal özellikleri, büyüklükleri nanometre ölçülerinde oldukları zaman çok büyük değişikliklere uğramaktadır. Nanoteknolojiye bizi zorlayan iki önemli güç vardır. Birincisi biyolojik moleküllerin ve birimlerin çoğunluğu nanometre ölçeklidirler; bu yüzden nano ölçek, biyolojik birimler ve onların diğer materyallerle etkileşimlerini çalışmak için en iyi seçeneği sunmaktadır. Magnetit, Fe_3O_4 kimyasal yapısına sahip doğada doğal olarak bulunan bir demiroksittir. Kendiliğinden mıknatıslanma özelliğine sahip olması ve laboratuvar ortamında sentezinin oldukça kolay hale gelmesi nedeni ile son yıllarda uygulama alanı oldukça artmıştır. Magnetit nanopartiküllerin çeşitli moleküllerle kolay modifiye edilebilme avantajından dolayı biyoteknoloji,biyomedikal, malzeme bilimi ve mühendislik gibi geniş uygulama alanlarında kullanılmıştır. Çevresel ve kriminolojik amaçlarla toprakta ve patlama sonrası enkazında patlayıcı kalıntılarının eser analizi giderek önem kazanmakta ve karmaşık matrikslerde duyarlı ve seçimli patlayıcı analizine olan ihtiyaç artmaktadır. Ancak mevcut yöntemlerdeki fazla enstrümantasyon gereksinimi, karmaşık prosedürler, yüksek algılama sınırları gibi nedenlerden dolayı nitroaromatik patlayıcıların basit ve hassas analizinin yapılması zordur. Bunun bir sonucu olarak ortamdaki nitroaromatik patlayıcı konsantrasyonunun belirlenmesini sağlayan son derece hassas, düşük maliyetli sensörlerin geliştirilmesi sağlanacaktır. Bu çalışmada nanopartiküllerin küçük boyut ve geniş yüzey alanı özelliklerinden yararlanılarak ve bu özellikler doğrultusunda nanopartikülleri modifiye ederek, çevresel ortamdaki patlayıcı kalıntıların eser analizi karmaşık matrikslerde duyarlı ve seçimli patlayıcı analizi için basit, ucuz ve hassas kolorimetrik yöntem geliştirilmiştir. Magnetit nanopartiküllerin yüzeyi amin bileşiği ile fonksiyonelleştirilmiştir. Amin ile modifiye edilmiş magnetit nanopartiküller nitroaromatik enerjetik maddelerden trinitrotoluenin (TNT) Meisenheimer anyonu oluşumuna dayanan tayinine imkan sağlamıştır. Geliştirilen sensörün TNT için belirtme sınırı 0,1 ppm düzeyindedir.

Anahtar Kelimeler: Enerjetik Madde, Magnetit Nanoparçacık, Kolorimetrik Sensör

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➢ **ORAL PRESENTATION**

Water-soluble amorphous erbium borate ($ErBO_3.3H_2O$) nanoparticles with highly stability: synthesis and characterization

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Abstract

We report a simple one step protocol for the preparation of fairly monodisperse and highly water-soluble erbium borate nanoparticles through a co-precipitation method. Erbium ions were precipitated by boric acid / sodium hydroxide buffer with a pH of 9.2 in the presence of polyethylene glycol (2000 $gmol^{-1}$) (PEG). As a result of the X-ray diffraction analysis, it was determined that the products that were precipitated in the medium with/without PEG were amorphous and the calcined product has an appropriate pattern for the vaterite type $ErBO_3$ crystal structure. Infrared spectrophotometer and thermal gravimetric analysis revealed the chemical formulation of the $ErBO_3.3H_2O$ compound. It was found that partially spherical nanoparticles have a size of 15 ± 6 nm according to TEM images. The average particle size was also measured in the water by using dynamic light scattering method. The particles size is equal to about 100 nm in water and the zeta potential of particles is +41 mV, which indicates a highly stability colloidal solution. Thus, these nanoparticles have promising properties for biomedical applications.

Keywords Erbium borate, nanoparticle, precipitation.

➢ **ORAL PRESENTATION**

Overfeeding-induced type 2 diabetes mellitus zebrafish model for drug research

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Abstract

Obesity and Type 2 diabetes (T2DM) continue to increase rapidly in industrialized nations. High calorie intake may lead to excessive increase in post-prandial glucose and insulin levels and lead to metabolic and hormonal changes that stimulate hunger, accelerate fat accumulation (1). Zebrafish have been shown to be a suitable model for metabolic diseases (2). Aim of this study was to construct a T2DM zebrafish model that may be used in biomedical and drug research by overfeeding.

Animal procedures were approved by the Ethics Committee of Marmara University. Adult zebrafish (4–6 months old) were assigned to either an overfeeding or a control group (n=15). In the overfed group each fish was fed with 120 mg commercially available fish food divided as six times daily for 2 weeks. Body weights and fasting blood glucose were measured at the beginning and at the end of each week. Oral glucose tolerance test (OGTT) was performed using a micropipette to insert a glucose solution into the mouth of the anesthetized zebrafish. 30, 60, and 120 minutes after, blood samples were collected to determine the blood glucose levels using a glucometer.

Overfeeding led to significant alterations in body weights and fasting blood glucose levels. Orally glucose administration for OGTT at a dose of 1.25 mg/g led to increases in the blood glucose levels. Zang et al showed that one week of overfeeding was enough to induce T2DM in zebrafish and increase fasting blood glucose levels, and suggested that zebrafish may be more susceptible to glucose intolerance than the mouse (3).

Overfed zebrafish model may be suggested as a rapid and suitable T2DM model for drug research.

Keywords: zebrafish, overfeeding, obesity, diabetes, OGTT

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➢ **ORAL PRESENTATION**

Protective potential of *Achillea millefolium* extract on alcohol induced pancreas injury in rats

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Abstract

Alcohol is a very important risk factor for pancreatic insufficiency and is involved in nearly half of all cases. This study was to investigate the effect of *Achillea millefolium* extract (AME) on alcohol induced pancreatic injury and the underlying mechanism.

With this aim, Sprague-Dawley rats were divided into four groups: Control group; Rats received water, Alcohol group: Rat treated with 5 ml/kg absolute ethanol for 3days, AME group: Rats treated with 100 mg/kg/twice a day, p.o AME for 7 days, Alcohol+ AME group: Rats received 100 mg/kg/twice a day, p.o AME and 5 ml/kg absolute ethanol for 3days. AME application started 4 days before application of alcohol.

After exposure to the alcohol and AME, total oxidative stress (TOS), and total antioxidant status (TAS) were assessed to determine the oxidative injury in pancreas cells. The histology of the pancreas was examined using two different staining methods: hematoxylin-eosin (H&E) and periodic acid Schiff (PAS).

Alcohol caused severe pancreas injury in rats, demonstrated by significant elevation of TOS and reduction of TAS level, induction of histophatological changes. AME prevents establishment of toxic effect of alcohol in rat pancreas.

Keywords: Achillea millefolium, Alcohol, Pancreas

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➢ **ORAL PRESENTATION**

Reduce the toxic effects of cadmium with *Allium sativum* extract application in rat spleen

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Abstract

Heavy metals, which have been used by humans for decades, present toxic health hazards to the human population and the environment.
In the present study, we investigated the protective effect of *Allium sativum* extract (ASE)in rats. Control group; No Cadmium (Cd) nor ASE was given, ASE group; Rats treated with 100 mg\kg b.w. ASE, Cd group; Rats treated with Cd chloride 5 mg/kg, alternative day as a toxic agent for 2 weeks and Cd-ASE group; Rats treated with Cd chloride 5 mg/kg/day and 100 mg/kg ASE Pre-or Post treatment with Cd. At 2 weeks after treatment, the rats were sacrificed.
After completion of the exposure period, rats were sacrificed, and spleen tissues were stored/preserved for determination of total oxidative stress (TOS), total antioxidant status and and histological parameters.
High level of TOS was observed in the spleen in samples from rats exposed to Cd. Also histological changes were observed in the spleen after Cd treatment, compared to the control group. The Cd group rats showed protection when treated with ASE, as examined by histopathology.

Keywords: *Allium sativum* extract, Cadmium, Spleen.

➢ **ORAL PRESENTATION**

Evaluation of quercetin and vancomycin combination against vancomycin resistant enterococci

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Abstract

Vancomycin-Resistant Enterococci (VRE) is one of the resistant pathogens that cause very serious infections associated with high mortality and morbidity rates worldwide. Since the enterococci are resistant to many antibiotics used today, treatment options are limited. Therefore, it is necessary to find effective therapies for the treatment of infections caused by resistant enterococci. Nowadays, many researchers are working on plant-based active substances with antimicrobial activity to find a solution to this problem. Phytochemicals with antibacterial activity can be used as an alternative to antibiotics alone or in combination with antibiotics. In this context, the aim of this study was to investigate the effect of vancomycin against VRE strains isolated from hospital when combined with quercetin, a flavonoid compound known to be antibacterial.

Five clinical VRE strains isolated from patient samples were used in the study. Quality control strains were used as susceptible strain of *Enterococcus faecalis* ATCC 29212 and resistant strain *Enterococcus faecalis* ATCC 51299. In order to determine the antimicrobial activity of vancomycin and quercetin, Broth Microdilution Method was performed and Minimum Inhibition Concentrations were determined. In order to evaluate the combination activities, Checkerboard Synergy Test was applied.

According to the results of the broth microdilution method, the vancomycin MIC values of the five VRE strains were in the range of 16-32 µg/ml, and the MIC values of quercetin was in the range of 16-64 µg/ml. Combination of vancomycin and quercetin exhibited a synergistic effect in four of five strains in the range of 0.25-0.5 FICI values, and an additive effect as 0.53 FICI value in one of the five strains.

In conclusion, quercetin increased the antibacterial activity of vancomycin against five VRE strains used in this study and reduced vancomycin resistance.

Key words: Vancomycin-Resistant Enterococci, quercetin, synergistic effect

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➢ **ORAL PRESENTATION**

Investigation of the antitumoral activities on the MCF-7 cells of propolis and curcumin extracts

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Abstract

Chemotherapy, the most preferred primary treatment method in the fight against cancer today,has certain disadvantages investigation of anticancer activity of herbal products has become a popular topic of research. The aim of this study was to determine the antitumor activity of propolis and curcumin extracts in the breast cancer cell line (MCF-7). In addition,the individual effects of cisplatin,a chemotherapeutic drug, as well as its antagonistic and/or synergistic effects when combined with plant extracts were investigated. Propolis (2.5,5,10,20,40,80 and 160 µg/ml) and curcumin (0.08,0.16,0.31,0.63,1.25,2.5 and 5 µg/ml) extracts and cisplatin (1.56, 3.12,6.24,12.5,25,50,100 µg/ml) were applied on MCF-7 cells cultured in to investigate their antitumor activities.The MTT assay was performed to examine the cytotoxic effects on the cells, and the apoptosis process was determined with the flow cytometry staining protocol using the AnnexinV kit.In addition,the doses closest to LD_{50} were evaluated by the MTT test,and their effects on the MCF-7 cells by the apoptosis test. The most significant reduction in MCF-7 cell viability was observed at the doses of 100 µg/ml for cisplatin, 5 µg/ml for curcumin, and 160 µg/ml for propolis.The ratios of apoptotic cells were similar according to the MTT results.The highest apoptotic cell ratio was found to be in the combination of cisplatin+propolis (93.7%) compared to the control (11.4%). In this study,curcumin, propolis and,a chemotherapeutic agent cisplatin, only few studies explored the effects of combining different concentrations known anticancer drugs on MCF-7 cell viability.In particular, this study,in which we investigated the effects of a paired combination of curcumin+propolis and a triple combination of cisplatin+curcumin+propolison the viability of MCF-7 cells and apoptosis,appears to be one of the limited studies conducted in Turkey.In conclusion,in addition to classical cancer treatment,we considerit important to conduct various *invitro* studies to investigate the effects of curcumin and propolis extracts on cancer cell lines and support their results with *invivo* experiments to pave the way for future clinical trials.

Keywords: Cancer, plant, cell culture, phytotherapy, apoptosis, antitumor, ımmunology

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➢ **ORAL PRESENTATION**

The effects of oral antidiabetics on adipogenesis related gene expressions in 3T3-L1, AML12 cell lines and their co-cultures

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Abstract

The objective of the study was investigated for the effects of oral antidiabetic drugs, how they effect the cells proliferation activities and how they change the expressions of FTO, CD68, NIBAN, and RAN genes which could change insulin signalization and also be effective in the adipogenetic process on 3T3-L1 adipocytes, AML12 hepatocytes and adipocyte-hepatocyte co-cultures. Cell proliferation was examined real time with *iCELLigence* system and measured for 96 hours each 15 min period. The time and amount of active substances of the oral anti-diabetic drugs which were applied to cells were determined real time according to IC50 value. FTO, CD68 NIBAN and RAN gene expression profiles were determined with qPCR. When single and multiple doses of glipizide and acarbose in co-culture's were compared respectively, the 24 hour IC50 values were determined as 180 µM and 17 mg/ml in adipocytes; 72 µM and 23 mg/ml in hepatocytes, 41.5 µM and 5 mg/ml in coculture cells. The application of metformin for 24 hour IC50 value in single culture was determined as 175 mM in adipocytes and 2.3 mM in hepatocytes. In the Metformin administered cells. FTO, CD68 and NIBAN gene expressions were decreased in all groups. In the acarbose applied cells FTO and CD68 gene expressions were decreased in all groups. In the acarbose applied cells while NIBAN gene expression was decreased in adipocytes, it was fund to increase in co-cultured adipocytes. In the acarbose applied cells RAN gene expression was found to increase in all groups. Decreasing effects of antidiabetics on CD68 and FTO expressions may show protective effect of drug on inflammation and obesity. In conclusion, 230 µM metformin therapy may be effective in improving glucose homeostasis via changing the gene expression of RAN, these pathways may have therapeutic results and supply the new strategies for treatment of insulin resistance.

Keywords: 3T3-L1 adipocyte, AML12 hepatocyte, iCELLigence system, oral antidiabetics, non-alcholic fatty liver disease, gene expression

➢ **ORAL PRESENTATION**

Effects of oral antidiabetics on oxidative stress parameters in liver metabolism

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Abstract

The purpose of this study was to identify the effects of oral antidiabetic drugs such as metformin, acarbose and glipizide on antioxidant enzymes (CAT, GSH) activity, lipid peroxidation levels (MDA) and total protein (TP) levels in 3T3-L1 adipocytes, AML12 hepatocytes and adipocyte-hepatocyte co-cultures. Cell proliferation was examined real time with *iCELLigence* system and measured for 96 hours each 15 min period. The time and amount of active substances of the oral anti-diabetic drugs which were applied to cells were determined real time according to IC50 value. The amounts of total protein, malondialdehyde levels, glutathione levels and catalase enzyme activities as a response to oral anti-diabetic drugs were determined by using spectrophotometric methods. Oral antidiabetic agents applied in co-culture of hepatocytes with the control group compared to the level of MDA, the amount of MDA in the group treated with glipizide and acarbose was 1.5 times lower. This indicates that the administered oral antidiabetic drugs reduce the amount of ROS in liver fat. The level of catalase in oral antidiabetic drug-treated hepatocyte cells was higher in the 24 hour 2.3 mM metformin group compared to the control group. Metformin reduces oxidative stress in hepatocyte cells. GSH levels were higher in adipocytes with 6 hours of 192 mM metformin and 6 hours with 10 mg / ml acarbose. In the present study, it was found that glipizide and acarbose have a therapeutic feature in the removal of oxidative damage in liver fat in adipocyte cells in co-culture.

Keywords: 3T3-L1 adipocyte, AML12 hepatocyte, iCELLigence system, oral antidiabetics, oxidative stress

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➢ **ORAL PRESENTATION**

Diyabetik ayak enfeksiyon etkeni koagülaz negatif stafilokok (KNS) izolatlarında PVL taşıyıcılığı

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Özet

Diyabet gerek dünyada gerekse ülkemizde görülme sıklığı gün geçtikçe artan önemli bir sağlık sorunudur. Ülkemizde erişkin yaş grubunda diyabetik hasta oranı son 5 yıllık süreç içinde %7,2'den %13,7'ye çıkmıştır. Diyabetin en önemli komplikasyonlarından birisi de ayak ülserleridir. Ayak ülserlerinden en sık izole edilen bakteriler arasında Gram pozitif koklar yer almaktadır. Panton Valentin Lökosidin (PVL) cilt ve yumuşak doku enfeksiyonlarında görülen *Staphylococcus* türleri tarafından salgılanan faj ile kodlanan bir toksindir. PVL, birbiri ile sinerjik etki gösteren iki komponentli bir toksin olup, konak lökositlerinin membranlarında porlar oluşturarak etkili olurlar. Bu çalışmada diyabetik ayak enfeksiyonlarından izole edilen koagülaz negatif stafiloklarda PVL varlığı araştırılmıştır. Bu amaç için koleksiyonumuzda bulunan ve diyabetik ayak yara yerlerinden izole edilen 51 KNS suşu çalışılmış bu suşlardan 37'si (%72,54) metisilin dirençli (MRKNS), 14'ü (%27,46) metisilin duyarlı (MSKNS) olarak saptanmıştır. İzole edilen suşlardan DNA izolasyonu gerçekleştirilmiş ve spesifik primerlerle PVL geni amplifikasyon PCR yoluyla yapılmıştır. İncelenen 51 farklı KNS örneğinden 11'i (6 MRKNS, 5 MSKNS) PVL geni açısından pozitif bulunmuştur (%21.6). Diyabetik ayak yaraları alt ekstremitelerin ampütasyonuna neden olabilen ciddi sağlık problemlerine yol açmaktadır. PVL toksininin varlığı nekrotizan özelliğinden dolayı özellikle diyabetik ayak yaralarından izole edilen *Staphylococcus* türlerinde önem kazanmaktadır. KNS'larda PVL varlığı için yapılan çalışma sayısı olduça azdır. Yapılan çeşitli çalışmalarda PVL oranları Malezya (64/800), Hindistan (1/62), İran(12/70), Brezilya'da (5/43) %1,61 ile %17,14 arasında değişmektedir. Bizim çalışmamızda bulduğumuz yüksek oran örneklerin diyabetik ayak enfeksiyonlarından izole edilmiş olması olabilir. Nekroz oluşturan enzim taşıyan etkenlerle diyabetik ayak enfeksiyon etkeni arasındaki ilişki üzerine ileri araştırmalar yapılmalıdır. Yaptığımız çalışma diyabetik yara enfeksiyonlarından izole edilen KNS örneklerinde PVL taşıyıcılığının belirlenmesine yönelik Türkiye' de yapılan ilk çalışmadır.

Anahtar kelimeler: KNS, PVL, Diyabetik ayak

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➢ **ORAL PRESENTATION**

Evalutaion of phthalates toxicity and their effects on reproductive system

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Abstract

There are lots of synthetic materials that their biological effects are not yet fully known in our environment. As one group of these chemicals, phthalates are widely used as plasticizing agents and many consumer products contain specific members of phthalates. They can disrupt endocrine function and induce reproductive and developmental toxicity. The population may be exposed to phthalates through many exposure pathways, such as ingestion of water, application of consumer products and inhalation of air. Estrogenic effects of phthalates have been reported in many studies. They have shown that some of phthalates can produce severe developmental toxic effects in rodents, and more particularly affect the male reproductive organs especially testes, adrenal glands and sexual development. Also the findings provide evidence that exposure to phthalates adversely affect oocytes growth and maturation, leading to abnormal gonadal development and reproduction. In particular, prenatal exposure to phthalates, by interfering with androgen signaling pathway seems to cause permanent adverse effects on reproductive development.This study was to evaluate the toxicity of phthalates and phthalic acid esters with animal models. In addition, it was focused on histopathological effects of phthalates such as DEPH, BCP, DiNP, BBP, DBP etc. that are produced in large quantities and are commonly used in consumer products. Thus, the main purpose of this study is to present the studies relating the effects already stated of phthalates on the reproductive system.

Keywords: Phthalate toxicity, Acute toxicity, sperm counts, sperm morphology, histopathological changes

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➢ **ORAL PRESENTATION**

The effects of 900-Mhz electromagnetic field on rat hippocampus cells in adolescent period

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Abstract

In the present study was to investigate the effects of 900 megahertz (MHz) electromagnetic (EMF) field on hippocampus during adolescent period using histopathological and biochemical analysis methods**.**
Twenty-five 21 days of adolescence Sprague Dawley rats were divided into three groups; control (C-I-G), sham (S-I-G) and EMF (EMF-I-G). No treatment was performed to the control group rats. The EMF group rats were exposed to 900 MHz in EMF-cage (for 25 days). The sham group rats were placed in the EMF-cage, but no exposure to EMF. After the EMF application, all animals' brain were removed and divided right and left. Following histological tissue procedures, right brains sections were taken from tissues and stained with toluidine blue. All brain tissues were evaluated histopathologically. Hippocampus of the left brains were removed. Catalase (CAT), superoxide dismutase (SOD), malondialdehyde (LPO) and glutathione (GSH) values were determined in hippocampus tissues.
In adolescents rats, changes in pyramidal and granular cell structures were observed in the EMF group histopathological examination. Biochemical analyses results showed that SOD and MDA values increased, but GSH and CAT values levels decreased. This results show that oxidative stress occurred in the EMF group hippocampus tissues.
These suggest that 900 MHz EMF in the adolescent period may causes oxidative stress and histopathological changes in hippocampus.

Keywords: Adolescence, electromagnetic field, oxidative stress, rat, hippocampus

➢ **ORAL PRESENTATION**

Ameliorative effects of vitamin C on testosterone biosynthesis in acrylamide-exposed Leydig cells

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Abstract

In recent years, increasing concern has been concerned about the hazardous effects on the male reproductive system of various food toxicants. Acrylamide (Acr), which is widely used in industrial field, has been found to occur spontaneously in foods cooked in high temperatures in recent years. Acr, known to have various toxic effects on humans and animals, has been shown to cause infertility by causing various damages in the male reproductive system. This study was performed to determine the effects of Acr on the steroidogenic pathway that provides the testosterone production and the effect of vitamin C (VitC) on this damage. Acr (1000 µM) and VitC (50 µM) were exposed to TM3 Leydig cells for 24 h with luteinizing hormone stimulated conditions. Following the exposure time, Leydig cells were evaluated for cell viability, cytotoxicity, testosterone secretion and the changes in expression levels of steroidogenic genes (steroidogenic acute regulatory protein, cholesterol side chain cleavage enzyme, 3β-hydroxysteroid dehydrogenase type 1 and 17β-hydroxysteroid dehydrogenase type 3). The results indicated that Acr reduced the cell viability and decreased the levels of testosterone. The changes on expression levels of the genes which are essential at steroidogenic pathway, concluded that Acr was negatively affected the testosterone biosynthesis. In addition, this study found that VitC, a natural antioxidant, may have a curative effect against the harmful effects of Acr.

Keywords: acrylamide, steroidogenic genes, Leydig cells, vitamin C, testosterone secretion.

➢ **ORAL PRESENTATION**

LPS'nin böbrek DNA'sı üzerine akut toksik etkisi ve apilarnilin koruyucu rolü

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Özet

Bir endotoksin olarak lipopolisakarit (LPS), gram negatif bakterilerin hücre duvarının bir parçasını oluşturur ve canlı dokuya girdikten sonra akut bir iltihabın başlatılmasından sorumludur. Bu çalışmada erkek sıçanlar kontrol ve uygulama grupları olmak üzere toplam sekiz gruba ayrılmıştır. Uygulama grupları: Apilarnil'in 2, 4 ve 8 mg/kg vücut ağırlığı (va) artan doz grupları, LPS-uygulanan grup (30 mg/kg va intraperitonel yoldan LPS verildi), LPS+ Apilarnil'in 2, 4 ve 8 mg/kg va artan doz grupları. Apilarnil'in 2, 4 ve 8 mg/kg artan dozları sıçanlara 1 ml oral gavaj olarak verildi. Komet yöntemi ile böbrek hücrelerinin DNA yapısındaki değişiklikler 6 saat sonunda kontrol grubuyla karşılaştırıldı. LPS-uygulanan grupla LPS+Apilarnil uygulanan grup karşılaştırıldığında, DNA hasarı 6 saatin sonunda önemli ölçüde artmıştır. LPS+Apilarnil uygulanan grupta, uygulama süresi sonunda kuyruk yüzde DNA'sı, kuyruk uzunluğu ve kuyruk momenti önemli ölçüde azalmıştır. Sonuç olarak, LPS'ye karşı farklı dozlarda Apilarnil'in kullanılan gruplar karşılaştırıldığında yüksek dozda Apilarnil'in kullanılmasının daha koruyucu olduğu tespit edilmiştir.

Anahtar Kelimeler: LPS, Apilarnil, toksisite, DNA, böbrek

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➢ **ORAL PRESENTATION**

Immunohistochemical evaluation of ADAMTS-5 expression in umbilical cord of gestational diabetic and preeclamptic patients

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Abstract

Gestational Diabetes Mellitus (GDM) is defined as glucose tolerance disorder observed during pregnancy. Preeclampsia is a clinical syndrome characterized by hypertension and proteinuria after 20th week of pregnancy. ADAMTS proteases play a regulatory role in the formation of extracellular matrix and in the implantation and maintenance of pregnancy. Changes in extracellular matrix are considered to be one of the leading causes of GDM. Similarly, changes in the structures of cell matrix are observed in the placentas of preeclamptic patients. The aim of this study was to examine and compare the ADAMTS-5 expression in umbilical cords of patients with GDM and preeclampsia. Placental tissues were collected from women with normal (n = 10), GDM (n=10) and preeclamptic pregnancies (n = 10). Samples were fixed in 10% formaldehyde, following routine paraffin protocol, sections of 4–6 µm were cut with a microtome. Primary antibody ADAMTS-5 was applied for overnight and secondary antibody.Then counterstained with Hematoxylin and examined under light microscope. In control group, ADAMTS-5 expression was positive in amniotic epithelial cells of umbilical cord. Endothelial and muscle cells of arteries, vein and fibroblast cells in mucous connective tissue showed negative ADAMTS-5 expression. In preeclampsia group, ADAMTS-5 expression was positive in amniotic epithelial cell layers, in fibroblast cells of connective tissue of umbilical cord. In GDM group, cells of mucous connective tissue were mostly negative for ADAMTS expression but, fibers conjunction areas and fibroblasts were positive. ADAMTS-5 expression was significantly observed in muscle cells of arteries. As a conclusion, in preeclampsia, ADAMTS-5 expression was positive in umbilical cord connective tissue and amniotic membrane. Concominantly, ADAMTS-5 expression was observed in muscle layer of umbilical cord vessels in the samples with GDM. We suggest that preeclampsia is more effective on extracellular matrix structure in the membrane level however, GDM is more effective on muscle cells.

Keywords: Preeclampsia, GDM, umbilical cord, ADAMTS-5, immunohistochemistry.

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➢ **ORAL PRESENTATION**

Preeclampsia leads to increased expressions of CHOP and PSTAT3 proteins in placenta; an immunohistochemical study

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Abstract

Preeclampsia is a gestational disease that occurs from the second trimester of pregnancy and characterized by high blood pressure and proteinuria. CHOP is a marker of ER stress and is up-regulated in preeclampsia but, STAT3 is downregulated in preeclamptic placental specimens. Placental tissues were collected from women with normal pregnancies (n = 20) and with preeclamptic pregnancies (n = 20). The expression of CHOP and PSTAT3 proteins in the placentas were analyzed by immunohistochemical staining. Samples were placed into 10% neutral formaldehyde solution. Following the routine paraffin protocol, 4–6 µm paraffin sections were cut with a microtome. Primary antibodies (CHOP and PSTAT3) were applied and counterstained with Hematoxylin, examined under light microscope. In the maternal area of PSTAT3 control group, moderate PSTAT3 expression was observed in some decidual cells, while it was negative in the syncytial bridge and nodes and villi connective tissue. In preeclampsia PSTAT3 group, PSTAT3 expression was positive in the root villi and syncytial bridge and nodes. Also, PSTAT3 was expressed in some connective tissue cells of the villi. In control CHOP group; weak CHOP expression was observed in decidual cells, stem cells, syncytial bridges and nodes, chorionic villi connective tissue. In the maternal area of preeclampsia CHOP group, the expression of CHOP was positive in the fibrous structures and cells of connective tissue near the vessels and the Hoffbauer cells in the villi connective tissue. In preeclamptic placentas, PSTAT3 activity was seen mostly in the syncytial bridges and nodes of the root villi, whereas CHOP expression was found to be dense in connective tissue cells around the vessels and Hoffbauer cells in the maternal area. As a result, it was thought that PSTAT-3 and CHOP activity increased in preeclampsia, trigger inflammation in preeclampsia, may be considered in the treatment of preeclampsia.

Keywords: Preeclampsia, placenta, CHOP, PSTAT3, immunohistochemistry

➢ **ORAL PRESENTATION**

İmidacloprid'in zebra balığı (*Danio rerio*) ince bağırsak dokuları üzerine histopatolojik etkileri

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Özet

Pestisitler tarımda yüksek verim elde etme imkanı verse de yanlış ve bilinçsiz kullanımları yer altı sularını ve doğayı kirletmekte, dolayısıyla sucul canlılar için büyük tehlike oluşturmaktadır. Bu çalışmada son yıllarda sıklıkla kullanılan bir pestisit olan İmidacloprid'in zebra balığı ince bağırsak dokusundaki histopatolojik etkilerinin araştırılması amaçlanmıştır. Bu çalışma kapsamında 3 deney (9,5 mg/L, 19mg/L, 38mg/L) ve 1 kontrol grubu oluşturulmuştur. 5 gün boyunca İmidacloprid'e maruz bırakılan zebra balıklarının bağırsak dokuları disekte edilmiş ve hemen ardından Bouin fiksatifi ile tespit işlemi yapılmıştır. Rutin histolojik işlemlerin ardından dokular Hematoksilen-Eozin ve PAS ile boyandıktan sonra ışık mikroskobu altında görüntülenmiştir. İmidacloprid uygulaması sonucunda ince bağırsak dokusunda epitel hücrelerinde ödem, goblet hücrelerinde hiperplazi, villuslarda total füzyon, muskularis eksternada hipertrofi, lamina propia ve submukozada ayrılmalar ve dejenerasyonlar tespit edilmiştir.

Anahtar Kelimler: imidacloprid, zebra balığı, ince bağırsak, histopatoloji

➢ **ORAL PRESENTATION**

İmidacloprid'in zebra balığı *(Danio rerio)* karaciğer dokusu üzerindeki histolojik etkisi

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Özet

Son zamanlarda sucul ortamlara karışmış olan çevresel kirleticilerin sudaki organizmalarda oluşturduğu biyolojik hasarların belirlenmesi üzerinde çalışmalar yapılmaktadır. Bu kirleticilerden biri olan İmidacloprid, böcek öldürücüleri olarak görev yapan ve böceklerde merkezi siniri sistemini etkileyen neonikotinoidler adı verilen bir kimyasal sınıfa ait pestisittir. Ziraatta bu pestisitler sıkça kullanıldıkları için yer altı su kaynakları vasıtasıyla su ekosistemine ulaşır ve sucul organizmaları olumsuz etkiler. Bu çalışmanın amacı; İmidacloprid'in, zebra balığı (*Danio rerio* Hamilton,1822) karaciğerindeki histolojik etkilerinin ortaya konmasıdır. Kontrol grubu ve 3 deney (9,5 µg/L, 19 µg/L, 38 µg/L) grubu oluşturuldu.5 gün boyunca İmidacloprid'e maruz bırakılan balıkların karaciğer dokularına rutin histolojik yöntemler uygulandı ve dokular histolojik boyalar (Hematoksilen-Eozin ve PAS) ile boyandı. Daha sonra karaciğer dokusundaki histopatolojik değişimler ışık mikroskobu ile belirlendi. Deney sonucunda kontrol grubuyla karşılaştırıldığında, deney grubu balıklarının karaciğerlerinde vakuolizasyon,sinüzoid boşluğu,sinüzoidlerde hafif kanama ve nekroz gözlemlendi.

Anahtar Kelimeler: İmidacloprid, karaciğer, histopatoloji, zebra balığı

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➢ **ORAL PRESENTATION**

Effect of metal ion types on formation of hemoglobin-inorganic hybrid nanoflowers

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Abstract

There are different studies based on the biocatalytic activity of iron containing proteins instead of enzyme-based biosensors for determination of H_2O_2. Hemoglobin is a metalloprotein and shows high catalytic peroxidase like activity. For this reason, hemoglobin can be used as an organic compound for formation of protein-inorganic hybrid nanoflowers. In this study; we synthesized different hemoglobin-inorganic hybrid nanoflowers by using various metal ions (Zn^{2+}, Co^{2+}, Fe $^{2+}$and Ni^{2+}) as inorganic component and evaluated their effect on H_2O_2 biosensor. These nanostructures were characterized by different techniques such as SEM, EDX, FTIR and XRD. The results show that different metal ions effected morphology, chemical structure, and catalytic activity of hemoglobin-inorganic hybrid nanoflowers. We found that the morphology of hemoglobin- Zn^{2+} and hemoglobin-Co^{2+} hybrid nanoflowers are more uniform and monodisperse flower-like morphology. On the other hand, there was no product on hemoglobin-Fe^{2+} and hemoglobin-Ni^{2+} hybrid nanoflowers. Then, peroxidase activities of the hemoglobin-Zn^{2+} hybrid and hemoglobin-Co^{2+} hybrid nanoflowers were evaluated by comparison with free hemoglobin. Then minimum linear range was detected for assay of H_2O_2 for each one.

Keywords: Biosensor, Different Metal Ions, Hydrogen Peroxide, Morphology, Hybrid Materials

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➢ **ORAL PRESENTATION**

Depression and anxiety levels of renal transplantation patients

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Abstract

Anxiety and depression are the most common mental health problems. In chronic renal failure, long-term hospital treatment such as dialysis, anxiety and depression can be seen due to the inability of the kidney to function and other stressors. In a study of 30 countries and 5 continents, 39.2% of the anxiety prevalence in the hemodialysis treatment process in patients with renal insufficiency; the prevalence of depression was reported to be 41.6% (1). The aim of this study was to investigate the state of anxiety and depression in hemodialysis patients undergoing transplantation.
Presented study was performed in 110 kidney transplant patients who came to Ankara İbni Sina Hospital. Beck Depression and Anxiety Scales were applied to patients who had kidney transplantation at İbni Sina Hospital of Ankara University. Statistical analysis was performed by One Way Anova and Tukey Test to determine the difference between groups. Significance $p < 0.05$ was admitted significantly.
Patients with intermediate and severe levels of anxiety and depression were found to be higher than mild or non-symptomatic patient ($P<0.05$). Our presented findings, the prevalence of anxiety in 110 renal transplant patients in hospital was 25.45%; the prevalence of depression was 14.54%.
According to dialysis patients (anxiety prevalence 39.2%, depression prevalence 41%, 6) anxiety and depression prevalence was lower. The fact that patients took an important step with their health rather than a loss of organ transplants led to an increase in their emotions. Patients should be followed up by liaison psychiatry because of the negative thoughts that may occur in the future such as recurrent kidney loss, repetition of dialysis treatment and organ transplant failure.

Keywords: Anxiety, Depression, Kidney Transplantation.

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➢ **ORAL PRESENTATION**

Spinosad damages cerebellum structure of adult rat: A histological study

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Abstract

Introduction: Spinosad is an insecticide depend on chemical compounds that found in the bacterial strains. Although the main purpose is insecticidal, it has been shown to cause damage in small mammals (aka: rat, mice). Our aim is to investigate the effect of spinosad on the fine structure of cerebellum.
Methods: 15 Adult Male Wistar albino rats were divided into three groups of 5 rats each; first group (Group 1) served as a control, second group (Group 2) received a low sub-chronic dose of spinosad (SPD) that is equal to 9 mg, and third group (Group 3) received a lethal dose of SPD that is equal to 37,5 mg. After removing the cerebellums, they examined with the both light microscopy and electron microscopy.
Results :The results in light microscopy, showed that the rats which received 37,5 mg SPD have cerebellar degeneration that includes morphological changes, edema, decrease in the number of cells, besides the rats which received 9 mg SPD also have cerebellar degeneration that includes morphological changes but no decrease in cell number. It was detected that both in 9 mg and 37,5 mg SPD receiving groups there was not a significant decrease in the cell count but decreasing in the cell number observationally described. In electron microscopy histopathological examination showed perineural edema, separation and interruption in the myelin sheath, pyknosis in the purkinje cells, large vacuolisation, decreasing in the organel number and especially in the 37,5 mg SPD group inactivity in the cells.
Conclusion: Spinosad has been shown to damage the fine cell structure of the cerebellum in both dose groups. Prolonged exposure to this condition may cause a number of neurological disorders. Care should be taken in the use of spinosad, farm workers, farmers should be informed. Biological control methods should be preferred to protect nature.

Keywords: Cerebellum, Electron microscopy, Light microscopy, Spinosad

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➢ ORAL PRESENTATION

Changes in protein contents of *Bacopa monnieri* (L.) Wettst. propagated *in vitro* at different temperatures

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Abstract

Plants can survive in regions where climate demands are met and where they can withstand extreme climatic conditions. While determining optimum growth areas for plants, environmental requirements such as temperature, humidity and elevation of the whole plant are taken into consideration together. Temperature is one of the most important environmental factors that determine the habitats of plants. In this study, shoot tip explants of *Bacopa monnieri* (L.) Wettst were cultured under tissue culture conditions at temperatures ranging from 15-35 °C. Murashige and Skoog (1962) (MS) were used as culture medium and 0.50 mg/L 6-Benzyl amino purine (BAP) was added as plant growth regulator. After six weeks, the protein contents and growth of the shoots from the explants were evaluated. In general, the maximum number of shoots and the longest shoots were recorded at 25 °C. Further increase in temperature prevented shoot development. When the protein contents of the regenerated shoots were compared, they were listed as 20 °C> 25 °C> 15 °C> 30 °C> 35 °C. Low-temperature and high-temperature showed a reducing effect on protein content. The protein content of the shoots at 20 °C was 27% higher than the protein content at 35 °C. The protein content values obtained were statistically significant at $p<0.05$, whereas the protein content values at 20 and 25 °C were not statistically significant ($p> 0.05$). In short, the best temperatures for *B. monnieri*'s protein content and growth were recorded as 25 and 20 °C.

Keywords: Protein contents, Regeneration, Shoot tip, Stress

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➢ **ORAL PRESENTATION**

Monitoring the development of *Anubias barteri* Schott under aquarium conditions

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Abstract

Today, the aquarium sector has become an important industry branch. Two important components of this sector are fish and plants. In this study, the development of *Anubias barteri* Schott which was widely used as ornament in aquariums was examined. *A. barteri* is an indispensable species especially in the design of high aquariums. *A. barteri* plants about 7-10 cm in length were transferred to the aquarium. The body of the plant was not buried in the sand in the aquarium. The rhizomes of the plants were attached to the rocks at the bottom. High (5000 lux) and low light (1000 lux) levels were kept for two month. After two month, the leaves of A. barteri under high light showed yellowing. Yellowing was more frequent, especially in newly emerging leaves. In addition, mosses were detected in the leaves of plants under high light. These mosses were observed on the leaf as spots. Under low light intensity, *A. barteri* showed a faster growth and no moss formation was observed in the leaves. The rhizomes of the plants showed a relatively rapid development, while the leaves and shoots showed a slow development. Developing and growing plants have blossomed white in the aquarium. The flowers were attached to the main stem with a flower stem. In summary, this study presents the behavior of *A. barteri*, an important species for the aquarium sector, in the aquarium. This study can help those who want to produce this plant for hobby purposes or those interested in the aquarium sector.

Keywords: *A. barteri*, aquarium, rhizome, light

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➢ **ORAL PRESENTATION**

Callus and its importance in plant tissue culture

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Abstract

The process of culturing the tissue, cells or organs of the plant under aseptic conditions in various nutrient media and producing new cells, tissues, organs, new plants or plant products from them is called plant tissue culture. Calluses are a pile of undifferentiated cells and are obtained by incubation of different plant tissues or fragments (seed, node, bud, leaves, meristem and root tips, etc.) in culture medium containing specific growth regulators. Successful callus formation depends on genotype and growth regulators. Callus is composed of parenchyma cells with similar properties but is heterogeneous in composition. Calluses are induced by exogenous growth regulators to help form new regenerated shoots. Callus production is an important propagation method used in tissue culture techniques such as embryo and shoot tip production. In plant tissue culture studies, callus cultures are used in many studies such as multiple shoot regeneration, various secondary metabolite production and gene transfer. Callus structures are the preferred cause for cell suspension cultures with their small disintegration properties. Plant regeneration from calluses is possible by organogenesis or somatic embryogenesis. Callus cultures also facilitate amplification of limited plant material. Calluses allow the isolation of somaclonal variants due to genetic variability, environmental mutations, chromosomal aberrations and epigenetic changes in somatic cells. In this review report, callus and the importance of callus in plant tissue culture was evaluated.

Keywords : Callus, differentiation, organogenesis, shoot regeneration

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➢ **ORAL PRESENTATION**

The effect of neopterin alone or in combination with doxorubicnin, cisplatin and vitamin C on the viability of different hepatocellular carcinoma cell lines

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Abstract

Hepatocellular carcinoma (HCC) is an inflammation-related cancer, and the 4th leading cause of death globally. Neopterin is an instant biomarker of the cellular immune response and belongs to the pteridine class. The levels of neopterin are believed to be very closely linked with the tumor size in patients with HCC. Various studies have proven that neopterin can modulate the cellular oxidant-antioxidant balance, thus causing cell toxicity. In this study we investigated the cytotoxic effect of neopterin alone and in combination with two of the known cytotoxic agents of doxorubicin and cisplatin together with vitamin C, a well-known antioxidant agent on different HCC cell lines such as SNU-449, Hep3B, Mahlavu and PLC/PRF/5. Our results showed that increasing concentrations of neopterin does not have any significant effect on the cytotoxicity while as expected the three other analysed agents decrease the viability of all subjected cell lines. SNU-449 is the most resistant HCC cell line among others. Considering the growing focus regarding the increase of effectivity upon combinational therapy in cancer patients, the effect of various combinations of neopterin with doxorubicin, cisplatin and vitamin C on SNU-449 viability has been investigated. We found that neopterin protects the cells against the effect of cisplatin, but when cisplatin is used in combination with vitamin C and neopterin, cisplatin enhances the cytotoxic potency. Meanwhile doxorubicin protects SNU-449 cells against the combination of vitamin C and neopterin.

Keywords: HCC, neopterin, doxorubicin, cisplatin, vitamin C, combinational therapy.

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➢ **ORAL PRESENTATION**

Ratio of serum levels of ages to soluble form of RAGE is a predictor of metabolic syndrome

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Abstract

Metabolic syndrome (MetS) is a common metabolic disorder that coexist diseases such as dyslipidemia, hypertension, hyperglycemia, and obesity, that increase the risk for developing type 2 diabetes and cardiovascular disease. RAGE (receptor for advanced glycation end-products) is a receptor of the immunoglobulin superfamily, has been implicated in diabetes and its complications, inflammation, and atherosclerosis. RAGE binds multi-ligands such as AGEs (advanced glycation end products) and S100 proteins and binding of ligands activates signaling pathways that involved in cellular stress responses. AGEs are a broad range of species that generate from the nonenzymatic glycation and oxidation of proteins and lipids that accumulate in inflammatory status and diabetes. S100 proteins consist of a multigenic family of calcium binding proteins that involved in numerous cellular functions such as cell growth and differentiation, calcium homeostasis, or energy metabolism. The purpose of the study was to evaluate serum levels of sRAGE (soluble form of RAGE), AGE and S100 proteins and their correlations in subjects with MetS and without MetS. In this study, 60 individuals with MetS (mean BMI was 35.2±7.0 kg/m^2) and 60 individuals without MetS (mean BMI was 30.47±5.1 kg/m^2) were participated. The serum levels of sRAGE, AGE and S100 proteins were measured by using ELISA kits. The subjects with MetS had significantly higher levels of AGE and S100 proteins than those in the subjects without MetS. It was found that there was no significant difference in sRAGE levels between groups. However, subjects with MetS presented a significant increase of AGE/sRAGE serum concentration compared subjects without MetS. There were also positive correlations among all parameters. Our results suggested that AGE, S100 proteins and AGE/sRAGE ratio may be involved in the pathogenesis of MetS as a consequence of activation of RAGE.

Keywords: AGE, Inflammation, RAGE, S100, Metabolic syndrome

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➢ **ORAL PRESENTATION**

Yabanıl tip ve mutant tip (R96H ve R322Q) FTO proteinlerinin aşırı ekspresyonlarının SH-SY5Y hücre proteomu üzerine etkisi

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Özet

Fat mass and obesity associated (FTO) proteininin DNA tamiri, yağ asidi metabolizması ve post-transkripsiyonel modifikasyonlar gibi hücresel işlevlerde rol oynayabileceği gösterilmiştir. FTO, hücrede başlıca nüklusa lokalize olmaktadır. Dematilaz aktivitesi için başlıca substratı DNA'dan ziyade RNA'dır. Yapılan genom ölçeğinde ilişkilendirme çalışmaları (GWAS), FTO genindeki polimorfizmlerin obezite ve artmış vücut kitle indeksi ile yakından ilişkili olduğunu ortaya koymuş ancak daha sonraki çalışmalar FTO'nun Alzheimer gibi nörolojik hastalıklar ve çeşitli kanser türleri (AML, meme, servikal ve gastrik kanser gibi) ile de ilişkili olduğunu göstermiştir. Genin bazı eksonik mutasyonlarının proteinin fonksiyon kaybına neden olarak çeşitli polimalformasyonlara neden olduğu tespit edilmiştir. Ancak yapılan çalışmalar genin/proteinin gerçek fonksiyonlarını tamamen açıklayabilmiş değildir. FTO'nun katalitik işleviyle ilgili çok sayıda çalışma olmasına rağmen, FTO'nun genel varlığı veya yokluğunun hücresel proteom üzerindeki etkisi hakkında sınırlı sayıda çalışma mevcuttur. Bu çalışmada bir nöroblastoma hücre hattı olan SH-SY5Y hücrelerinde FTO geninin eksonik R96H ve R322Q mutasyonların karakterizasyonu ile bu mutasyonların proteom üzerindeki etkilerinin araştırılması amaçlanmıştır. Bunun için iki boyutlu poliakrilamid jel elektroforezi (2D-PAGE) deneylerinde, tet promotörün kontrolü altında yabanıl (WT) veya mutant FTO proteinlerini stabil şekilde eksprese eden SH-SY5Y hücreleri kullanılmıştır. WT ve mutant FTO proteinlerini fazla eksprese eden örneklerde 500'den fazla protein spotu karşılaştırılmış ve 2-kat regülasyon kriterine göre WT örneklerde 8, R96H-mutant örneklerde 1, R322Q-mutant örneklerde 4 adet olmak üzere toplam 13 adet protein spotunda değişiklikler tespit edilmiştir. Regülasyon gösteren protein-spotları jellerden kesilerek MALDI-TOF/TOF ile tanımlanmıştır. FTO'nu ekspresyonu hücre içinde strese cevap veren proteinlerin ekspresyonlarında artışa sebep olmuştur. Bu proteinlerin neredeyse tamamı sitoplazmada lokalize olan proteinlerdir. Bugüne kadar yapılan çalışmalarda FTO'nun nükleustaki rolü üzerinde odaklanılmış, sitoplazmadaki rolü belirlenememiştir. Ancak FTO gibi proteinler çoklu fonksiyona sahip olduları için hücre içi homeastazın düzenlenmesinde aktif görev almaktadır. Bu çalışmada bulduğumuz proteinler FTO'nun ikincil bir rolünü ortaya koyabilir ki bu da hücre içi strese karşı cevabın indüklenmesidir.

Anahtar kelimeler: FTO (Fat mass and obesity associated), FTO-ilişkili hastalıklar, SH-SY5Y, 2D-PAGE, Proteomiks

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➢ **ORAL PRESENTATION**

In vitro anti-candidal and anti-biofilm activity of new ethane sulfonyl hydrazone compound

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Abstract

Candida species cause cutaneous and systemic infections with a high mortality rate, especially in immunocompromised patients. However, the emergence of resistance to the most common antifungal drugs, also due to biofilm formation, there is an increasing need to design new and more effective antifungals with less toxic. Sulfonyl hydrazones are well-known for their pharmacological effects, such as antifungal and antibacterial potential and can act as an antinociceptive, antidepressant, antineoplastic activity. The aim of this study was to investigate the anti-candidal and anti-biofilm activity of the new Sulfonyl hydrazones compound Anaf-Esh (3-hydroxynaphthalen-2ethylidene ethanesulfonylhydrazone), derived from sulfonamides. A total of forty *Candida* isolates were included in the study, of which five were reference strains (*C. albicans* ATCC 10231, *C. krusei* ATCC 6258, *C. glabrata* ATCC 90030, *C. parapsilosis* ATCC 22019, and *C. tropicalis* NRRL Y-12968). The remaining 35 clinical isolates were obtained from the Gazi University Medical Mycology Laboratory culture collection. The isolates were identified by conventional methods and API ID32C® system. Both the ITS and D1-D2 region of 40 strains were amplified by PCR and sequenced. The minimum inhibitory concentration (MIC) and the minimum fungicidal concentration (MFC) values were determined by the broth microdilution method according to the European Committee on Antimicrobial Susceptibility Testing (EUCAST) standards. The range of compound concentrations tested was between 0.5–256 µg/ml. As a reference drug fluconazole was used. The anti-biofilm activity of the synthesized compound was evaluated in 96-well polystyrene flat-bottom microplates. Our data indicated the compound had broad-spectrum antimicrobial activity in the range 4-64 µg/ml. Furthermore, the synthesized compound exhibited anti-biofilm activity against tested isolates. This study highlights that following further clinical studies to investigate the various biological activities of Sulfonyl hydrazones, this new compound Anaf-Esh may play a role in the control and prevention or treatment of *Candida* infections.

Keywords: Anti-biofilm activity, Anti-candidal activity, *Candida*, Sulfonyl hydrazones.

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➢ **ORAL PRESENTATION**

Effects of thymoquinone on gene expression of transforming growth factor alpha (TGF- α) in MCF7 and HEK293 cells

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Abstract

Thymoquinone (TQ) is the active component found in the seeds of Nigella sativa and has been determined to have anti-inflammatory effects in models of asthma, diabetes, neurodegeneration, and carcinogenesis. Studies have revealed that TQ uses its anti-neoplastic effect(s) by different modes of action. TQ has been found to exhibit anticancer effects in numerous studies. Due to its multitargeting nature, TQ interferes in a wide range of tumorigenic processes and counteracts carcinogenesis, malignant growth, invasion, migration, and angiogenesis. Transforming growth factor alpha (TGF-α) is one of the growth factors that has been circumstantially implicated in regulating the autocrine growth of breast cancer cells. For these reasons, we aimed to investigate the effect of thymoquinone on TGF-α gene expression changes in MCF7 breast cancer cells and HEK293 human embryonic kidney cells. Effective doses of thymoquinone (27 µM) in the study were determined by MTT analysis. Cells were treated with 27 µM thymoquinone for 72 hours. Total RNA was isolated by using TRIzol reagent. Synthesis of cDNA from the total RNA was carried out by Transcriptor High Fidelity cDNA Synthesis kit. Expression levels of TGF-α associated with cell differantiation and proliferation were analyzed by RT-qPCR. Fold changes were calculated by the ΔΔCT method. The statistical significances were analyzed by two-tailed Student's t-test and analysis of variance (ANOVA). As a result, there were differences in the expression levels of TGF-α gene in thymoquinone-treated MCF7 cells compared to the untreated group and HEK293 cells. Thymoquinone significantly decreased TGF-α expression in breast cancer cells and significantly increased in normal kidney embryonic cells. Our study suggests that the TGF-α gene and related pathways are effective in the fight against breast cancer and shed light on future anticancer studies.

Keywords: Thymoquinone, TGF-α, MCF7, HEK293.

➢ **ORAL PRESENTATION**

Hematolojik parametereler testis torsiyonu ayırıcı tanısında faydalı olabilir mi?

Coşkun Kaya

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Özet

Akut skrotal ağrı ile gelen erkek hastada ilk akla gelmesi gelen testis torsiyonu (TT) olmalıdır. Testisin korunması açısından TT hızlı bir şekilde tanınması çok önemlidir. Akut skrotal ağrının nedeni başlıca TT ve epididimo-orşit (EO) olduğu için bu 2 hastalığın ayrıcı tanısında kullanılacak tanı yöntemleri çok önemlidir. Günlük pratikte ayrıcı tanı için sıklıkla skrotal doppler USG kullanılmaktadır. Ayrıca EO tanısını kuvvetlendirmek için tam kan sayımı ve idrar tahlili de kullanılagelmektedir. Biz bu çalışmamızda tam kan sayımındaki parametrelerinin TT ve EO ayrıcı tanısında kullanılıp kullanılmayacağını göstermeye çalıştık. Kliniğimize başvuran, tam kan sayımı olan ve TT tanısı alan hastalar 1. grup; EO tanısı alanlar 2.grup; herhangi bir nedenle üroloji polikliniğine başvuran hastalar kontrol grubu olarak kabul edildi. Her 3 grubun tam kan sayımları parametreleri karşılaştırıldığında kontorl grubuna göre 1. ve 2. grupta tüm parameterler farklı bulunmuştur ($p < 0.001$). Nötrofil/Lenfosit oranı (NLR) 1.grupta 2.gruba göre istatiksel olarak anlamlı bulunmuş ($p < 0.001$) iken diğer parameterler açısından her 2 grupta bir fark bulunmamıştır ($p > 0.05$). Sonuç olarak akut skrotal ağrı ile gelen hastalarda tam kan sayımı parametreleri TT ayırıcı tanısında skrotal renkli doppler USG ile beraber kullanılabilinir.

Anahtar Kelimeler: epididimo-orşit, nötrofil/Lenfosit oranı, tam kan sayımı, testis torsiyonu

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➢ **ORAL PRESENTATION**

Aluminyum klorür'ün mide inflamatuvar belirteçleri üzerine etkisi

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Özet

Aluminyum klorür ($AlCl_3$) yerkabuğunda en bol bulunan 3. elementtir. Son yılllarda bazı zararlı etkilerinin olduğuna yönelik araştırmalar (Alz Heimer Hast, otizmin tetiklenmesi, ataxi, nöbetler, mental durum değişiklikleri, letarji) $AlCl_3$'ün özellikle nörotoksik özelliklerine odaklanmıştır. $AlCl_3$ pek çok besin maddesiyle (çukulata, şarap, hayvan yemleri, işlenmiş peynir ve fırın ürünleri, yumurta akı, gıda boyaları), endüstriyel atıkların toprak ve suyu kirletmesi sonucunda, solunan hava ile, besinlerin temas ettiği alüminyum tencere ve folyolardan vücuda alınabilmektedir.

Aluminyumun sinir sistemi, cilt ve bağırsaktaki toksik etkilerinde TNFα ve makrofaj inflamatuvar protein-1α (MIP-1α)'i arttırdığı, inflamatuvar hücre infiltrasyonu oluşturduğu görülmüştür. Mide üzerindeki toksik etkisine yönelik literatürde yeterli bilgi yoktur. Mide epiteli üzerindeki kalın mukus örtüsü nedeniyle $AlCl_3$ 'ün çok zayıf emildiği, mukus tabakasında tutulduğu bildirilmiştir. Çalışmanın amacı $AlCl_3$'ün oral verilmesinde midenin inflamatuvar belirteçlerinde oluşan değişimi değerlendirmektir.

Sprague Dawley erişkin erkek sıçanlar (n:14) $AlCl_3$ alan ve almayan iki grupta değerlendirildi. $AlCl_3$ sıçanların içme suyuna eklenerek 100 mg/kg dozda 15 gün süreyle verildi. Deney sonunda sıçanlar CO2 anestezisi altında sakrifiye edildi ve mide dokuları alındı. Dokularda TNF-α ve IL-10 düzeyleri ELISA yöntemiyle kit protokolüne uygun gerçekleştirildi. İstatistik değerlendirme SPSS 24 programında Mann-Whitney U testi ile yapıldı, $p<0,05$ anlamlı kabul edildi.

$AlCl_3$ verilen grubun mide dokularında TNF-α düzeyinin belirgin olarak düşük olduğu ($p<0,01$) ve IL-10 düzeylerinin değişmediği görüldü.

Önceki çalışmalarda $AlCl_3$'ün sıçanlara 475-1900 mg/kg dozlarında oral verilmesinde histolojik açıdan bir hasar oluşmadığı, gastrit ve ülserli hastalara Aluminyum içeren antiasit verildiğinde olumlu etkiler oluştuğu gözlenmiştir. Biz çalışmamızda $AlCl_3$'ün midede antiinflamatuvar etki gösterdiğini gördük. $AlCl_3$ serbestleştiren antiasitlerin midedeki tedavi etkinliğinde asit nötralizasyonu dışında antiinflamatuvar etkinliği de rol oynuyor olabilir. $AlCl_3$'ün peptik ülser ve gastrit tedavisindeki antiinflamatuvar etkisi ileri çalışmalarla desteklenmelidir.

Anahtar Kelimeler: Aluminyum Klorur; mide; inflamasyon

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➢ **ORAL PRESENTATION**

Sugar acid containing scaffolds: Effects on bone tissue regeneration

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Abstract

The main role of the bone is to create a mechanical framework to help metabolic functions, to maintain calcium-phosphate levels and to promote the formation of new blood cells. Bone is a complex tissue containing collagen and inorganic calcium phosphate compounds. Many studies have been carried out to produce applicable materials with osteoconductive and osteointegrative properties to provide structural support in bone tissue engineering. In the presented study gelatin scaffolds containing succinic acid, malic acid and glutamic acid were formed and tested effects on bone tissue regeneration. For this purpose gelatin scaffolds containing malic acid, glutamic acid or succinic acid (10%, v/v gelatin) were formed by solvent freeze drying method. Saos-2 cells were cultured on the scaffolds. Cytotoxicity of the scaffolds were determined. Also alkaline activity and calcium deposition were performed. According to the results, more osteoblastic activity was seen in bare gelatin scaffold and gelatin scaffold containing malic acid groups.

Keywords: Bone tissue engineering, gelatin sponge, sugar acids.

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➢ **ORAL PRESENTATION**

Investigation of the effects of two boron containing compounds on neuronal survival in an *in vitro* axotomy model

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Abstract

Boron is a natural compound and found as the form of borate in nature. Borate is metabolized as boric acid in humans and animals and exists in body tissues and fluids. Borates are known to have important functions in mineral metabolism, immune response, endocrine and central nervous system. Neurodegeneration is an umbrella term consisting of progressive and selective loss of neurons in the nervous system; one of the characteristic degenerative processes seen in nervous system is axonal degeneration. Our aim in this study is to investigate the possible effects of two boron containing compounds on the survival of experimentally axotomized neurons *in vitro*.

In this study cortical tissues isolated from neonatal (P0-P1) Balb-C male mice (n=20) were used for primary cortical neuron culture. After 24 hours of culturing, two boron containing compounds with different concentrations (100, 200 and 300 µg/ml) were added to the culture 15 minutes before laser axotomy in order to observe protective effect of boron. For each experimental group, ten different areas from each petri dish were chosen randomly and thirty neurons were axotomized. After 24 hours of axotomy, propidium iodide was used to distinguish the axotomized dead cells from viable cells. Each experiment was repeated at least three times. The cell viability data were statistically evaluated by using one-way ANOVA test.

Our results showed that 200 µg/ml boric acid and 300 µg/ml borate have increased the survival of the axotomized cortical neurons significantly ($p<0.05$). The differences in survival between axotomized boron treated and untreated neurons indicate a possible protective effects of these compounds.

The boron containing compounds used in this study have statistically significant protective effects on the survival of axotomized primary cortical neurons. Our data will pave way to the further studies about the effect of boron on neuronal survival.

Keywords: Boron, cortical neurons, laser axotomy.

➢ **ORAL PRESENTATION**

Histamin-1 reseptör antagositi olan desloratadin'in insan meme kanseri hücre hattı üzerine sitotoksik ve genotoksik etkisi

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Özet

Desloratadin, merkezi sedatif etkisi olmayan güçlü bir histamin-1 reseptör antagonistidir. Desloratadin'in farmakolojik profili, histamin H1 reseptör bağlama potansiyeli ve H1 seçiciliği açısından özel yararlar sunar. Bu çalışma desloratadinin insan meme kanseri hücre hattı üzerine sitotoksik ve genotoksik etkisinin belirlenmesi amacıyla yapıldı.

Çalışmada MCF-7 hücre hattı kullanıldı ve hücrelere desloratadinin 1, 5, 25, 50 ve 100µM'lık konsantrasyonları 24 saat süreyle uygulandı. Hücre canlılığında meydana gelen değişimler 3-(4,5-dimetiltiazol-2-il)-2,5-difeniltetrazolyum bromid (MTT) yöntemiyle belirlendi. Desloratadinin MTT analiz sonuçlarına göre hesaplanan yarı maksimum inhibitör konsantrasyon değeri (IC_{50}) genotoksik analizlerde kullanıldı. Bileşiğin MCF-7 hücrelerinde genotoksik etkisi tek hücre jel elektroforez yöntemi (Comet assay) ile ölçüldü. DNA hasarı skorlaması comet kuyruk uzunluğu dikkate alınarak yapıldı.

Desloratadinin uygulanan 25, 50 ve 100 µM konsantrasyonları kontrol grubuna kıyasla hücre canlılığını anlamlı düzeyde azalttı ($p<0.05$). Bileşiğin IC_{50} değeri 56.693 µM olarak hesaplandı. Desloratadin uygulanan MCF-7 hücrelerinde Comet analizi ile tespit edilen DNA hasarında önemli bir artış görüldü. Bu çalışmanın sonuçları, desloratadinin insan meme kanseri hücre hattına karşı güçlü sitotoksik ve genotoksik özelliklerinin olduğunu ortaya koymaktadır.

Anahtar Kelimeler: Desloratadin, Meme kanseri, MCF-7, sitotoksisite, DNA hasarı

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➢ **ORAL PRESENTATION**

The dose-dependent effects of mad honey on GSH and MDA levels in gastric ulcer

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Abstract

Gastric ulcers, one of the most predominant gastrointestinal disorders, affect people around the world. The use of natural products is an important way to treatment of these disease instead of chemical drugs. This study aimed at investigating the dose-dependent gastroprotective effects of mad honey on GSH and MDA levels in ethanol/HCl-induced gastric ulcer in rats. Five groups of rats were used: control, ulcer-control, pantoprazole, mad honey (1,25 g/kg), mad honey (2,5 g/kg). Honeys and pantoprazole were pretreated 3 days before induction of ulcer. After the fasting period, rats were treated orally with ulcer mixture (ethanol/HCl). The animals were killed 4 h after administration of ulcer mixture. The stomachs were removed, and The GSH and MDA levels were measured spectrophotometrically. The GSH levels were significantly decreased and MDA levels significantly increased in the ulcer-control group as compared to control group ($P<0,05$). Pretreatment with mad honey (2,5 mg/kg) did not significantly alter the GSH and MDA levels ($P>0,05$). However, the pretreatment with mad honey (1,25 mg/kg) increased the GSH level and decreased MDA level in gastric mucosa as compared to ulcer-control group ($P<0,05$). Oxidative stress can cause hemorrhage and ulcer formation in the stomach. GSH protects cells through removal of reactive metabolites or conjugation. In conclusion, it can be said that mad honey increases the antioxidant capacity of stomach depending on the dose and may have gastroprotective properties.

Keywords: Gastric ulcer, mad honey, glutathione, oxidative stress.

➢ **ORAL PRESENTATION**

Salvia huberi ve *Salvia hypargeia* bitki ekstraktlarının deneysel diyabetik sıçanlarda yara dokusunda CTGF, KGF ve GPx gen ekspresyon seviyelerine etkileri

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Özet

Diyabetlilerin geciken yara iyileşmesinin nedenlerinden biri büyüme faktörlerinin ve antioksidan enzimlerinin yeterince üretilememesi veya yıkımındaki artıştır. Önemli büyüme faktörlerinden olan Bağ Dokusu Büyüme Faktörü (CTGF) ve Keratinosit Büyüme Faktörü (KGF) ile antioksidan enzimi Glutatyon Peroksidaz (GPx) yara iyileşmesinde rol oynadığı bilinen moleküllerdir. Çalışmamızda, diyabetik sıçanlara *S. huberi* ve *S. hypargeia* bitki kremlerinin topikal olarak uygulanmasının yara dokusu oksidatif enzim ve CTGF ve KGF büyüme faktörlerinin seviyeleri üzerine etkilerinin zamana bağlı olarak incelenmesi amaçlanmıştır.

Çalışmada Wistar cinsi 84 adet erkek (180–240 g) sıçanlar kullanılmıştır. *S. huberi* ve *S. hypargeia* bitki kremlerinin topikal olarak uygulandığı grupların büyüme faktör düzeyleri ile kontrol arasında anlamlı farklar tespit edilmiştir($P<0.05$).

Diyabet yapılmış sıçanlarda yara iyileşme sürecinin sağlıklı olduğunun göstergesi olan ve zamana göre farklılık gösteren CTGF ve KGF büyüme faktörlerinin, *S. huberi* ve *S. hypargeia* bitki kremlerinin topikal olarak uygulandığı gruplarda kontrol gruplara kıyasla daha uyumlu olduğu tespit edilmiştir.

Anahtar kelimeler: CTGF, KGF GPx, diyabetik yara iyileşmesi

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➢ **ORAL PRESENTATION**

Next-generation sequencing to identify the molecular regulators of spinal cord regeneration in axolotl

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Abstract

Even though it's regeneration and tissue repair mechanism is still not completely understood, Axolotl (*Ambystoma mexicanum*) exhibits high regeneration capacity among vertebrates. Upon an injury, axolotls can regenerate it's limb, tail, internal organs and central nervous system organs such as brain and spinal cord. Successful regeneration of the amputated organ is associated with the formation of blastema tissue, a tissue specific to regeneration. Since the axolotls share large number of functional and structural proteins and signaling pathways with mammals, it is possible to convey the message that we get from axolotl to mammals. In this study, to elucidate the mechanisms that play important roles in spinal cord regeneration process, blastema tissue samples are collected at different time points (Hour 0, Hour 6, Hour 12, Hour 24, Day 4 and Day 7) from neotenic and metamorphic axolotl following spinal cord injury. As a next step of sample collection, transcriptomics and proteomics analysis were conducted to find the differentially expressed genes within first 7 days of regeneration. Validation of identified differentially expressed genes was performed by qPCR. Significantly up and down regulated genes are enriched in pathways by the means of Gene ontology and KEGG pathway analyses. This study provides novel insights on molecular regulation of spinal cord regeneration.

Keywords: Axolotl, Spinal cord regeneration, Omics, Transcriptomics, Proteomics

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➢ **ORAL PRESENTATION**

Physiological and histochemical effects of synthesized carbon nanodots in *Triticum aestivum* L. cv. Golia

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Abstract

The aim of the present study was to evaluate the effect of synthesized carbon nanodot concentrations on some physiological and histochemical parameters in *T. aestivum* L. cv. Golia. Three replicas of 20 seeds for each synthesized carbon nanodot treatment, or for the control, non-treated seeds, were placed on two layers of filter paper in 120 mm sterile petri dishes. Before experiment, the seeds were sterilized with 5% sodium hypochloride solution for 15 min, and washed with sterile water three times. The seeds were moistened with distilled water for controls and with aqueous solutions for each treatment (25, 50, 100 and 250 mg/L). The petri dishes were incubated in a growth chamber (Snijders Scientific, Netherlands) at 24±1 °C. The seedlings were harvested after 7 days. According to our findings, the applications negatively affected the root and shoot developments. Non-protein SH groups and H_2O_2 contents were found to increase with the applied synthesized carbon nanodot concentrations. Similarly, malondialdehyde contents showed an increase in the effect of carbon nanodot concentrations. In order to assess the existence of oxidative stress in wheat roots due to carbon nanodot application, histochemical analyses were performed. In particular, the staining in roots following high concentrations were observed. Therefore findings prove the carbon nanodot induced oxidative damage in wheat tissues.

Keywords: Synthesized carbon nanodot, wheat, physiological effect, histochemistry

➢ **ORAL PRESENTATION**

Sinakalsetin farmasötik preparatlarda 7,7,8,8-tetrasiyanokinodimetan belirteci ile spektrofotometrik analizi

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Özet

Bu çalışmada sinakalsetin farmasötik preparatlarda analizi için 7,7,8,8-tetrasiyanonokinodimetan (TCNQ) belirteci kullanılarak spektrofotometrik analizi yapılması planlanmıştır. Metot ilaç maddesinin TCNQ belirteci ile yük transfer oluşumuna dayanmaktadır. Maksimum dalga boyu 843 nm de ölçülmüştür. Analiz koşulları değişik koşullar denenerek optimize edilmiştir. Özgünlük, doğrusallık, doğruluk, kesinlik, gözlenebilme sınırı, tayin sınırı gibi validasyon parametreleri denenmiştir. Konsantrasyon aralığı 50-500 µg mL^{-1} arasında doğrusal olarak bulunmuştur. Gözlenebilme sınırı, 0.31 µg mL^{-1} olarak ve tayin sınırı 1.02 µg mL^{-1} olarak bulunmuştur. Bulunan geri kazanım değerleri farmasötik dozaj formlarından herhangi bir girişim olmadığını göstermiştir (geri kazanım değeri ortalama %101.91). Geliştirilen metodun ayrıca farmasötik preparatlardaki analize başarıyla uygulandığı görülmüştür.

Anahtar Kelimeler: Sinakalset, TCNQ, Validasyon, Farmasötik preparat

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➢ **ORAL PRESENTATION**

Evaluation of anticholinesterase activity of the tubers of *Corydalis triternata* Zucc. growing in Turkey

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Abstract

The continuing research for the determination of bioactive secondary metabolites from Turkish *Cordalis* DC. species as therapeutic agents for demantia is mainly based on the need for drug candidates affected to brain areas. The tubers of *Corydalis triternata* Zucc. were collected from Mersin province. The plant species were also preserved as *ex-situ* in Yalova. The ethanolic and alkaloidal extracts were prepared from the tubers. The anticholinesterase activities of the extracts and fractions were tested by modification of the Ellman's method.. The optimization of LC-MS conditions was used in ESI in the positive ion mode. The alkaloidal extract of the tubers exhibited a highest activity against AChE and BChE with IC_{50} values of 0,0176 ± 0,0001 mg/ml and 0,1262 ± 0,0026 mg/ml (galanthamine 0,0068 ± 0,0005 mg/ml and 0,3444 ± 0,0082 mg/ml as positive control), respectively. Among the fractions obtained from the alkaloidal extract, protoberberine-type alkaloids exerted the most promising activity against both cholinesterases, with IC_{50} values of 0,0069 ± 0,0002 mg/ml and 0,3049 ± 0,0194 mg/ml for AChE and BChE, respectively. As conclusion, this presentation describes for the first time the *in vitro* anticholinesterase activity of the alkaloidal fraction of tubers of *Corydalis triternata* (Cullen & Davis) Lidén and its alkaloidal content by LC-Q-TOF-MS/MS. Besides, the anticholinesterase assays on alkaloidal extract and its fractions showed that protoberberine–type alkaloids were the most potent inhibitor of both AChE and BChE.

Keywords: *Corydalis triternata*, isoquinoline alkaloids, anticholinesterase activity.

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➢ **ORAL PRESENTATION**

Rapamycin reverses kidney injury in DOCA-salt induced hypertensive rats: Contribution of mTOR

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Abstract

Oxidative stress, inflammation and immun system, and hypertrophic responses are major important processes in the initiation and maintenance of hypertension and significantly contributes to associated pathophysiological changes and mortality. The administration of DOCA to rats following removal of one kidney induces a renin-independent model of hypertension based cardiovascular and renal remodelling characteristic of human volume-overload-induced hypertension, especially hypertrophy, fibrosis, and oxidative stress. It has also been recognized that renal inflammation with immune cells like lymphocytes and macrophages localizing to regions of injury, hypertrophy, and cell proliferation are importantly associated with hypertension and kidney injury in rat models of hypertension. As known, a serine/threonine protein kinase, mTOR has emerged as a key regulator in a wide range of cellular processes ranging from cell proliferation, immune responses and inflammation, and oxidative stress. The present study focused on the role of mTOR in hypertension and associated renal pathophysiological changes produced by DOCA (30 mg/kg; per week, s.c.) with 1 % NaCl + 0,1 % KCl in drinking water to uninephrectomized rats for 6 weeks. DOCA-salt administration increased systolic blood pressure (SBP). A selective mTOR inhibitor, rapamycin injection (1 mg/kg; every 2nd day; i.p.) initiated at the 4 th week of DOCA-salt treatment reversed increased SBP and rpS6 activity in the kidney. Rapamycin also inhibited the increases in NOX2 expression and NADPH oxidase, ERK1/2, and p38 MAPK activity, kidney hypertrophy, and prevented the increase in urine output, urinary protein, blood urea nitrogen and the decrease in creatinine clearance associated with DOCA-salt administration. These pathophysiological changes induced by DOCA-salt administration associated with increased mTOR activity were all inhibited by rapamycin. These data suggest that mTOR contributes to DOCA-salt hypertension and associated kidney injury, most probably as a result of increased oxidative stress, inflammation, and hypertrophic response.

Keywords: mTOR, DOCA-salt hypertension, kidney injury, oxidative stress, inflammation, hypertrophy

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➢ **ORAL PRESENTATION**

Investigation of antioxidant, anticholinesterase, antityrosinase, cytotoxic and antibacterial activities of new boron-containing compounds obtained from 3-methoxy catechol and boronic acid derivatives

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Abstract

Since the year 2000, the numbers of studies on the medicinal use of boron-containing compounds have by far exceeded the numbers of reports on boron-related toxicity. In this studies, it was synthesized of new boron derivatized compounds by activating 3-methoxy catechol compound with various boronic acids and investigated of biological activities (1,2).
New boron compounds have been synthesized with various boronic acid derivatives of 3-methoxy catechol. As a general procedure, 3-methoxy catechol and boronic acid derivatives were obtained by stirring in THF solvent for about 4-5 hours. Subsequently, the resulting materials were subjected to filtration, drying, crystallization. Then the characterization step was started. Melting points of the substances, ^{1}H, ^{13}C NMR, LC-MS / MS, UV-Vis. and FTIR analyzes were carried out.
A new boron compound was synthesized and characterized from boronic acid derivatives by 3-methoxy catechol. Obtained boron compound; The antioxidant activities were determined by CUPRAC, DPPH free radical and ABTS cation radical removal methods. Their cytotoxicity was also examined [1,2].

Keywords: antioxidant, anticholinesterase, antityrosinase, cytotoxic and antibacterial activities, 3-methoxy catechol

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➢ **ORAL PRESENTATION**

Plantago major L. (sinirotu) bitkisinin biyoaktivitesi ve terapotik nitelikleri

Taner Daştan[1*], Mehmet Ataş[2], Nurhaniye Eruygur[3], Sevgi DurnaDaştan[4]

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Özet

Bitki ekstrelerinden üretilen ilaçlar tüm dünyada yaygın olarak kullanılmaktadır. Bunlara ilaveten etnofarmakolojik olarak halk arasında tedavi amacıyla doğrudan bitkilerin çeşitli kısımlarının doğrudan çiğ olarak tüketildiği ya da kaynatma, demleme gibi basit işlemlerden geçirilerek yaygın olarak kullanıldıkları da bilinmektedir. Dünyadaki mevcut bitkisel çeşitlilik düşünülürse, bitkilerden elde edilen ekstrelerin çoğunun biyolojik etkileri ve etki mekanizmaları hakkındaki bilimsel veriler hala yetersiz kalmaktadır. *Plantago* (sinirotu) cinsi bitkilerin bazı terapotik etkileri bilinmekte olup, bazı tümörler üzerinde etkili olduğu ortaya konulmuştur. Bu çalışmada *Plantago major* (Sinirotu) bitkisinden elde edilen özütlerin GC-MS analizi ile genel olarak içeriğinin değerlendirilmesi, antimikrobiyal aktivitesi ve toplam antioksidan seviyesi (TAS), toplam oksidan seviyesi (TOS), oksidatif stres indeksi (OSI) değerlerinin ortaya konulması amaçlanmıştır. TAS, TOS ve OSI değerlerini tespit etmek için Rel Assay Diagnostics kitler kullanılmıştır. Bitki ekstrelerinin mikroorganizmalara karşı Minimum inhibisyon konsantrasyonu'nu (MIC) belirlemek amacıyla mikrodilüsyon broth yöntemi kullanılmıştır. Çalışmada antimikrobiyal aktivite analizleri, *Staphylococcus aureus* (ATCC 29213), *Enterococcus faecalis* (ATCC 29212), *Pseudomonas aeruginosa* (ATCC 27853), *Escherichia coli* (ATCC 25922), *Bacillus cereus* (ATCC11778), *Klebsiella pneumonia* (ATCC 13883), *Candida albicans* (ATCC 10231) ve *Candida tropicalis* (DSM11953) mikroorganizmaları kullanılarak yapılmıştır. Sonuç olarak, bitki ekstraktlarında, zayıf düzeyde antimikrobiyal aktivite ve orta düzeyde antioksidan aktivite tespit edilmiştir. Bitkinin oksidatif stres indeksinin düşük olduğu görülmüştür.

Anahtar Kelimeler: Antioksidan, Antimikrobiyal, Oksidan, *Plantago.* Sinirotu.

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➢ **ORAL PRESENTATION**

Antibiofilm activities of phytosphingosine and phytosphingosine hydrochloride against bacteria and fungi

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Abstract

The skin surface has stratum corneum lipids and its components including phytosphingosine (PS), and it is the first line against microbial colonization and infections. Biofilms are defined as an organized community of microorganism that are adherent to a surface. In the biofilm layer, microorganisms can be less susceptible to immune system components and can be resistant to many antimicrobials. In a previous study, we demonstrated that PS and phytosphingosine hydrochloride (PS-HCl) inhibited the growth of several bacteria and fungi. The aim of this study was to investigate the effects of PS and PS-HCl on biofilm production of Gram-positive bacteria (*Staphylococcus aureus*, *Enterococcus faecalis*, *Bacillus subtilis*), Gram-negative bacteria (*Escherichia coli*, *Pseudomonas aeruginosa* and *Salmonella enterica*) and yeasts (*Candida albicans*, *Candida parapsilosis* and *Candida kruzei*). For this purpose, biofilm production levels of microorganisms were determined in the presence of PS and PS-HCl (10, 100 and 1000 µg/ml) by spectrophotometric microplate method using crystal violet. All the experiments were performed in triplicate, and the statistical analyses were performed using GraphPad program. According to the results, PS-HCl was found to be more effective than PS at 10 µg/ml concentrations (except *E. coli* and *S. enterica*). Interestingly, biofilm production rates of *S. aureus*, *E. faecalis*, *B. subtilis*, *E. coli*, *S. enterica* and *C. parapsilosis* were found to be increased in the presence of 100 and 1000 µg/ml PS-HCl. Biofilm production levels were also increased in the presence of PS at 10 and 100 µg/ml concentrations (except for *S. enterica*). Additionally, the increase in the concentrations of PS (1000 µg/ml) caused a decrease in biofilm production levels of *B. subtilis*, *C. albicans* and *C. parapsilosis*. In conclusion, new antimicrobials and alternative treatment strategies are necessary to control infections caused by resistant strains. We suggest that PS and PS-HCl have both inhibitor and inducer effects on biofilm production, and alteration on biofilm production levels differed among the concentrations. More experimentation will be required and it is planned to investigate the effects of PS and PS-HCl on molecular mechanism of action on biofilm production of microorganisms.

Keywords: Phytosphingosine, Phytosphingosine hydrochloride, Antibiofilm activity, Antibacterial activity, Antifungal activity

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➢ **ORAL PRESENTATION**

The effects of antibiofilm agents and antibiotics on expression of *icaA* and *IS256* genes in *Staphylococcus epidermidis*

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Abstract

Coagulase-negative staphylococci (CNS) are important nosocomial pathogens that can adhere to medical surfaces like catheters and cause catheter-related infections. *Staphylococcus epidermidis* is the most important member of CNS, and biofilm formation causes the resistance of *S. epidermidis*. The intercellular gene cluster adhesion (ica) operon is one of the factors involved in biofilm production, and it is also known that biofilm formation is also affected by *IS256* gene. In previous studies, we investigated the minimum inhibitory concentrations, combined effects and antibiofilm acitivities of antibiofilm agents and antimicrobials against CNS isolates that were collected from catheters. The aim of this study was to investigate the effects of antibiofilm agents (N-acetylcysteine, EDTA, nisin, farnesol) and antimicrobials (gentamicin, ciprofloxacin, doxycycline, rifampicin) alone and in combinations on the expression of *icaA* and *IS256* genes of one *S. epidermidis* isolate. Expression levels of *icaA* and *IS256* were investigated by real-time quantitative RT-PCR (qRT-PCR) experiments in the presence of the agents. Gene expression studies were performed by qRT-PCR in a strong biofilm producer isolate that possessed the studied genes determined by PCR. RNA isolation and cDNA syhthesis protocols were performed after incubation period of 24 hours with the agents at MIC levels. All the experiments were performed in triplicate, and the statistical analyses were performed using t-test (GraphPad program). Gene expression analyses were presented in the expression of the genes versus reference gene (16S rRNA) in the presence of the agents relative to control groups (without agents). The expression rates of *icaA* and *IS256* were downregulated in the presence of EDTA alone, N-acetylcysteine+ciprofloxacin or gentamicin combinations, nisin+gentamicin combinations, farnesol+gentamicin combinations. In addition, *IS256* gene was downregulated in the presence of doxycycline, gentamicin, nisin and farnesol alone, and EDTA+ciprofloxacin or gentamicin or rifampicin, nisin+doxycycline or rifampicin, farnesol+doxycycline or rifampicin combinations. Interestingly, expression of *icaA* gene was found to be upregulated in the presence of rifampicin alone, although there was no alteration in expression levels of *IS256* gene in the same conditions. In conclusion, studied antibiofilm agents and the combinations of antibiofilm agents/antimicrobials could have promising effects on preventing catheter colonization and biofilm related infections.

Keywords: Coagulase-negative staphylococci, Antibiofilm agents, Antibiotics, Real-time quantitative RT-PCR, Gene expression

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➢ **ORAL PRESENTATION**

Evaluation of antidiabetic potential of nine medicinal plants used in Turkish folk medicine

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Abstract

In this study, it aimed to evaluate the antidiabetic potential of different parts of nine medicinal plants used in Turkish folk medicine. Antidiabetic activities from ethanol extracts of *Centaurea iberica* Trev. ex Sprengel (capitulum-CIC, aerial part-CIA), *Daucus carota* L. (aerial part-DC), *Myrtus communis* L. subsp. *communis* L. (leaves-MC), *Prunus spinosa* L. (fructus-PS), *Paliurus spina-christi* P. Mill. (fructus-PSF, leaves-PSL, branches-PSB), *Rubus discolor* Weihe et Nees. (root-RD), *Rubus sanctus* Schreb. (leaves-RSL, branches-RSB, root-RSR), *Rubus tereticaulis* P.J.Müll. (leaves-RTL, branches-RTB), *Urtica dioica* L. (aerial part-UD) were investigated by α-amylase and α-glucosidae inhibition assays. PSB, RD, PSF, PSL, RTL, MC, RSR with IC_{50} values of 16.85, 19.68, 20.67, 22.83, 28.42, 30.02 and 38.13 µg/mL showed a better antidiabetic activity than the standard acarbose (40.06 µg/mL) against against α-glucosidase, respectively. RD, CIC, CIA with IC_{50} values of 3.89, 4.31, 4.70 µg/mL exhibited a stronger antidiabetic activity when compared to the standard acarbose (5.05 µg/mL) against α-amylase, respectively. Among all the tested extracts the highest amounts of total phenolic were found in the RD (372,3 mg/g). The total phenol contents of other extracts ranged between 35.5 and 253.3 mg GAE per g extract. The results showed that RD had a significant antidiabetic activity and high phenolic compound content. Also, these results support the use of ethnobotanical for the antidiabetic purposes of the plants used in the current study.

Key words: Medicinal plant, *Rubus discolor*, antidiabetic activity, total phenolic content

Acknowledgements: The author would like to thank Dr. Ahmet Doğan for his help in identification of the plant material.

➢ **ORAL PRESENTATION**

Multi-omics study of colorectal cancer exosomes: Comparison of clinical samples and cell culture

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Abstract

CRC is the third most common cancer type and is a major cause of cancer-associated mortality. According to Global Cancer Statistics, annually half million people die and 1.4 million new cases occur. This work addresses the issue by comparing clinical samples with cell culture study, and using three omics platforms together that are proteomics, metabolomics and lipidomics. The ultimate goal of the study is to describe CRC positive exosomes, natural nanovesicles that are secreted by cells, in molecular levels in clinics and cell culture dimensions in order to non-invasively discriminate CRC patients from healthy individuals.

Exosomes were collected from HT-29 CRC (n=4) and FHC normal colon (n=4) cell lines as well as 12 healthy/12 CRC patients by applying ultracentrifugation technique. Thereafter, the collected exosomes were characterised with transmission electron microscopy (TEM) and Western Blot (WB). Omics techniques were applied to miR-19a, miR-21, miR-92a, and miR-1246 positive CRC exosomes (8 patients) distinguished by quantitative polymerase chain reaction (qPCR) technique. The results were evaluated using different tools for pathway predictions.

8 of 12 CRC patients were found to be positive for miR-19a, miR-21, miR-92a, and miR-1246, four most commonly seen miRNAs in CRC, so the following omics techniques were applied to these exosomes. We found a clear difference in PLS-DA plot for both cell culture and clinical samples, in proteomics, metabolomics and lipidomics platforms. Moreover, some pathways were overlapped for cell culture and clinical study, in all techniques. Since the omics techniques indicate some common pathways, the proteins, metabolites or lipids in these pathways may be evaluated and further studied for biomarker discovery for CRC.

Keywords: Exosomes, Diagnosis, Cell culture

➢ **ORAL PRESENTATION**

On the magnetic tweezer design and modeling

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Abstract

Magnetic tweezers are able to manipulate cells or biomolecules in applications associated with biological separation, medical treatment, and biosensor developments. In this work, a horizontal magnetic tweezer is designed, modeled and implemented. Finite element based numerical solvers are used for optimal designs. A model based on the first principals approach is derived and experimentally verified, which can be used in calibration and control implementations.

Keywords: magnetic tweezer, modeling, model verification, magnetic force.

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➢ **ORAL PRESENTATION**

Problems in corneal donations and proposed solutions in Turkey

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Abstract

The cornea is the transparent curved layer located at the front part of the eye and is the most important refractive structure. The cornea, which functions to focus light and protect the eye from external factors, has a great role in visual function. The transparency of the cornea can be destroyed by many diseases. These diseases may result from congenital, genetic or microbial factors. Keratoconus is a progressive disease caused by thinning and bulging of the transparent layer of the eye, that is cornea, with the myopia and astigmatism. This disease usually begins in adolescence and progresses until the 40s. In keratoconus, since the cornea shape changes and vision is impaired, people with this disease have growing difficulties with normal daily activities such as driving, writing on the computer, watching television or reading. In the final stage of keratoconus, if the vision is very low and the patient cannot benefit from contact lens or corneal rings, the treatment option will be corneal transplantation.
The studies carried out in Turkey in the field of organ and tissue transplantation gained momentum starting from the 2000s is quite high. Cornea necessity rising from cellular degeneration in the cornea layer, which usually occurs in advanced ages, is provided by corneal donations from cadaver. In this research, it was aimed to investigate the detection of problems, exploration of solutions and evaluation of gains to be obtained on the issue for the supply of corneas from cadavers in the scale of Turkey.

Keywords: Corneal donation, corneal transplantation, cornea transplantation center

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➢ **ORAL PRESENTATION**

Synthesis and characterization of castor oil and bacterial cellulose based thermoresponsive hydrogels

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Abstract

In this study, novel thermoresponsive hydrogels derived from renewable resources were synthesized. The first step of the synthesis involves the reaction of bacterial cellulose (BC) and castor oil (CO) with 4,4'-diphenylmethane diisocyanate (MDI). The molar ratio between MDI, the glucose units of BC and CO were set as 1:0.5:1. In the second step, N-isopropylacrylamide (NIPAM) was dissolved in water and the polymer was suspended in this solution. The suspension was left at room temperature overnight. N,N′-methylenebis (acrylamide) (MBA) and 2,2-dimethoxy-2-phenylacetophenone (DMPA) was added as the cross-linker and the initiator, respectively. Polymerization was carried out under UV irradiation at 365 nm for 1 hour. Two different synthesis strategies were investigated. One of the strategies involves the presence of the cross-linker and the initiator, whereas the other one involves only the initiator without the cross-linker. The differences between the hydrogels based on the presence or absence of the cross-linker (MBA) were evaluated. The designed hydrogels were characterized by Fourier-transform infrared spectroscopy (FTIR) analysis. In addition, swelling behaviors of the hydrogels at different temperatures were investigated to examine the effect of cross-linker on the physical structure of polymeric materials. Finally, novel polymeric materials were obtained by using renewable resources from vegetable oil and bacterial origin materials. Furthermore, the thermoresponsive properties of the polymeric materials synthesized in this study indicate that they can be used in drug delivery systems. This study is a pioneering study that highlights the importance of vegetable and bacterial origin materials for biomedical applications. The authors are grateful to the Marmara University for financial support under Bapko Project, No. FEN-C-DRP-170118-0011. The authors would like to thank the ArelPOTKAM Team for performing FTIR analyses.

Keywords: castor oil (CO), bacterial cellulose (BC), hydrogel, drug delivery systems.

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➢ ORAL PRESENTATION

PLA-PMMA karışımlarından gözenekli polimerik filmlerin nefes figürü yöntemi ile sentezi ve karakterizasyonu

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Özet

Nemi sabitlenmiş bir ortama bırakılan katı bir yüzey üzerine dökülen polimer çözeltisinin içermiş olduğu çözücünün buharlaşması sırasında ortamdaki nemin yüzeye kondense olması ilkesine dayanan Nefes Figürü (Breath Figure) yöntemi, mikro veya nano ölçekte düzgün gözeneklere sahip polimerik filmler elde etme amaçlı kullanılmakta olup, ucuz olması ve pahalı ekipmanlar gerektirmemesi açısından bilinen pahalı litografik tekniklere alternatif olarak tercih edilebilecek bir metottur. Kullanılan polimerlerin sahip olduğu özelliklere göre bu tip yüzeyler seçimli adsorpsiyonun tercih edildiği bir implant malzemenin yüzeyinin sentezinde kullanılabileceği gibi, tümüyle tutunmanın veya tutunmamanın istendiği fonksiyonellikle biyomedikal amaçlı yüzeylerin sentezinde de tercih edilebilir. Bu çalışmada belirli nem ve sıcaklık değerlerine sahip statik koşullar altında farklı konsantrasyonlarda kloroform çözücüsü içerisinde hazırlanan Poli(laktik asit) (PLA), Poli(metil metakrilat) (PMMA) polimerlerinden ve bunların %50-%50 karışımlarından teflon yüzeyler üzerinde belirli geometride, mikro ölçekte, düzgün gözeneklere sahip polimerik filmlerin sentezi için gerekli optimum koşulların belirlenmesi, nem değişimine bağlı gerçekleşen gözenek çapı değişimi ve elde edilen bu filmlerin ıslatılabilirlikleri incelenmiştir. Gözenekli polimerik yüzeylerin morfolojisi ve kimyasal heterojenliği optik mikroskop ve temas açısı ölçümleriyle karakterize edilmiştir.

Anahtar Kelimeler: Nefes Figürü Yöntemi, Gözenekli Polimerik Yüzeyler, Poli(laktik asit) (PLA), Poli(metil metakrilat) (PMMA).

➢ **ORAL PRESENTATION**

EVA ve PP bazlı polimerik yüzeyler üzerine *Candida albicans* tutunmasının incelenmesi

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Özet

Biyomalzemelerin veya tıbbi ekipmanların yüzey özellikleri (ıslatılabilirlik, yüzey yükü, serbest yüzey enerjisi, yüzey pürüzlülüğü) bu yüzeyler üzerine olan mikroorganizma tutunmasını ve bu mikroorganizmaların oluşturduğu biyofilmin büyümesini önemli ölçüde etkiler. Biyomedikal uygulamalarda vücutla etkileşim halindeki tıbbi cihazların enfekte edici özellik kazanmaması için istenmeyen patojenik türlerin materyal yüzeylerine yapışmasının engellenmesi gerekir. Medikal işlemler sırasında kontaminasyonun önlenmesi için yapışma mekanizmasının anlaşılması, mikroorganizma ile yüzey arasındaki ilişkinin ortaya koyulması ve bu alana hizmet edecek antimikrobiyal / antibakteriyel yüzeylerin sentezlenmesi büyük önem taşır. Bu çalışmada etilen vinil asetat kopolimeri (EVA-12) ve polipropilen (PP) bazlı polimerik malzemelerin yüzey özellikleri ile medikal alanda fırsatçı patojenler olarak da bilinen ve sistemik mantar enfeksiyonlarının başlıca sebebi olan *Candida albicans (C. albicans)*'ın bu yüzeyler üzerine adezyonu arasındaki ilişki incelenmiştir. *C. albicans*'ın polimerik yüzeylere yapışmasını değerlendirmek için farklı yüzey pürüzlülüğüne sahip polimerik yüzeyler daldırarak kaplama tekniği kullanılarak sentezlendi. Polimerik yüzeylerin yüzey karakterizasyonu optik mikroskop, temas açısı ölçümleri ve serbest yüzey enerjisi analizleri ile gerçekleştirildi. *C. albicans*'ın polimerik yüzeyleri kaplama oranı Image J görüntü analiz programı kullanılarak tespit edildi.

Anahtar Kelimeler: *Candida albicans*, Adezyon, Biyofilm, Polimerik Yüzeyler, Daldırarak Kaplama

➢ **ORAL PRESENTATION**

Farklı derişim ve kimyasal nitelikli polimerik nanofiberlerin polimetilmetakrilat bazlı dental biyomalzemelerde kullanım etkinliğinin değerlendirilmesi

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Özet

Restoratif diş malzemelerinde mekanik performansın iyileştirilmesi ile ilgili çalışmalarda çeşitli yaklaşımlar bulunmaktadır. Yıllar içerisinde geliştirilen destek malzemeleri arasında, nanofiber doldurucular gelecek vaat eden katkılardır. Polimetilmetakrilat protez kaide malzemelerinde kullanılmaya başlanan yenilikçi yaklaşımlardan biri olan nanofiber doldurucular, mekanik performansta oldukça iyi sonuçlar göstermiştir. Ara-yüzey bağlantılarında nano seviyede iyileştirmelerle, protez kaide malzemelerinde elde edilen mekanik geliştirmeler çok farklı düzeylere taşınmıştır. Sunulan çalışma, iki ana bölümde incelenmiştir. İlk bölümde kompozit üretimi esnasında farklı desenlere sahip polivinilalkol nanofiberlerin Katkılamada ağırlıkça yüzde değiminin, mekanik performansa etkisi tanımlanmıştır. İkinci bölümde ise farklı kimyasal nitelikteki, polistiren ve polimetilmetakrilat nanofiberlerin, katkılama yüzdelerinin değiminin, mekanik performansa etkisi tanımlanmıştır. Ayrıca her iki grupta, elektrostatik eğirme yöntemi kullanılmış ve polimer derişimlerinin etkileri de özetlenmiştir. . Elde edilen bulgularla, kimyasal özellikleri farklı bu nanofiber doldurucuların karşılaştırması yapılmıştır ve kompozit mekanik dayanımında önemli iyileştirmeler yapılabilmiştir.

Anahtar Kelimeler: Polimetilmetakrilat, polistiren, polivinilalkol, elektrostatik eğirme, düzenlenme, diş kompozitleri

Teşekkür: Çalışmamızın bir kısmını oluşturan, "Tekstil endüstrisinde kullanılan polimerik yapılarla kompozit üretimi ve karakterizasyonu" ile "Akrilik içerikli diş kompozit materyallerinin mekanik özelliklerinin iyileştirilmesi" isimli projelerimize verdikleri maddi desteklerden ötürü TÜBİTAK BİDEB 2209 programına teşekkürlerimizi sunarız.

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➢ **ORAL PRESENTATION**

Investigation of the potential of cellulose obtained from mulberry bark as a tissue scaffold

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Abstract

In tissue engineering applications, the activity of growth and differentiation factors of the cells used for the formation of target tissue is largely dependent on the characteristics of the tissue skeleton in which they are located. Cellulose molecule is very common in nature and has a rigid structure in terms of structure. It is found in all woody parts of the stems, branches and plants. In this study, it is aimed to use the raw cellulose obtained from mulberry tree shells in tissue scaffolding after characterization. With this propose, FTIR spectrum of cellulose pulp obtained from mulberry tree shells is examined, it is observed that the graph shows absorption bands in the range 3600-2800 cm^{-1}. The characteristic stress vibration peaks of the hydroxyl group of 3331 cm^{-1} are observed. This includes the vibration of the peak cellulose, both for the molecule and the hydrogen bond between molecules. 2950 cm^{-1} C-H gives stretch. Typical bands for cellulose are observed between 1630-900 cm^{-1}. Stress in 1633 cm^{-1} shows the water absorbed into cellulose. It is evident that cellulose contains even though there are impurities in cellulose obtained. Then, the examination of cellulose with SEM analysis was also performed. According to this, our sample of crude cellulose was coated with 20-30 nm thick gold-palladium under vacuum and measured. The results showed no stability in the structure due to the absence of cellulose is in nanosize. For this reason, the structure of raw cellulose that we will produce in nanosize is one of our primary plans. When the body is interacting with the human body because of the structure of nanosecond that will be produced in this way, it is due to the compatibility of this biomolecule with the body's immune response probability is low. In future studies, it is aimed to create a structure that mimics the non-cell matrix (ECM) as a tissue skeleton after the cellulose is converted into nanoparticula and this structure is used in tissue engineering.

Keywords: tissue engineering, tissue scaffold, cellulose, SEM, FTIR, non-Cell Matrix

➢ **ORAL PRESENTATION**

Mandibuler kanin transmigrasyonu: olgu sunumu

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Özet

Transmigrasyon, daimi kaninin erüpsiyon öncesi dönemde kemik içerisinde hareket ederek çenede orta hattı geçmesi olarak tanımlanmaktadır. İlk olarak mandibuler kanine özgü tanımlanan bu patoloji, maksiller kaninlerde de rapor edilmektedir. Nadir görülen bir durum olup insidansı %0.1-0.3 olarak bildirilmiştir. Vakaların çoğunda transmigrant kanin gömülü kalır ve semptomsuzdur. Transmigrant dişler çenede orta hattı değişen miktarlarda geçebilir, farklı eğim ve pozisyonlarda izlenebilir. Teşhis ve tedavi planlamasında panoramik radyograflar faydalıdır; eşlik eden patoloji varlığında ve cerrahi öncesi değerlendirmede ileri görüntüleme yöntemlerine başvurulur. Bu olgu raporunda 19 yaşında kadın hastanın panoramik görüntüsünde mandibuler sol kaninde transmigrasyon tespit edilmiş, gömülü dişin mandibula korteksi ve mental foramenle ilişkisinin detaylı olarak görüntülenmesi için konik ışınlı bilgisayarlı tomografi alınmıştır.

Anahtar Kelimeler: Transmigrasyon, Gömülü Diş, Panoramik Radyografi, Konik Işınlı Bilgisayarlı Tomografi.

➢ **ORAL PRESENTATION**

Mandibulda bifosfonat kullanımına bağlı gelişen osteonekroz: Olgu sunumu

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Özet

Bisfosfonatlar osteoklastları inhibe ederek kemik rezorpsiyonunu azaltan ilaçlardır. Günümüzde osteoporoz, Paget hastalığı, multipl miyelom, malign hiperkalsemi ve metastatik kemik tümörlerinin tedavisinde sıklıkla kullanılmaktadırlar. Bisfosfonatlar alveol kemiği gibi yüksek yenilenme kapasitesine sahip kemiklerde ve kemiklere komşu yumuşak dokuda yüksek oranda birikirler. Bifosfonat kullanımına bağlı çenelerde osteonekroz komplikasyonu son yıllarda literatürde sıkça yer almaktadır. Oral kavitenin geniş bir mikrofloraya sahip olması ayrıca travmaya yatkın olması çene kemiklerinde osteonekroz oluşma riskini arttırmaktadır. Bifosfonat kullanımına bağlı çenelerde osteonekroz gelişimi genellikle güçlü bifosfonatları intravenöz olarak kullanan hastalarda ve çekim, periodontal/endodontik cerrahi ya da implant yerleştirme gibi invaziv dental cerrahi girişimlerinden sonra görülmektedir.

Elli dört yaşında kadın hasta kliniğimize radyoterapi öncesi dental tedavilerini yaptırmak için yönlendirildi. Hastanın hikayesinden karaciğer karsinom hastası olduğu ve yaklaşık 2 yıl önce bifosfonat kullandığı öğrenildi. Ancak hasta kliniğimize başvurduğunda bifosfonat kullanmamaktaydı. Yapılan ağız içi ve radyolojik muayeneler ve onkoloji doktoru ile yapılan konsültasyon sonucunda 44 ve 47 numaralı dişlerinin çekimi planlandı. 47 numaralı dişinin çekimden 2 ay sonra hastada çekim bölgesinde osteonekroz geliştiği tespit edildi. Nekrotik bölgenin tedavisi için hasta ağız, diş ve çene cerrahisi bölümüne yönlendirildi.

Bifosfonat kullanan hastalarda osteonekroz riski göz önünde bulundurulmalı ve invaziv dental cerrahi işlemlerinden kaçınılmalıdır. Bifosfonat tedavisi öncesinde hastalar diş hekimine yönlendirilmeli, böylelikle mevcut ve potansiyel enfeksiyon kaynakları ortadan kaldırılarak ileride gerçekleşebilecek invaziv dental işlemlerin önüne geçilmelidir.

Anahtar Kelimeler: Bifosfonat, Mandibula, Osteonekroz

➢ **ORAL PRESENTATION**

Sıçanlarda oluşturulan deneysel böbrek iskemi/reperfüzyon hasarında akut agomelatin uygulaması koruyucu rol üstlenir mi?

Suat Tekin*, Damla Aykora, Dilara Altay Öztürk, Mehmet Refik Bahar, Süleyman Sandal

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Özet

Bir organa gelen kan akımının durmasına bağlı olarak doku hipokside kalır ve hipoksik doku hasarı ortaya çıkar. Hücrede enerji düzeyinin düşmesine ve toksik metabolitlerin dokuda birikmesine yol açar. Bir melatonin (MT1/MT2) reseptör agonisti ve serotonin antagonisti olan Agomelatin'in antioksidan etkilerinin olduğu rapor edilmiştir. Bu çalışma iskemiye bağlı olarak oluşan doku hasarında agomelatinin etkilerini araştırmak amacıyla yapıldı. Çalışmada yaklaşık 250-300 gr ağırlığında 40 adet *Spraque Dawley* cinsi erkek sıçan kullanıldı (n=40). Kontrol grubuna (KG) herhangi bir uygulama yapılmadı, Sham Grubuna (SG) böbrek dokusunda 1 saat iskemi 24 saat reperfüzyon her iki böbreğe de uygulandı, uygulama gruplarına ise sham gruba uygulanan cerrahi uygulanmadan önce agomelatinin 20 ve 40 mg/kg'lık konsantrasyonu oral olarak verildi. 24 saat sonra sıçanlar dekapite edilerek kan dokuları toplandı ve kan dokuda BUN ve kreatin seviyesi ölçüldü. Uygulanan agomelatinin her iki konsantrasyonunun iskemiye bağlı olarak artan BUN ve kreatin seviyesinin azalttığı ($p<0.05$) belirlendi. Bu sonuçlar agomelatinin böbrek dokusunda iskemiye bağlı olarak hasarın azaltılmasında etkili olabileceğini göstermektedir.

Anahtar Kelimeler: Agomelatin, İskemi,Reperfüzyon,Oksidatif Stres

➢ **ORAL PRESENTATION**

Çift köklü maksiller santral kesicide görülen taurodontizm: Nadir bir olgu sunumu

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Özet

Daimi dişlerin kök kanal anatomisi, morfoloji ve sayı bakımından geniş varyasyonlar gösterebilmektedir. Bununla birlikte, maksiller santral kesicilerde birden fazla kökün olması nadir görülen bir durumdur. Pulpa odasının apiko-okluzal yönde uzaması ve apekse yakın bifurkasyon bölgesi ile karakterize morfolojik bir dental anomali olan taurodontizm, genellikle molar dişleri etkiler; nadir olarak kesici dişlerde de görülebilir. Daimi dişin kronu normal boyut ve morfolojide olduğunda, ancak rutin radyografik muayenede tespit edilebilen bu varyasyonların bilinmesi, özellikle endodontik tedavinin başarısı açısından önemlidir. Bu vaka raporunda, bilinen bir sendromu olmayan 18 yaşındaki erkek hastanın çift köklü sağ maksiller santral kesici dişinde görülen taurodontizm olgusu sunulmuştur.

Anahtar Kelimeler: Taurodontizm, Diş kökü, Dental anomali.

➢ **ORAL PRESENTATION**

Salusin-β insan over kanseri hücrelerinde proliferasyona neden olur: *In vitro* bir araştırma

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Özet

2003 yılında salusin adını verilen çok fonksiyonlu biyoaktif peptid yapılı bir hormon keşfedilmiştir. Bu hormon idrarda, kanda ve dokularda salusin-α (Sal-α) ve salusin-β (Sal-β) olmak üzere iki formda bulunmaktadır. Preprosalusin'den köken alan Sal-α 28 aminoasitten, Sal-β ise 20 aminoasitten oluşmaktadır. Bu çalışma salusin beta'nın insan over kanser hücre canlılığı üzerindeki etkilerini belirlemek amacıyla tasarlanmıştır. Çalışmada insan over kanseri (A2780) hücre hattı kullanıldı. Salusin-β'nın 0.1, 1, 10 ve 100 nM'lik konsantrasyonları kültür ortamına eklendi. 12, 24 ve 48 saat süreyle hücre canlılığı üzerindeki etkiler MTT yöntemi kullanılarak belirlendi. Uygulanan Salusin-β'nın doz ve zaman bağımlı olarak A2780 hücre canlılığını arttırdığı görüldü ($p<0.05$). Tüm bu sonuçlar fazla salusin-β salgısının kanser hücrelerinin çoğalmasını arttırdığını ve kısır döngüye sürükleyebileceğini göstermektedir.

Anahtar Kelimeler: Kanser, Salusin-β, MTT, A2780

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➢ **ORAL PRESENTATION**

Deneysel periodontitis modelinin kalp ve karaciğer dokuları ile serum IL1beta düzeylerinin incelenmesi

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Özet

Periodontitis, mikroorganizmaların dişetinde başlattığı enflamasyonun, dişi destekleyen dokulara yayılmasıyla ilerleyen ve diş kaybıyla sonuçlanabilen, kronik enflamatuvar bir hastalıktır. Son yıllarda periodontitisin diyabet, kardiyovasküler hastalıklar, romatoid artrit gibi hastalıklarla olan ilişkisine dair bulgular, bu alandaki çalışmalara ilgiyi artırmıştır. Bu çalışmalarda, pro-enflamatuvar bir sitokin olan IL1beta seviyesindeki artış gösterilmiş olmasına karşın, enflamasyon sürecinin seyri, periodontitisin gelişim mekanizması ve sistemik enflamatuvar diğer hastalıklarla ilişkisinin tam olarak aydınlatılabilmesi önemlidir. Bu çalışmanın amacı, deneysel periodontitis modelinden elde edilen karaciğer ve kalp dokuları yanında serumdaki IL1beta düzeylerinin incelenmesidir. Bu amaçla, ipek sütur kullanılarak oluşturulan deneysel periodontitis modelinin karaciğer ve kalp dokuları ile serum örnekleri 1.hafta (Grup 1, 6 sıçan) ve 2. hafta (Grup 2, 7 sıçan) sonunda alınarak sitokin düzeyleri ELISA yöntemiyle tespit edilmiştir. Doku örneklerinin homojenizasyonundan elde edilen homojenatların ve serumların total protein derişimleri, Bradford yöntemi temelinde ticari bir kit kullanılarak ölçülmüştür. IL1beta düzeyleri, ticari ELISA kitinin protokolü takip edilerek belirlenmiştir. ELISA sonuçları, toplam protein derişimlerine oranlanarak normalize edilmiştir. Buna göre, 1. hafta sonunda sakrifiye edilen sıçanlardan (Grup 1) alınan kalp dokularındaki IL1beta düzeyleri 913,9 pg/mg protein iken Grup 2'de bu değer 996, 8 pg/mg protein olarak tespit edilmiştir. Bu veriler, kontrol grubu (7 sıçan) değeri (859,8 pg/mg protein) ile karşılaştırıldığında, kalp dokusunda periodontitisle ilişkili ve zamana bağımlı olarak anlamlı bir artış olduğunu göstermektedir. Grup 1'in karaciğer dokularındaki ortalama IL1beta düzeyi (9,5 pg/mg protein) ile Grup 2'nin IL1beta düzeyi (9,4 pg/mg protein) arasında anlamlı bir fark olmadığı gözlenmiştir. Grup 1'in serumlarındaki IL1beta düzeyi (176,1 pg/mg protein), Grup 2'nin IL1beta düzeyinden (139,4 pg/mg protein) anlamlı olarak yüksek bulunmuştur. Bu sonuçlar, IL1beta'nın enflamasyonun başlangıcında hızla artış göstererek diğer sitokin ve enflamasyonla ilişkili parametrelerin (TNFalfa, IL6, MMP gibi) ekspresyonunda bir artışa aracılık edebileceğini ve ilerleyen süreçte seviyesinin azalmaya başladığını düşündürmektedir. Enflamasyonla doğrudan ilişkisi olan nükleer faktör kappa B (NFkappaB) ve diğer bazı sitokinlerle çalışmalarımız devam etmektedir.

Anahtar kelimeler: Periodontitis, IL1beta, Enflamasyon

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➢ **ORAL PRESENTATION**

Porous polyurethane film fabricated via the breath figure approach for biomedical application

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Abstract

Self-assembly is the most basic mechanism of nature, and scientists have been inspired by nature. The breath figure (BF) method is an effective process for fabricating porous polymeric films. In this method, the polymer solution is cast onto the substrate surface, such as glass, silicone, or an immiscible liquid, then the solvent in the polymer solution evaporates immediately, and the surface temperature of the polymer solution decreases, which is also a environmental friendly procedure. BF method can be applicable to various polymers, yet polyurethane (PUs) come forward on biomedical applications like cardiac pacemakers, vascular prostheses, drug-delivery implants, tissue adhesives, and wound-burning dressings, because of their biocompatibility, stability, sterilizability, resistivity to chemicals, high strength, and elastic properties. In this study, we fabricated porous polymer films from thermoplastic polyurethane (PU) through static BF with $CHCl_3$ as a solvent under 55–80% relative humidity. The porous PU films were prepared within various pore structures and sizes, which were adjustable, depending on the fabrication conditions. The humidity and exposure time were examined as variable parameters affecting the surface morphology, wettability, and cytotoxicity. Atorvastatin calcium as a model drug was loaded into the porous films during the casting process, and the drug-loading and drug-releasing behaviors of the porous PU membranes were evaluated. Approximately 60–80% of the drug was released in 14 days. The films exhibited sustained drug-release performances because of the hydrophobicity and nonbiodegradable nature of PU for perivascular drug administration.

Keywords: Polyurethane; Breath Figure; Self-Assembly; Drug release.

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➢ **ORAL PRESENTATION**

A sound meter with instantenous measurement and visual alert system designed to be used in incubators

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Abstract

Incubators are medical devices that supply moist, heat, oxygen like intrauterine environment and offers treatment, medical care, protection and montoring to infants who were born prematurely or sick.
In this study, effects of unwanted noise on infants were explained and a sound meter to be used in incubators was designed with all procedural aspects. Negative effects of noise on infants were aimed to be decrased by using this sound meter. This project aspires to protect the infants treated in incubators from harmful effects of unwanted noise and improve their development.
A device with dimensions of 7 x 7 x 8.5 cm was designed. The purpose for designing a device with such small dimensions is to engineer an easy to use equipment. A battery was chosen as a power source. No need for extra hardware is appropriate for practical use. Arduno Ide was used in software and coding process. The noise sensor attached to this software was planned to give visual warning to attract attention of medical staff and direct them to decrase the noise int the environment using yellow and red led diods in response to sound over 65 dB which is the scientifically proven upper limit for noise. The device was planned to give warning against noise in two stages. First stage is the flashing of yellow diods and "decrease the sound level" statement on LED screen. Second stage is flashing of both yellow and red diods with "sound limit is crossed" statement on LED screen. Second stage was set to come in action over 65 dB. At this stage, the device gives both the limit exceeded and the red and yellow led diodes flash simultaneously. The two staged warning process with visual features enables rapid perception of noise level. The impact of warning by the device is crucial in preventing the negative effects of intense sound on infants. The response of the designed sound meter to aforementioned sound level will enable the medical staff to gain awareness of noise that causes harm to infants and it will stimulate them to take precautions. As a result infants will be protected against high decibel sound generated by medical staff which is the leading cause demonstrated in previous studies.
During design process cost, utility and functionality were sought while investigating the market conditions. Additionally software program of the device, hardware and assembly process were discussed in detail.

Keywords: incubator, sound meter, noise, newborn

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➢ ORAL PRESENTATION

Improvement of optical and electrochemical properties of polycarbazole via monolacunary keggin-type polyoxometalates

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Abstract
A composite film formed by combining the polyoxometalate and the conducting polymer can contributes greatly to the improvement of the optical and electrical properties of the conducting polymers thanks to the strong electrostatic interaction between them. In the present work, CT, namely 2,4,6-tris((9H-carbazol-2-yl)oxy)-1,3,5-triazine has been synthesized from one step reaction of s-triazine and 2-hydroxycarbazole. The electropolymerization of POM/CT was carried out onto ITO-glass surface in 0.1 M tetrabutylammonium hexafluorophosphate ($TBAPF_6$)/acetonitrile (ACN) solution. The composite film displays enhanced electrochromic performance by incorporation of POM into the PCT film. The electrochromic and electrochemical property of the composite film is significantly improved, which results in an optical contrast of 59% at 670 nm and stability maintain 91% of its initial electroactivity at the end of the 300 cycles. These results demonstrate the essential role of POMs in improving functionality on PCT for applications in electrochromic devices.

Keywords: Polyoxometalate, conducting polymer, composite film, electropolymerization

➢ **ORAL PRESENTATION**

Comparison of atomistic molecular mechanics force fields for NACore and SubNACore fibrils of Parkinson's disease.

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Abstract

Amyloid fibrils are pathological hallmark of many degenerative diseases such as Parkinson's disease (PD), Alzheimer's disease (AD) and type 2 diabetes (T2D). The fibril structures of α-synuclein are abundant in the brains of PD patients. Recently, the atomic structures of two small fibril segments of α-synuclein, named NACore (68-78) and SubNACore (69-77), have been found. In this context, MD simulation technique is convenient tool to investigate interface interactions of these segments at atomic level. However, these simulations rely on the accuracy of the utilized force fields. Therefore, we have tested dependence of interfacial interactions and stabilities of these small amyloid fibrils on various force fields. Consequently, it is expected that our findings will lead to the selection of the appropriate force field for simulations between these segments and possible inhibitors of this disease.

Keywords: molecular dynamics (MD), simulation, Parkinson's disease (PD), force field, fibril.

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➢ ORAL PRESENTATION

A MD study regarding conformational properties and structure-activity relationship of sCT and its various charged mutants

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Abstract

Salmon calcitonin (sCT) is the most common calcitonin type used in humans for the treatment of such metabolic bone diseases as osteoporosis and Paget's disease. The 9-19 amphipathic helix region of sCT is significant to explain some bioactivity properties of sCT. Therefore, we focused on this region of SCT in this study and aimed to get an idea about the conformational properties and structure-activity relationship of WT (wild type)-sCT and various charged mutation types in this region. In this context, all-atom molecular dynamics simulations was performed using explicit solvent. On the basis of these theoretical calculations, we expect the findings in this study to shed light on new drug design efforts of the sCT.

Keywords: molecular dynamics (MD), simulation, salmon calcitonin (sCT), stability, peptide.

➢ **ORAL PRESENTATION**

Preparation and characterization of polyethylenimine cryogels

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Abstract

Cryogel is a gel matrix which is prepared from frozen monomer or polymer solutions at temperature below zero. Formation of cryogels can be described as following steps; phase separation with ice crystals, crosslinking and formation of interconnected porous web network by dissolution of ice crystals. Cryogels attract attention in many areas such as biomedical materials, tissue engineering, filtration, biosensors, smart surfaces and controlled drug delivery. The goal of this study is to prepare polyethyleneimine based cryogels. For this purpose, polyethyleneimine cryogel was prepared in the presence of various hexandiol diglycidyl ether concentrations at -18 ˚C. The structural and thermal properties of the cryogels were evaluated by Fourier-transform infrared spectroscopy (FTIR), thermal gravimetric analysis (TGA) and differential scanning calorimetry (DSC), respectively. The morphology of the cryogels was investigated by a scanning electron microscopy (SEM). According to the SEM images, the cryogels have high porosity.

Keywords: Cryogel, Hydrogel, Polymer.

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➢ **ORAL PRESENTATION**

Investigation of edible starch film properties using malonic acid as crosslinking

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Abstract
Starch is a biomaterial with poor mechanical properties due to its hydrophilic nature in commercial applications. Mechanical properties are increased by linking starch molecules with covalent bond. In this study, cross-linked potato starch-malonic acid films were prepared by casting method. The structural characteristics of the films were characterized by FTIR (Fouirer Transform Infrared Spectrophotometer) and XRD (X-ray Diffraction). According to the FTIR results, in 1713.44 cm-1, carbonyl (C = O) occurs from esterification of malonic acid with starch. In XRD diffractograms, it was observed that 17.34º of the starch decreased the peak intensity and width, disappear 15.36º of the shoulder-shaped peak and 26.38º, 30.08º, 31.4º and 34.48º small peaks. Mechanical test, water intake and moisture content properties of the films were investigated. Mechanical tests were performed according to ASTM D-882-02 (American Society for Testing and Materials) by taking at least 5 films. As a result of this mechanical test, the starch-malonic acid mechanical test value was calculated as 1.298 ± 0.18 MPa. The water intake test is based on the ASTM D570, based on the average of 3 film samples. The water intake values in pure potato starch and crosslinked films were calculated as 117.43 ± 2.57% and 90.82 ± 5.01% respectively. Moisture content values were 22.22 ± 3.45% for pure potato starch and 21.25 ± 0.84 for starch-malonic acid film.

Keywords: Biofilm, crossliking, mechanical properties

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➢ **ORAL PRESENTATION**

Production and characterization of calcium silicate added Si3N4 for bioceramic applications

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Abstract

Si_3N_4 ceramics show good combination of mechanical, thermal and chemical properties and the usage of Si_3N_4 as prosthesis in bone reconstruction/repair or in joints replacements has been investigated intensively. The main drawback of Si_3N_4 ceramics is the necessity of special equipment during the production process. Sintering should be done under protective atmosphere. This study aims to produce and characterize Si_3N_4 based ceramics with various amounts of calcium silicate addition. Si_3N_4 ceramics are composed of 0-15 wt. % of calcium silicate. Sintering was done under air atmosphere between 1200-1300oC. Calcium silicate addition formed liquid phase and provided liquid phase sintering and hence densification. Nearly fully dense Si_3N_4 based ceramics were obtained, the relative density is ~98%. Higher hardness value was obtained around 10 GPa and elastic modulus over 150 GPa. These results showed that the weak mechanical properties of bioactive ceramics can be improved and non-oxide ceramics can be densified at lower temperature and under air atmosphere.

Keywords: calcium silicate, Si3N4, air sintering, bioceramic.

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➢ ORAL PRESENTATION

Preparation, characterization and mechanical properties of bilayer cross-linked starch / PLA biofilms as packaging material

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Abstract
Starch belonging to the family of polysaccharides is the most recognized biodegradable polymer. This polysaccharide in the food industry, biodegradable film applications studied due to inexpensive, abundant and harmless to the environment in recent years. However, its weak mechanical properties are one of the factors that limit it. In order to improve the mechanical and physical properties of the malonic acid-crosslinked films, a bilayer film with a hydrophobic polylactic acid was prepared. The characterization of the films were fulfilled. In order to examine the film properties, mechanical, swelling and moisture content properties were examined. According to the results of the mechanical tests performed according to ASTM D-882-02 (American Society for Testing and Materials), it was found to be 10.662 ± 2.24 MPa. When the swelling characteristics and moisture content were examined, it was found as 21.76 ± 2.97% and 2.72 ± 0.34%, respectively. Bilayer film exhibited to have better mechanical properties compared to cross-linked film and pure starch.
Keywords: Bilayer film, crosslinking, poly(lactic) acid, mechanical properties,

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➢ ORAL PRESENTATION

Optical properties of SILAR deposited nanocrystalline cobalt oxide thin films at various pH values

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Abstract

The present work reports the synthesis and the characterization of cobalt oxide thin films produced by successive ionic layer adsorption and reaction (SILAR) method at room temperature on glass substrates. The pH of the chemical bath, in which cobalt oxide thin films were immersed, was changed between pH:10-12. The films were annealed in an air atmosphere at 573 K for 1 h to convert the hydroxide phase into oxide. The optical properties of the films, including optical band gap, refractive index, absorbance, transmittance, and dielectric constants were calculated using absorbance and transmittance measurements determined using a JASCO V-670 spectrophotometer, in 300-1100 nm wavelength range. It was observed that the optical band gap values and transmission characteristics of all the films vary with the increasing pH values in the growth solution. The effect of pH on the film thickness was also examined. The thickness of films was determined with a NanoMap-500LS contact surface profilometer. The investigations demonstrated that the variation in pH has a significant impact on the optical characteristics of SILAR grown cobalt oxide thin films.

Keywords: Cobalt oxide; thin film; SILAR; effect of pH; bandgap.

➢ **ORAL PRESENTATION**

Kalayın kromatografik tayini için metot geliştirme

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Özet

Bu çalışmada, uzun yıllardır toksik özellik gösterdiği bilinen kalayın (Sn) kromatografik analizi için kuarsetin (Q) ile oluşturmuş olduğu kompleks kullanılmış ve HPLC (yüksek basınçlı sıvı kromatografisi) ile analizi gerçekleştirilmiştir. Q/Sn kompleksinin stokiyometrik oranı spektroskopik ve kromatografik olarak (Q/Sn) 1:1 olarak bulunmuştur. Kompleks oluşum süresinin 1 saat olduğu belirlenmiştir. Q/Sn kompleksinin maksimum adsorpsiyon yaptığı dalga boyu 440 nm'dir. UV-Visible detektör ve ODS 80TS (4,6 mm ID, 25,0 cm uzunluk) kolon kullanılarak yapılan analizde diğer kromatografik şartlar; dalga boyu: 440 nm, akış hızı: 0.8 mL/dk, mobil faz: methanol (pH= 4,0, fosforik asit ile) ve enjeksiyon miktarı: 25 µL şeklindedir. Optimize edilen şartlar altında, yöntemin tayin aralığı 0,05-8,00 µM, tayin sınırı ise 0,012 µM olarak belirlenmiştir. Yöntem, Ankara'da bulunan bir gölün üç farklı bölgesinden alınan su numunelerine uygulanmıştır. Sonuçlar atomik absorpsiyon spektroskopisi ile elde edilen sonuçlarla uyum içindedir.

Anahtar Kelimeler: Kalay; Kuarsetin; Kompleks; HPLC

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➢ **ORAL PRESENTATION**

Preparation of magnetically separable $Ag/Ag_3PO_4/ZnFe_2O_4$ composite and its photocatalytic efficiency

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Abstract

New $Ag/Ag_3PO_4/ZnFe_2O_4$ photocatalysts were prepared and first investigated as the photocatalysts for Rhodamine B degradation under visible light. The photocatalysts were characterized by X-ray diffraction (XRD), Fourier transform infrared spectroscopy (ATR-FTIR) and UV–vis diffuse reflectance/absorbance spectroscopy (DRS). The composite $Ag/Ag_3PO_4/ZnFe_2O_4$ showed enhanced photocatalytic activity compared with ZnO, $Ag_3PO_4/ZnFe_2O_4$, Ag_3PO_4 and $ZnFe_2O_4$ under the same conditions. In addition, the degradation efficiency for Rhodamine B is about 98.5% for the $Ag/Ag_3PO_4/ZnFe_2O_4$ composite in the 90 min. The results showed more excellent photocatalytic activity in $Ag/Ag_3PO_4/ZnFe_2O_4$ compared to others.

Keywords: Ag_3PO_4, visible light, magnetic nanoparticle, photocatalyst.

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➢ **ORAL PRESENTATION**

Development of Au doped $CuFe_2O_4/TiO_2$ heterojunction for promoted photoelectrochemical water splitting under visible light

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Abstract

Recently, the evaluation of hydrogen which serving as an environmentally friendly energy carrier, from inexpensive and renewable sources has drawn attention due to enhancing energy requirements [1]. Photoelectrochemical (PEC) water splitting, which converts solar energy into chemical fuels, is considered to be one of the most promising methods [2]. TiO_2 semiconductor is one of the most efficient for the PEC water splitting due to its nontoxicity and high charge carrier potential. Plasmonic noble metals has been found to have a performance-enhancing effect on PEC water splitting processes. The gold nanoparticles can serve as a sensitizer for TiO_2 by facilitating absorbtion in the visible region of solar spectrum owing to surface plasmon resonance (SPR). Generally, a PEC cell is formed by a cathode and anode in which oxygen and hydrogen can be produced and collected [3]. A p-type semiconductor with appropriate bandgap is used as the photocathode [4]. $CuFe_2O_4$, which has narrow band gap (1.5 eV) and acts as a photocathode, has attracted attention due to it has great visible light response [2].

In this work, Au doped $CuFe_2O_4/TiO_2$ nanocomposite was prepared and the PEC water splitting performance of it under visible light was examined. Au-$CuFe_2O_4/TiO_2$ exhibited more excellent performance than that of TiO_2, $CuFe_2O_4$ and $CuFe_2O_4/TiO_2$. The results indicate that the water splitting performance increases by the doping Au and heterojunction.

Keywords: Water splitting, Au doping, $CuFe_2O_4$.

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➢ **ORAL PRESENTATION**

Thermal kinetics and thermodynamics of the dehydration reaction of $Mg_3(PO_4)_2 \cdot 22H_2O$

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Abstract

$Mg_3(PO_4)_2 \cdot 22H_2O$ lost its crystal water in the temperature range of 40 - 200°C and the calcined sample was identified as $Mg_3(PO_4)_2$, was a notable for its further treatments in optical and electrical applications. Dehydration process was studied using non-isothermal thermogravimetry (TG) applying model-fitting method. Different mechanism models (chemical reaction order, diffusion and phase interfacial reaction) were applied. The activation energies calculated for the dehydration reaction; and average of activation energy was found as 160 kJ/mol. The better kinetic model of the dehydration reaction for $Mg_3(PO_4)_2 \cdot 22H_2O$ was selected as F3 (chemical reaction - third order). The thermodynamic functions (ΔH, ΔG and ΔS) of the dehydration reaction were calculated by the activated complex theory and found that the process was endothermic, non-spontaneous and fast.

Keywords: Magnesium phosphate, decomposition kinetic, thermal behaviour, thermodynamic.

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➢ **ORAL PRESENTATION**

Analysis of heavy metals in drinking water

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Abstract

Water is an essential need for human life. Nowadays, the using up water flowing from taps is almost imposibble, so water is becoming purchased supplies rather than an easy accessible natural source. However, water is using not only for foodstuff but also for cleaning. Therefore, an uncertain contentful water source can enter our body directly or indirectly. An odorless, colorless and normal tasted water can bring into safety for humans, but water can contain a number of unwanted matter under such a clear view. Between these matters, the most encountered one is heavy metals and heavy metals can cause a serious health problems from cancer to collective food poisoning, as well as end of life. At the same time, lack of heavy metals such as zinc can lead harmful effects as their excess. The news about water existing a lot of heavy metals especially in Izmir region are spreading gradually and current state is causing an even increasing insecurity about food in society. Also, World Health Organization (WHO) and Europian Union (EU) want to inform everbody about the topic of arsenic amount of all drinking water from tap water to plastic bottle water measured by sensitive devices. Therefore, it is needed to make analysis of water by newly developed technonologies and sensitive devices. Among various heavy metals determination methods, inductively coupled plasma-mass spectrometry (ICP-MS) has become the most powerful method owing to its high sensitivity and multi-element capability. Therefore, the analysis of heavy metals in water will be performed using ICP-MS in this work. For this, water samples will be picked up from various regions and heavy metals available in water samples will be detected by ICP-MS device. From the ICP-MS data, calibration curve for heavy metals and resulting amounts of metals in real water samples will be determined.

Keywords: Water, heavy metals, ICP-MS.

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➢ **ORAL PRESENTATION**

Alerjik rinit tedavisinde kullanılan loratadin ve desloratadinin iyonlaşma sabitlerinin HPLC yöntemi ile tayini

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Özet

Çağın giderek yaygınlaşan hastalıklarından biri olan alerjik rinittir genel bir halk sağlığı problemi olup tedavi kontrol altına alınamadığı durumlarda hayat kalitesini azaltmaktadır. Bu nedenle alerjik rinitin erken dönemde tanısının konulması ve tedavisinin uygulanması önem taşımaktadır. Alerjik rinitin tedavisinde bulguları tetikleyen alerjenlerden kaçınma ve ilaç tedavisi esastır. İlaç tedavisi olarak en sık kullanılan madde antihistaminiklerdir. Antihistaminik ilaçların sık kullanımlarından dolayı lipofilik etkileri, çözünürlükleri, iyonlaşma sabitleri gibi fizikokimyasal parametreleri, yan etkileri ve ilaç etkileşimleri son yıllarda daha dikkatli incelenmeye başlanmıştır.
İyonlaşma sabiti (pK_a), bir molekülün iyonlaşma davranışını belirleyen temel parametredir. İlaçların iyonlaşma sabitlerinin belirlenmesi ile biyolojik sıvılardaki çözünürlük, lipofilisite, asitlik, transfer davranışı, reseptörlere bağlanma ve geçirgenlik gibi özellikleri hakkında kritik bilgiler elde edilebilir. Ayrıca ilaç formülasyonlarının tayinlerinde ve ilaçların analizlerinde metot geliştirme işlemlerinde bu değerin bilinmesi gerekir. İlaçların iyonlaşma sabitlerinin sudaki tayinleri, bileşiğin sudaki çözünürlüğünün az olması durumunda su-organik çözücü ikili karışımlarının kullanılmasını zorunlu kılar. Bu ikili karışımlar kullanılarak organik çözücünün yeterli çözme gücünden yararlanılabilmektedir.
Su-organik çözücü karışımlarında yapılan iyonlaşma sabiti tayinlerinde klasik yöntemler olan potansiyometrik titrasyon veya
spektrofotometri yöntemleri kullanılır. Ancak günümüzde yüksek basınçlı sıvı kromatografik (HPLC) yöntemi ve kapiler elektroforez yöntemleri tercih edilmektedir. Bu yöntemlerde su-organik çözücü ikili karışımı kullanıldığında ekstrapolasyon yöntemleriyle ilacın su-organik çözücü ikili karışımlarından elde edilen iyonlaşma sabiti değerlerinden sudaki iyonlaşma sabiti değerine ulaşılır.
Bu çalışmada antihistaminik ilaçlardan piperidin grubu olan Loratadin ve Desloratadin'in sudaki çözünürlükleri az olması nedeniyle 4 farklı su-asetonitril yüzdeleri için iyonlaşma sabiti değerleri HPLC yöntemiyle tayin edilmiştir. pK_a değerleri hesaplanırken sıvı kromatografik verilerden iyonlaşma sabiti hesaplamayı sağlayan non lineer regresyon programı (NLREG) kullanılmıştır. Bu 4 farklı ortamdan elde edilen iyonlaşma sabiti değerlerinden sudaki iyonlaşma sabiti değerleri Yasuda–
Shedlovsky ekstrapolasyon yöntemiyle belirlenmiştir. Elde edilen verilerin bilgisayar programı ile hesaplanan verilerle uyum içerisinde olduğu gözlenmiştir.

Anahtar Kelimeler: İyonlaşma sabiti, Sıvı Kromatografik Yöntem, Alerjik Rinit

➢ **ORAL PRESENTATION**

3-Asetilaminopirazolon türevi yeni hetarilazo dispers boyarmaddelerinin sentezi, karakterizasyonu ve absorpsiyon özellikleri

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Özet

Hetarilazopirazolon boyarmaddeleri yüksek boyama özellikleri yanında güneş pilleri, lazer yazıcı sistemleri ve lazer optik sistemleri gibi yüksek teknolojilerde kullanılma önemine sahiptirler. Ayrıca biyolojik ve farmokolojik aktivite yanında tautomerik denge gösterdikleri de bilinmektedir.
Bu çalışmada bazı 4-(2-benzotiyazolilazo)-3-amino-1-fenil-5-pirazolon türevlerinin asetillenmesiyle yeni hetarilazo dispers boyarmaddeleri elde edildi. Elde edilen bileşikler elementel analiz ve spektroskopik yöntemlerle karakterize edildi. Bileşiklerin görünür bölge absorpsiyonu üzerine sübstituent, çözücü, pH, konsantrasyon ve sıcaklık etkisi detaylı bir şekilde incelendi.

Anahtar kelimeler: Arilazopirazolon boyarmaddeler, absorpsiyon spektrumu, çözücü etkisi, sübstitüent etkisi, pH etkisi, tautomeri, renk haslığı

➢ **ORAL PRESENTATION**

Biyolojik ve çevre örneklerinde elektrotermal atomik absorpsiyon spektrometresi ile kalay kadminyum ve bakır tayinleri

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Özet

Bu çalışmada Zeeman elektrotermal atımik absorpsiyon spektrometre (ETAAS) kullanılarak pirinç Sn, Cd, Cu gibi eser elementlerinin Pd ortam düzenleyicili ortamda tayini amaçlanmıştır. Aynı zamanda atomik absorpsiyon spektroskopisi (AAS) kullanılarak Ni ve Fe anaizi de hedeflenmiştir. Çalışmada kullanılan numuneler pirinç ve sığır ciğeri olarak belirlenmiştir. Aranılan elementler için ppb mertebesinde standart numuneler hazırlanarak bir kalibrasyon eğrisi elde edilmiş çözülen pirinç ve sığır ciğeri numunelerinde bu elementler aranmıştır. Araştırmalar neticesinde %95 güven aralığında her bir numune için µg\g mertebesinde anlamlı sonuçlar bulunmuştur. Çalışmanın amacı numune olarak seçilen örneklerdeki ağır metal miktarının tayini ve anlamlı şekilde hesaplanmasıdır.

Anahtar Kelimeler: Kalay, bakır, kadminyum, etaas, aas

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➢ **ORAL PRESENTATION**

Amiloid beta 1-42 ile SHSY-5Y nöroblastoma hücrelerinde oluşturulan Alzheimer hastalığı modelinde probiyotik kaynaklı ekzopolisakkaritlerin apoptoz yolağı üzerine etkilerinin araştırılması

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Özet

Alzheimer hastalığı (AH), bilişsel işlevlerde, günlük yaşam aktivitelerinde azalma ve davranış ve psikolojik bozuklarla sonuçlanan ilerleyici bir nörodejeneratif hastalıktır. AH, tüm demansların yaklaşık % 50-75'ini oluşturmaktadır. Histopatolojik olarak senil amioid plaklar (SP), nörofibriler yumak (NFY) oluşumu, sinaps-nöron kaybı ve beyinde belirgin bir atrofi mevcuttur. Bu nedenle, AH üzerinde etkili olacak koruyucu ve tedavi edici potansiyeli olan yeni ajanların belirlenme çalışmaları önemli bir araştırma alanı haline gelmiştir. Bu çalışmanın amacı amiloid beta 1-42 ($A\beta_{1-42}$) ile SHSY-5Y nöroblastoma hücrelerinde oluşturulan AH modelinde probiyotik kaynaklı ekzopolisakkarit (EPS)'lerin apoptoz yolağı üzerine etkilerinin araştırılmasıdır. Çalışmada, probiyotik suşlardan (*Lactobacillus delbrueckii* ssp. *bulgaricus* B3 ve *Lactobacillus plantarum* GD2) elde edilen EPS'ler kullanılmıştır. Suşların EPS üretim kapasiteleri fenol sülfirik asit yöntemine göre spektrofotometrik olarak tespit edilmiştir. EPS'ler farklı süre ve konsantrasyonlarda SHSY-5Y hücrelerine uygulanmış, sitotoksik etki MTT yöntemi ile mikroplaka okuyucuda tespit edilmiştir. $A\beta_{1-42}$ ile oluşturulan toksisite AH için geçerli *in vitro* nöral dejenerasyon modellerinden biridir. $A\beta_{1-42}$ ile oluşturulan AH modelinde EPS'lerin Bax, Bcl-2, kaspaz-3, kaspaz-7, kaspaz-8, kaspaz-9 ve sitokrom c genlerinin ekspresyon seviyelerine göre, gliseraldehit 3-fosfat dehidrogenaz geni referans alınarak,apoptoz yolağı üzerine etkileri kantitatif gerçek zamanlı polimeraz zincir reaksiyon (qRT-PCR) ile belirlenmiştir. Çalışmada kullandığımız bütün suşların yüksek miktarda EPS ürettiği belirlenmiştir. Tüm suşların EPS'lerinin çok düşük oranda sitotoksik etki gösterdiği tespit edilmiştir. *L. delbrueckii* ssp. *bulgaricus* B3 ve *L. plantarum* GD2 suşlarından elde edilen EPS'lerin $A\beta_{1-42}$'nin sebep olduğu Bax, kaspaz-3, kaspaz-7, kaspaz-8, kaspaz-9 ve sitokrom c mRNA ekspresyon seviyesindeki artışı, doza bağlı olarak engellediği ve Bcl-2 mRNA ekspresyon seviyesindeki azalışı, doza bağlı olarak arttırdığı tespit edilmiştir. Bugüne kadar tespit edilmiş fakat AH tedavisinde ve/veya önlenmesinde tam başarı sağlayamayan asetilkolinesteraz inhibitörü ilaçların yerine, apoptoz yolağı üzerindeki etkileri vasıtası ile çok yönlü etki gösterecek EPS'ler, yeni ve daha etkin stratejilerin geliştirilmesine imkân verebilecektir. Bu yaklaşım, AH tedavisi ve/veya önlenmesi için yeni bir umut vadetmektedir.

Anahtar Kelimeler: Amiloid beta 1-42, ekzopolisakkarit, *Lactobacillus delbrueckii* ssp. *bulgaricus* B3, *Lactobacillus plantarum* GD2, SH-SY5Y insan nöroblastoma hücreleri.

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➢ **ORAL PRESENTATION**

Üç *Onopordum* türünün tohum protein profillerinin karşılaştırılması ve küme analizleri

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Özet

Onopordum cinsi, yedisi ülkemize endemik olmak üzere, Türkiye'de 21 farklı tür içermektedir. Bu türlerin sınıflandırılmasında çoğunlukla morfolojik karakterler kullanılmış; tohum örnekleri üzerinde protein temelli bir sınıflandırma çalışmasına dünya literatüründe rastlanmamıştır. Oysa ki biyokimyasal belirteçlerin karakterize edilmesi muhtemel genetik erozyonun değerlendirilmesinde, bir varyetenin tanımlanmasında ve genetik çeşitliliğin ortaya konulmasında avantaj sağlamaktadır. Bu çalışmada, ülkemizdeki bu türlerden üçü doğal ortamlarından toplanarak uyku halindeki tohumları örnek olarak saklanmıştır. Tohum örneklerinden elde edilen proteinler farklı koşullarda hazırlanmış SDS-PAGE jellerinde koşturularak bant profilleri elde edilmiştir. Her tür için ayrı ayrı hesaplanacak Rf değerleri ile birlikte densiyometrik analizler yapılmış ve benzerlik katsayıları hesaplanarak uzaklık matrisi inşa edilmiştir. Bu matris değerleri UPGMA küme analizi yaklaşımı ile dendogramların oluşturulmasında kullanılmıştır. Böylece Onopordum tohum örnekleri üzerinde yapılmakta olan konvensiyonel sınıflandırmaya alternatif protein temelli moleküler sınıflandırma gerçekleştirilmiştir. Çalışma sonunda elde edilen veriler hem bu alanda ve bu örnek üzerindeki yeni çalışmalara kaynak oluşturacak, hem de konu üzerindeki literatür eksikliğini giderecektir.

Anahtar Kelimeler: *Onopordum*, tohum, protein, küme analizi

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➢ **ORAL PRESENTATION**

Redundant polyamine transporter pathways in the regulation of cell cycle and stress response, in *S. pombe*

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Abstract

Spermine and spermidine constitiute two of the most common polyamine molecules, which are involved in a number of cellular functions including stabilization of nucleic acids, translation, cell cycle, pathogenic activity and stress response. Intracellular polyamine concentration is strictly regulated by spermine and spermidine transporters as well as polyamine biosynthetic enzymes. Sequence similarity scan revealed three spermidine (*SPBC36.01c*, *SPBC36.03c* and *SPBC569.05c*) and two spermine transporter genes (*SPBC409.08* and *caf5*) in *S. pombe.* The aim of this study is to better understand the functional link between different spermine and spermidine transporter genes, whose single deletions lead to cell division and stress response defects. To this end, double mutants of spermidine and spermine family transporter genes were formed. These double mutants were initially compared with wild type cells and then with single mutants to be able to detect exacarbated or diminished phenotypes. The results showed that double mutantions did not induce any effect in meiotic progression as shown by proper spore formation, or in osmotic stress response as shown by survival in the presence of extreme salt concentrations. However, we detected significant deviations in cell size in double mutants, which is an indicator of improper mitotic initiation in *S. pombe*. The spermine family transporter genes, which have a shorter cell size in single mutants also have a shorter cell size in double mutation without any exacarbation of the phenotype. On the other hand, when combined with the spermidine family transporter *SPBC569.05c* mutation, the cell size effect is diminished in spermidine family transporter mutants. The other spermidine family transporter genes (*SPBC36.01c* and *SPBC36.03c*) also have differential effects on the cell size when combined with spermine transporter gene mutations. In summary, our results indicate a more redundant mechanism for spermine transporter genes, which have a differential interaction with each of the spemidine family transporters.

Keywords: *S. pombe*, polyamines, cell cycle, DNA damage, osmotic stress.

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➢ **ORAL PRESENTATION**

Erkek obezite hastalarından gastrektomi operasyonu ile elde edilen mide dokularında glutatyon S-transferaz izozimlerinin aktivitelerinin ve toplam tiyol miktarlarının yaşa göre karşılaştırılması

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Özet

Obezite, prevalansındaki yükselme eğiliminden, birçok hastalık ve mortalite ile ilişkili olmasından dolayı pek çok ülkede önemli bir halk sağlığı sorunu haline gelmiştir. Bu çalışmada endojen savunma mekanizmasının önemli üyeleri olan glutatyon molekülü ve glutatyon S-transferaz enzimi üzerine obezite ve yaşın etkisi araştırıldı. 8 obezite hastasından alınan mide dokusu örnekleri homojenize edildi. GSH düzeyleri analiz edildi. GST enzim aktivitesi ELISA Mikroplaka Okuyucu sistemde CDNB, pNBC, EPNP substratlarına karşı okuma yapılarak belirlendi. Hastalar yaşları göz önünde bulundurularak gruplandırıldı. Yaş-GSH ve toplam GST ilişkisinde yaş artışı ile beraber GSH düzeyi ve toplam GST aktivitesinde artış gözlendi. Çalışma sonucunda, farklı GST izozimleri arasında belirgin bir bağıntı tespit edilemedi. Mevcut çalışma Türk popülasyonundaki erkek obez hastaların mide dokularında GST enzim aktivitelerinin ve toplam tiyol miktarının yaş parametresine göre gruplandırılıp karşılaştırıldığı ilk çalışma oldu. Bu çalışma Ankara Keçiören Eğitim ve Araştırma Hastanesi Baştabipliği Klinik Araştırmalar Etik Kurulu'nun 2012-KAEK-15/(1678) 1800 sayılı onayıyla gerçekleşmiştir.

Anahtar Kelimeler: CDNB, EPNP, GSH, GST, Obezite, pNBC.

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➢ **ORAL PRESENTATION**

Newly promising chalcone derivatives in cancer

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Abstract

Cancer is an uncontrolled proliferation of cells and this uncontrolled proliferation may result in cells invading surrounding tissues or spreading to organs outside. Based on cancer-related diseases in developed countries, lung and breast cancers are the most important cause of death in both men and women in recent years. Today, chemotherapy and radiotherapy are used predominantly as a cancer treatment. Plants have an important place in the discovery of effective anti-cancer drugs and have a long history of use in cancer treatment. More than 60% of the currently used anti-cancer drugs are derived from natural sources including plants. In recent years, chalcones, which can be obtained both naturally and synthetically, are members of the flavonoid family and have a broad spectrum of biological activity. In this study we investigated the anti-growth effects and mechanisms of 18 benzofuran substituted chalcone derivative compounds on human lung (A549, H1299) and breast (MCF-7, MDA-MB-231) cancer cell lines. Among them, two of the chalcone derivatives were found to be very effective. These compounds have anti-growth effects on cancer cell determined by SRB viability assays morphological analysis and apoptotic effect were determined by fluorescence staining. In addition, cytotoxic activity test against healthy cells (BEAS-2B and MCF10A) was performed. Chalcone derivatives induced apoptosis by contraction of the cells, bleeding, condensation of the nucleus and formation of crescent core. We also used western blot testing to find signaling pathways leading to apoptosis and used a cell migration assay to separately test for migration properties. Our results suggest that benzofuran substituted chalcone derivatives represents a promising agent for the treatment of breast and lung cancer due to its apoptosis inducing effect.

Keywords: Breast cancer, Lung cancer, anticancer drugs, Benzofuran, Chalcone derivatives, cytotoxicity, apoptosis.

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➢ **ORAL PRESENTATION**

Deneysel diyabet oluşturulan sıçanlarda *Vitis vinifera* L.(üzüm) meyve ve çekirdek ekstraktlarının antioksidan ve iyileştirici etkilerinin araştırılması

Semra Adıyaman[1], İsmail Çelik[1], Abdulbaki Demir[1*], Abdullah Turan[1]

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Özet

Bu çalışmada, deneysel diyabet oluşturulan sıçanlarda (*Wistar albino*), Van yöresinde yetişen üzüm çeşidinin (*Vitis vinifera* L.) meyve ve çekirdek ekstraktlarının farklı dozlarda diyabet komplikasyonları üzerine iyileştirici etkileri araştırıldı. Deneysel muamele öncesi, üç gün boyunca tek dozda (2000 mg/kg vücut ağırlığı) üzüm çekirdeği ve meyve ektresi akut toksisite testi için uygulandı ve ölüm tespit edilmedi. 49 adet sıçan her grupta 7 adet olacak şekilde 7 gruba ayrıldı. Deneysel sıçanlar rastgele gruplandırıldı; Normal kontrol (NK), diyabet kontrol (DK), diyabetik+akarboz (doz 20 mg/kg) (DA), diyabetik+üzüm meyvesi ekstresi 100 mg/kg (DM1), diyabetik +üzüm meyvesi ekstresi 200 mg/kg (DM2), diyabetik+üzüm çekirdeği ekstresi100 mg/kg (DÇ1) ve diyabetik+üzüm çekirdeği ekstresi 200 mg/kg (DÇ2) olarak guruplandırıldı. Ekstraktlar gavaj yoluyla verildi. Deneysel diyabet streptozotosin (STZ) [55 mg/kg, intra peritonal (i.p)] ile oluşturuldu. 21 günlük deneme sürecinde 7 günde bir sıçanların kan şeker düzeyleri ve canlı ağırlıkları kaydedildi. Deneme sonunda, deney hayvanlarından alınan eritrosit, beyin, böbrek ve karaciğer dokusu örneklerinde katalaz (CAT), süperoksid dismutaz (SOD), glutatyon peroksidaz (GSH-Px), glutatyon *S*-transferaz (GST), glutatyon redüktaz (GR) aktiviteleri ve redükte glutatyon (GSH) ile malondialdehit (MDA) düzeyleri ve ince bağırsakta α-glukozidaz enzim değerleri belirlendi. Elde edilen sonuçlara göre; bütün grupların canlı ağırlıklarında anlamlı ($p \geq 0.05$) bir değişiklik saptanmadı. Diyabetik ekstrakt gruplarının dokularındaki antioksidan savunma unsurları NK ve DK grupları ile kıyaslandığında dalgalanmalar kaydedildi.Sonuç olarak; üzüm çeşidinin meyve ve tohum ekstraktı antioksidan etkilere sahip olabilirken, diyabetik komplikasyonlara karşı iyileştirici etkileri için kesin bir sonuç bulunmamaktadır.

Anahtar kelimeler: Antioksidan,Diyabet, Sıçan, Üzüm, Üzüm çekirdeği,

Bilgilendirme notu: Bu çalışma Van Yüzüncü Yıl Üniversitesi Bilimsel Araştırma Projeleri Başkanlığı tarafından 2015-FBE-YL062 No'lu proje olarak desteklenmiştir.Ayrıca Van Yüzüncü Yıl Üniversitesi Hayvan Deneyleri Yerel Etik Kurulu Başkanlığı'nın 25.09.2014 tarihli ve 2014/11 sayılı izni ile yapıldı.

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➢ **ORAL PRESENTATION**

Functional studies of maize (*Zea mays* L.) leaf growth regulatory microRNAs

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Abstract

Plant microRNAs (miRNAs) are small non-coding RNAs of approximately 20–24 nucleotides in length that are functioning as gene expression regulators by targeting mRNAs for cleavage or translational repression. They are involved in numerous regulatory pathways such as growth and development processes. Therefore, the manipulation of miRNA thought to be an effective strategy for crop improvement for yield and stress tolerance. Maize (*Zea mays* L.) is a globally important agricultural crop consumed as food and feed and also has industrial importance for raw material and biofuel production. Up to now, 321 miRNAs were identified in maize however functional evidence of many of them are unavailable. Besides, due to the short length of miRNAs, the effectiveness of the developed strategies for down-regulation of miRNA or miRNA loss-of-function are relatively less robust. However, the CRISPR-Cas9 technology has emerged as a novel (and non-transgenic) RNA-guided genome editing and targeted gene mutation tool due to its simple structure and its applicability to a variety of organisms. This study aims to functional studies of maize leaf growth regulatory miRNAs. In this context, a genome-wide survey was conducted by miRNA-microarray experiment. Then, candidate miRNAs which are differentially expressed in leaf growth zones were selected for *in silico* target prediction analysis and possible regulation between them were confirmed by qRT-PCR. The functional study was carried out by agro-transformation of maize seeds by vascular punched inoculation (VPI) technique. For this, maize seeds were transformed with *Agrobacterium*, which was harboring a CRISPR vector included green fluorescent protein (GFP) and phytoene desaturase (PDS) gene for screening based on leaf chlorosis. Then, CRISPR/cas9 with single guide RNAs specifically targeting mature miRNA sequence were constructed *in silico*. The phenotypic and molecular evaluation of the mutants have been ongoing. (This study has been supported by a grand from TUBITAK project number 115Z527).

Keywords: Maize, leaf growth, microRNAs, miRNA microarray, plant genome editing, maize CRISPR

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➢ **ORAL PRESENTATION**

Observations of spore morphology of some Orthotrichaceae Arn. Species (Bryophyta) in Turkey

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Abstract

Orthotrichum Hedw and *Lewinskya* F.Lara, Garilleti & Goffinet are the common genus of Orthotrichaceae Arn. In these genera, spore size has been using by diagnostic character. However, it is little known about the potential value of the spore ornamentations. Therefore, in this study the detailed spore morphological characteristics of some *Orthotrichum* species (*O. cupulatum* Hoffm. ex Brid. var. *bistratosum* Schiffn., *O. diaphanum* Schrad. ex Brid., *O. pallens* Bruch ex Brid., *O. pumilum* Sw. ex anon., *O. scanicum* Gronvall, *O. stramineum* Hornsch. ex Brid.) and *Lewinskya striata* (Hedw.) F.Lara, Garilleti & Goffinet in Turkey were examined by using light microscopy (LM) and scanning electron microscopy (SEM).
The aperture regions of all spores are composed of a leptoma. The spore morphology of the examined taxa of the family are two types depending on the sclerine ornamentation; gemmate and verrucate types. The shapes of spores are varied from oblate to suboblate. Generally, the ornamentation elements are large and they have smaller projections; namely micro-verrucae, nano-gammae and granulae. Polar outline views of the spores are circular to ellipsoidal, sometimes subtriangular. The average length of the polar axis (P) is between 10.41 µm and 21.77 µm, equatorial diameter (E) is between 11.66 µm and 24.67 µm. The taxonomic and ecological implications of the examined Orthotrichum and Lewinskya species were discussed on the basis of its spore morphology.

Keywords: Bryophyta, Orthotrichaceae, spor morphology, light microscope (LM), scanning electron microscope (SEM), Turkey

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➢ **ORAL PRESENTATION**

Determination of fatty acid profiling and mineral contents of *Tricholomopsis rutilans* collected from Yozgat

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Abstract

Tricholomopsis rutilans is an edible saprophytic mushroom on and around conifer stumps. Some studies have showed that this mushroom has antioxidant, antitumor and antiinflammatory effects. Our aim in this study was to identify and determine fatty acids and minerals in *Tricholomopsis rutilans.* Fatty acids were detected by reversephase HPLC methods and the minerals were examined in ICP-MS after burning in the acid by microwave. In this study, fatty acid profiles and mineral contents were examined in this species which were collected from Yozgat's different localities. According to results, these species have seven different fatty acids (Miristic, Pentadecanoic, Palmitic, Palmitoleic, Stearic, Oleic, and Linoleic acid) and the highest measure (level) were seen at Oleic and Linoleic acid ranging from %39.04 - %37.09 respectively. Linoleic acids that is not synthesis in the human body is called Omega 6 and is very important to human health to regulate blood lipid profiles. In addition to some mineral contents (Cu, Fe, Mg, Mn, Zn) levels examined in this species and the highest levels were seen at Mg and Na ranging from 754.605mg/kg - 126.895 mg/kg respectively. It has a very high range of some valuable minerals which are called trace element and must be taken to complete the deficiencies in body structure.

Keywords: *Tricholomopsis rutilans,* fatty acids, mineral content, Yozgat, Turkey

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➢ **ORAL PRESENTATION**

Micromorphological properties of leaf, flower, fruit and seed of *Capsella bursa-pastoris* (Asteraceae)

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Abstract

Capsella bursa-pastoris species were collected from Tokat center between 2016 and 2017. The fruit, seed, leaf, sepal and petals were examined by electron microscope. For electron microscope examination, samples were fixed on stubs with double sided carbon tape. Fixed samples were coated with 12.5-15 nm gold-palladium (SEM coating system, SC7620). The examination was carried out on a JEOL JMS-7001F Scanning Electron Microscope (SEM) with a voltage of 5-15 KV. The fruit shape of *Capsella bursa-pastoris* is quite characteristic. The heart-shaped fruit is green. There are regular and frequent striate patterns on the fruit surface. The seed is quite small. It is an elliptical shape. Thick reticulate-striate patterns are seen. There are reticulate foveate structures on the cuticular epidermal cells. A large number of wax particles were observed on the lower surface of the leaf. There are characteristic star-shaped hairs. On these hairs tuberculate ornamentation is seen. The long hairs are also located on the lower surface. Stomata are on the upper surface of epidermal cells. The outer and inner openings are evident. On the upper surface of the leaf, there are also a large number of hairs with tuberculate pattern. There are hairs with a very long pusticulate pattern. Wax particles are numerous. Stomata are higher than epidermal cells. Row-type ornamentation is seen on both the lower and upper surface of the leaf. Recent researches have revealed that micromorphological studies have taxonomic value. The micromorphology of *Capsella bursa- pastoris* has not been studied previously. Because of these reasons, the results we obtained are important and updated both scientifically and practically.

Keywords: *Capsella bursa- pastoris*, Asteraceae, Micromophological, SEM.

➢ **ORAL PRESENTATION**

Taraxacum officinale türünün meyve tohum yaprak ve çiçeklerinin mikromorfolojik özellikleri

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Özet

Taraxacum officinale türü Asteraceae familyasına ait tıbbi ve yenilebilen bir türdür. Tür Tokat ve çevresinde besin olarak tüketilmektedir. Ayrıca çalışma konumuzu oluşturan tür etmomedisin bakımdan da oldukça değerlidir. Bu çalışmada Taraxacum officinale taksonunun mikromorfolojik özelliklerin belirlenmesi amaçlanmaktadır. Elektron mikroskobu kullanılarak elde edilen mikromorfolojik özellikleri bu bitkiler hakkında çok önemli bilgileri ortaya koymaktadır. Son yıllarda mikromorfolojik bulgulardan taksonomik, ekolojik ve fizyolojik amaçlarla yararlanılmaktadır. Araştırma konumuzu oluşturan Taraxacum officinale türü 2016- 2017 yıllarında Nisan ve Mayıs aylarında Tokat'ın Pazar ilçesinden toplanmıştır. Türün meyve, yaprak sepal ve petallerinden elektron mikroskopu ile çekimler yapılmıştır. Elektron mikroskop çekimleri için örnekler stublar üzerine çift taraflı karbon bant ile yapıştırılarak sabitlenmiştir. Sabitlenen örnekler 12,5-15 nm altın-paladyum ile kaplanmıştır (SEM coating system, SC7620). İnceleme ve çekimler JEOL JMS-7001F Tarayıcı Elektron Mikroskobunda (SEM) 5-15 KV'lik voltajla yapılmıştır. Taraxacum officinale türünün meyve tipi akendir. Akenin papusları seyrektir. Meyvenin sap kısmının ucunda iki tohum birlikte bulunmaktadır. Tohumlar eliptik şekillidir. Tohumun kaide bölümde üzerinde uzun örtü tüyleri bulunmaktadır. Örtü tüyleri foveolat desenlidir. Tohum yüzeyi de sulkat- tüberkülat desenlidir. Sepaller üzerinde seyek stoma tespit edilmiştir. Ornemantasyon tipi lineolattır. Petallerdeki desenlenme ise lineatttır. Taksonunun yaprak alt yüzeyinde çok sık stoma vardır. Stoma açıklığı oldukça geniştir. Dorsal çeperleri kalınlaşmıştır. Yaprak alt yüzey desenlemesi rugozdur. Yaprak üst yüzeyde desenlenme tipi alt yüzeydeki gibi rugozdur. Stomalar sık dizilişlidir. Hem alt yüzeyde hem de üst yüzeyde tüylere rastlanmamıştır. Bitkilerin ekonomik ve tıbbi bakımdan değer taşıması nedeni ile elde ettiğimiz sonuçlar hem bilimsel olarak hem de uygulamaya dönük olarak önemli ve günceldir. Ayrıca mikromorlojik özellikler taksonomik açıdan da değer taşıdığından, sonuçlarımız bundan sonra yapılacak çalışmalara katkı sağlayacaktır.

Anahtar Kelimeler: *Taraxacum officinale*, Mikromorfoloji, Tıbbi bitki.

2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

28-29 June 2019, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Antioxidant activities of decoction and infusion of *Thymus longicaulis* subsp. *chaubardii* and *T. longicaulis* subsp. *longicaulis*

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Abstract

The genus *Thymus* is a member of the family Lamiaceae (Labiatae). This family has 300–400 endemic species which widely distributed worldwide in particular in the Mediterranean region. *Thymus* species are a large genus belonging to the Lamiaceae family. In Turkey, *Thymus* is represented by 39 species with 64 taxa, 27 taxa of which are endemic and has been used for a long time as spice or drugs. Members of this genus are called ‘‘kekik’’ in Turkish and used as herbal tea and condiments. The present study was aimed to determine the antioxidant activity of *Thymus longicaulis* subsp. *chaubardii* (Rchb.f.) Jalas (dağkekiği) and *T. longicaulis* subsp. *longicaulis* C.presl tea. Two methods were used for prepare of the tea: infusion and decoction. The antioxidant activities were measured based DPPH free radical scavenging activity, *β*-carotene linoleic acid assays and cupric ion reducing antioxidant capacity (CUPRAC). All the activity results showed that the infusion and decoction of the plants have moderate activity.

Keywords: Thymus, antioxidant, decoction, infusion

2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

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www. EurasianBioChem.org

➢ **ORAL PRESENTATION**

Investigation of essential oil chemical composition of *Thymus* species (*T. longicaulis* subsp. *chaubardii, T. sipyleus* and *T. zygioides*) from Turkey

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Abstract

Thymus species are known as ‘‘kekik’’ in Turkish and commonly used for spice, herbal tea and medicinal plant. The members of the family are very important due to their medicinal, and aromatic properties leading to the production of herbal products and food supplements. In this study, dried aerial parts of *Thymus longicaulis* subsp. *chaubardii* (Rchb.f.) Jalas (dağkekiği), *T. sipyleus* Boiss. (sipilkekiği) and *T. zygioides* Griseb. (bodurkekiği) species harvested from different regions of Turkey, identified the essential oil compositions by hydrodistillation and the essential oils obtained were analyzed by using GC-MS/MS. The major components in the essential oils of three *Thymus* species were found as follows*:* thymol (30.9%), α-bergamotene (15.3%) and p-cymene (10.0%) in *T. longicaulis* subsp. *chaubardii*; carvacrol (46.7%), p-cymene (23.4%), β-E-ocimene (16.2%) in *T. sipyleus*; p-cymene (43.5%), thymol (40.5%) and allo-aromadendrene (4.0%) in *T. zygioides*.

Keywords: Thymus, essential oil, GC-MS/MS, hydro distillation, chemical composition

2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

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➢ **ORAL PRESENTATION**

Nadir bulunan iki makromantar türü için yeni lokalite kayıtları

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Özet

Bu çalışmada amacımız, daha önce kaydedilmiş nadir bulunan makrofungus türleri [*Galeropsis desertorum* Velen. & Dvořák, *Pulvinula convexella* (P. Karst.) Pfister] için yeni lokaliteler eklemek ve Türkiye mikotasına katkıda bulunmaktır. *Galeropsis desertorum* ve *Pulvinula convexella* olarak teşhis edilen mantar örnekleri 2012-2016 yılları arasında Tokat ilinin farklı lokalitelerindeki arazi çalışmaları sırasında toplanmıştır. Yapılan literatür incelemeleri sonucunda makromantar türlerinin değişik lokalitelerden Türkiye için yeni kayıt olarak verildiği tespit edilmiştir. *Galeropsis desertorum* Basidiomycota bölümünde, *Bolbitiaceae* familyasında bulunan bir mantar türüdür. Basidiokarp grimsi-kahverengi veya kahverengidir. Şapkanın kenarları sap ile yapışıktır. Badem şeklindeki sporlar 11.5–14.0 × 6.0–8.0 µm büyüklüğündedir. Daha çok kumlu topraklarda, tek yıllık otsu bitkiler veya bitki kalıntıları arasında gelişir. Ülkemizden bu mantara ait ilk kayıt 2015 yılında Şanlıurfa ilinden verilmiştir. Yapmış olduğumuz arazi çalışmaları sırasında bu makromantar türüne ait örnekler Tokat ili Yakacık köyündeki çimenlik alandan toplanmıştır. *Pulvinula convexella Ascomycota* bölümünde, *Pyronemataceae* familyasında bulunmaktadır. Askokarpı 0.1-1.2 cm; sesil ya da çok kısa saplı; turuncu, turuncu-sarı, kırmızı renklerde; yastık veya disk şeklindedir. Kumlu toprakta, akarsular boyunca, yanmış zemin üzerinde veya yosunlar arasında gelişir. Globose şekilli sporları 14–18.5 µm çapındadır. *Pulvinula convexella*'ya ait ilk örnekler 2017 yılında Gümüşhane ili Torul ilçesinde ve Bayburt ilinde yapılan arazi çalışmaları sırasında toplanmış ve yeni kayıt olarak verilmiştir. Yaptığımız arazi çalışmaları sırasında bu mantar türüne ait örnekler Tokat ili Yakacık köyünde, nemli ve kumlu toprak üzerinden toplanmıştır.

Anahtar Kelimeler: Makrofunguslar, yeni lokalite kayıtları, Tokat, Türkiye

➢ **ORAL PRESENTATION**

Başkomutanlık Tarihi Milli Parkı Afyonkarahisar-Kocatepe Bölümü' nde doğal olarak yetişen bazı hemikriptofitler ve toprak özellikleri

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Özet

Çalışma alanı Ege Bölgesi İç-Batı Anadolu'da Afyonkarahisar sınırları içinde bulunup grid sisteme göre B3 karesine girmektedir. Çalışma alanının büyük bölümünü Kuvaterner arazisi kaplamaktadır. Çalışma alanı "Yarı Kurak soğuk Akdeniz" biyoiklimine sahiptir. Alanda "Doğu Akdeniz Tipi" yağış rejimi görülmektedir. Çalışma alanında Kahverengi Orman, Kireçsiz Kahverengi, Koluvyal ve Kahverengi büyük topraklar ile arazi tipi olarak sazlıklar ve bataklıklar bulunmaktadır. Irano-Turanian floristik bölgesi içindeki çalışma alanından yaklaşık 50 vasküler takson teşhis edilmiştir. Çalışma alanı Braun-Blanquet yöntemine göre incelenerek 5 bitki topluluğu tanımlanmıştır. Bunlar: *Ajuga chamaepitys* (L.) Schreb., *Anthemis cretica* L., *Cerinthe minor* subsp. *auriculata* (Ten.) Domac, *Cruciata taurica* (Pall. ex Willd.) Ehrend., *Glaucium corniculatum* (L.) Curtis' topluluklarıdır. Bu bitki topluluklarının toprakla ilişkisini bulmak için 0-30 cm ve 30-60 cm derinlikler arasından toprak örnekleri alınmış ve bunların fiziksel-kimyasal analizleri yapılarak yorumlanmıştır.

Anahtar Kelimeler: Flora, Vejetasyon, Hemikriptofitler, Toprak Yapısı, Afyonkarahisar.

Teşekkür: Bu çalışma, "AKÜ BAPK : 18.KARİYER.86" nolu araştırma projesi desteğiyle gerçekleştirilmiştir.

➢ **ORAL PRESENTATION**

Pliyosen yaşlı Afşin-Elbistan kömür havzasının (Kahramanmaraş, Güney Doğu Anadolu) biyostratigrafisi (palinoloji)

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Özet

Pliyosen yaşlı Afşin-Elbistan **(**Kahramanmaraş) kömür havzası, limnik kil ve gidya serilerinde, derinliği 50-100 m arasında olan bir veya iki linyit horizonu oluşmuştur. Linyit serisi içine humuslu-kömürlü limnik sedimanlar yerleşmiştir (Haktanır ve Karaca, 1996). Çalışma alanında Emydidae, *Castor praefiber*, Gerbillinae, *Promimomys* sp. ve *Mimomys* sp. hayvan fosilleri Becker-Platen, (1970) ve Becker-Platen at all., (1975) tarafından saptanmıştır.

29 linyit ve kil örneklerinin palinolojik topluluğu 36 cinsten oluşmaktadır. Bunlardan 3 cins sporlara ait, 33 cins ise polenlere ait olarak tanımlanmıştır. Dikotiledon sınıfı 24 cins ile en fazla taksona sahiptir. Çalışma alanımızdaki polen birliği aynı yaştaki Akça polen birliği (Eskişehir) Benda (1971) ile korelasyon göstermektedir.

Memeli fosilleri sulak alanlar(göl), orman ve otsul alanları simgeler. Otsu bitkilere ait polenlerin, Miyosen'e nazaran daha yüksek oranda çıkması (% 50) olasılıkla geniş çayırlıkların varlığını düşündürmektedir. Bu doğrultuda, çökelim havzasını çevreleyen dağların ormanlarla kaplı olduğunu, ovalık kesimdeki açık alanların ağaçlı savan formasyonu ile kaplı olduğunu yansıtır. Polypodiaceae, Lycopodium ve Sphagnum sporlarının ve özellikle Taxodiaceae, Umbelliferae, Cycadaceae ve Cupressaceae polenlerinin nispeten yüksek oranda bulunuşu, nemli ve ılıman bir iklimi gösterir.

Benda (1971) tarafından yapılan Kızılhisar ve Akça havzasında (Eskişehir) gerçekleştirilen çalışma Türkiye'de Pliyosen yaşlı tek çalışma olduğu için, Sporomorflar üzerine yaptığımız çalışma ile ilişkilendirilmiştir. Sonuçta flora bileşenlerinin bizim çalışmamızla uyumlu olduğu gözlenmiştir.

Anahtar Kelimeler: Biyostratigrafi, Paleoekoloji, Palinoloji, Pliyosen, Afşin-Elbistan (Kahramanmaraş)

2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

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➢ **ORAL PRESENTATION**

A research on the palynological and physicochemical parameters of honey from Sivas

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Abstract

A total 20 natural honey samples were collected from local beekeepers in different regions of Sivas between 2014 and 2015. In this sudy, pollen analyses of honey sample were investigated by the valid method of the Bee Institutes in 8 European countries (Maurizio, 1951; Lieux, 1972; Louveaux, et al., 1978). The preparation of the pollen slides were based on the method of Wodehouse (Aytuğ, 1967). Honey samples were analyzed for pollen diversity and physicochemical properties.

To the results of the pollen analyses, a total of 69 taxa were recognized in 28 families. *Astragalus* sp. and *Onobrychis* sp. were the dominants pollens in honey samples. Secandary pollens of taxons were *Centaurea* sp., *Astragalus* sp., *Hedysarum* sp., *Onobrychis* sp., *Lathyrus* sp. and *Trifolium* sp. In addition, the most common taxa in 20 honey samples were *Centaurea* sp., *Echium* sp., *Astragalus* sp., *Hedysarum* sp. *Lathyrus* sp. *Onobrychis* sp., *Trifolium* sp., *Salvia* sp., *Thymus* sp., *Crataegus* sp., *Rubus* sp. and *Salix* sp.

Asteraceae, Boraginaceae, Fabaceae, Rosaceae and Salicaceae were the most common plant families in Sivas honey. The dominancy of the pollens from *Astragalus* sp. and *Onobrycis* sp. could be related to the step and meadow regions, respectively. The pollen of *Astragalus* sp. (Fabaceae) as the dominant in one honey sample and the secondary occurence in five samples has a long story in the traditional. Chinese medicine. Clinical studies indicated that *Astragalus* sp. was the active plant in the immune system and aids in the cancer treatments (Sinclair, 1998).

Moisture, acidity, pH, brix and electrical conductivity values of honey samples from Sivas were in the acceptable range of European Community and Turkish Food Codex in relation to honey. To conclude, the physicochemical analyses of 20 natural honey samples from Sivas were in the acceptable range of European Community Honey Codex and Turkish Food Codex-Honey.

Keywords: honey, palynology, physicochemical properties, Sivas

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➢ **ORAL PRESENTATION**

The effect of 24-epibrassınolide on the development in spinach (*Spinacia oleracea* L. var. Matador) seedlings

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Abstract

Apart from auxin, gibberellin, cytokine, absisic acid and ethylene, which are known to regulate plant growth and development, strong evidence has been obtained to add brassinosteroids to this group in recent years. Brassinosteroids affect different mechanisms such as plant growth and development, seed germination, rhizogenesis, flowering, senescence, abscission and ripening. In this study, the effect of epibrassinolid, which is an active form of brassinosteroid, on growth and development of spinach seedlings was investigated. For this purpose, 15-day old spinach seedlings (*Spinacia oleracea* L. cv. Matador) were taken into Hoagland solution and divided into 2 groups. First group was called as a control group (Hoagland) and second group as an experimental (treated) group (Hoagland +24 EBL). 10^{-9} M 24-eBL was applied to the treated seedling's group until the 45th day (for 30 days) by spraying method (all leaves except root). The control group was sprayed with distilled water only. In the following period, biochemical analyses were performed on the leaves of the seedlings harvested on the 45th day. As a result of the analysis, eBL applied experimental group was compared to untreated control group; fresh weight, total soluble protein and total chlorophyll content decreased in the treated seedlings. Increased peroxidase and superoxide dismutase enzyme activities and membrane permeability changes were observed. This study was designed to investigate the effect of epibrassinolide on the development of seedlings.

Keywords: Spinach (*Spinacia oleracea* L. cv. Matador), Hoagland, 24-Epibrassinolide, Antioxidative enzyme.

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➢ **ORAL PRESENTATION**

Seed morphology of the genus *Althaea* L. (Malvaceae) in Turkey

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Abstract

Malvaceae includes 243 genus and about 4300 species around the World. The genus *Althaea* L. (Malvaceae) consists of 12 species worldwide. *Althaea* species are widely distributed in the Mediterranean and Irano-Turanian phytogeographical regions, Mediterranean Europe, North America, North Africa, Caucasus, Southwest and Central Asia, southern Russia and Afghanistan. In Turkey it is represented by 4 species, which are known as "hatmi". Four species of the genus *Althaea* from Turkey have been investigated using stereomicroscope and scanning electron microscopy (SEM) in order to describe their seed morphological characteristics and to evaluate the diagnostic value of these features for contribution to the systematics of the genus. The seeds are dark brown, reniform, apex rounded, base reniform, glabrous and ranging from 1.76–2.76 mm in length to 1.38–1.95 mm in width, hilum basal in position. Four types of ornamentations have been recognized by SEM on seed surface structures: striate, striate-verrucate, scalariform and reticulate. The results showed that seed coat ornamentation is significant importance in taxonomy of the genus for distinguishing taxa from each other.

Keywords: Seed, morphology, *Althaea*, Malvaceae, SEM

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➢ **ORAL PRESENTATION**

The presence of the *Hypericum* L. Section *Oligostema* (Boiss.) Stef. (Hypericaceae) in Turkey

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Abstract

Hypericum L. is an important genus of the Hypericaceae family, which is spread with almost 500 species throughout the world. This genus is represented in Turkey by 20 sections and 107 taxa, of which 46% are endemic to the country. The section *Oligostema* have fimbriate or long denticulate (teeth ca. 0.5-3 mm) sepals and the capsule valves have longitudinal vittae that have been distinguished from the other sections. According to the *Flora of Turkey*, *Hypericum* Sect. *Oligostema* is represented by *H. aucheri* and *H. kazdaghense*. In recent studies, *H. aucheri* has been transferred to *Hypericum* Sect. *Crossophylum*. *H. kazdaghense* has been evaluated as the synonym of *H. aucheri*. However, as a result of this study presence of the *Hypericum* Section *Oligostema* is re-proved in Turkey.

Key words: Hypericaceae, *Hypericum*, Sect. *Oligostema*, Taxonomy, Turkey

➢ **ORAL PRESENTATION**

A3 karesi için yeni kayıt olan *Amelanchier ovalis* Medic.'in tohum ve meyve morfolojisinin incelenmesi

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Özet

2017-2018 yılları arasında Sırçalı Kanyonu-KARABÜK'te yürütülen floristik araştırmalar sırasında toplanmış olan bitkinin adlandırılması sonucunda *Amelanchier ovalis* Medic. türünün Türkiye Florası' ndaki A3 karesi için yeni kayıt olduğu belirlenmiştir. Araştırma alanı; Davis'in kareleme sistemine göre A3 karesin içerisinde yer almaktadır. Araştırma alanı Karabük İl merkezine 11 km, Safranbolu İlçesine 8 km uzaklıktadır. Kuzeyinde Eflani İlçesi, güneyinde Eskipazar İlçesi, doğusunda Araç İlçesi ve batısında Yenice İlçesi yer almaktadır. Safranbolu ilçesinde Düzce ve Konarı Köyleri arasında bulunmaktadır. Avrupa-Sibirya Floristik Bölgeleri'nin etkilerinin görüldüğü bir noktada bulunmaktadır. Taze bitki örneklerinden bazıları morfolojik ölçümler için kullanılmış ve CANON EOS fotoğraf makinesi ile fotoğrafları çekilerek detaylı açıklamaları hazırlanmıştır. *Amelanchier ovalis* Medic.'in arazideki genel görüntüsü ve tohum-meyvenin görüntüsü Eskişehir Osmangazi Üniversitesi, Merkez Araştırma Laboratuvarı Uygulama ve Araştırma Merkezindeki numunelerin fotoğrafları Transmisyon Elektron Mikroskobu (Cryo-TEM) Hitachi HT7800) ile çekimleri yapılmıştır.

Anahtar Kelimeler: *Amelanchier ovalis* Medic., Morfoloji, Sırçalı Kanyonu, Karabük

➢ **ORAL PRESENTATION**

Eskişehir ilinde yayılış gösteren *Convolvulus L.* (Convolvulaceae) türleri üzerine taksonomik araştırmalar

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Özet

2017-2019 yılları arasında Eskişehir'de farklı lokalitelerinden toplanan *Convolvulus L.* (Convolvulaceae) türleri üzerine taksonomik çalışmaları kapsamaktadır. Eskişehir ilinin floristik açıdan ülke içerisindeki konumu irdelendiğinde İran- Turan fitocoğrafik bölgesinde yer almasına rağmen sahip olduğu değişik habitatlar birçok farklı fitocoğrafik elementlerini bünyesinde bulundurmasını sağlamıştır. Convolvulaceae (Sarmaşıkgiller) ailesinden ülkemizde 4 cins ve 40 türü doğal yayılış gösterir. Süs bitkisi olarak yetiştirilir, gıda olarak kullanılan türleri vardır. Türlerin teşhisinde başta, Flora of Turkey (Davis,1965-1988) adlı eser olmak üzere birçok kaynaktan faydalanılmıştır. *Convolvulus* L. taksonları için vejetasyon dönemi Nisan-Eylül arası olup, bir taksona ait çiçekli ve meyveli örnekler toplanmıştır. APG3 sistemine göre Eskişehir ilinde bulunan *Convolvulus* L. genusu yer alan 2'si endemik olan 7'si endemik olmayan 9 farklı taksonun genel görüntüsünün yanı sıra; çiçek yapısı (anter, filament, sepal ve petal, kaliks vb.), yaprak, meyve, tohum yapıları gibi morfolojik karakterlerin ölçümleri yapılarak CANON EOS marka fotoğraf makinesi ile fotoğrafları çekilmiştir. Bitkilerin çiçeklenme, habitat ve yaşam formları, genel ve bölgesel yayılışları, IUCN kategorileri ve toplandığı lokaliteler hakkında da bilgiler verilmiştir.

Anahtar Kelimeler: *Convolvulus* L., Morfoloji, Habitat, Eskişehir

2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

28-29 June 2019, Ankara, Turkey
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➢ **ORAL PRESENTATION**

Morphology and distribution of some Vespinae (Hymenoptera: Vespidae) species in Turkey

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Abstract

This study is based on the examination of 4785 specimens of Vespinae (Hymenoptera: Vespidae) subfamily collected from different localities of Turkey between 1979 and 2017 and maintained in Ankara University, Faculty of Science, Department of Biology, Entomology Research Laboratory. Morphological characters such as mandibular, clypeus, scape, pedicel, flagellum, oculo-malar space, inner part of compound eyes, occiput, vertex, gena, pronotum, mesonotum, scutellum, postscutellum, tegula, wing, leg, tergit and sternit; color and pattern status were detailed. The structures showing the morphological characteristics of each species were examined in the LEICA brand EZ4 model stereo-microscope and the images of the distinctive characters were depicted. Turkey and the world distribution of the material examined for all types of phenology were described in detail. The distribution of each species was shown on the maps and the original names of the species with their current names were given. Literature was used in the diagnosis and control of samples. With this study, it was aimed to determine the morphological characteristics of Vespinae species distributed in Turkey and contribute to biodiversity.

Keywords: Social wasps, hornets, yellowjackets, *Vespa*, *Vespula*, *Dolichovespula*.

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➢ **ORAL PRESENTATION**

Morphology and distribution of some Polistinae (Hymenoptera: Vespidae) species in Turkey

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Abstract

This study is based on the examination of 3728 specimens of Polistinae (Hymenoptera: Vespidae) subfamily collected from different localities of Turkey between 1979 and 2017 and maintained in Ankara University, Faculty of Science, Department of Biology, Entomology Research Laboratory. Morphological characters such as mandibular, clypeus, scape, pedicel, flagellum, oculo-malar space, inner part of compound eyes, occiput, vertex, gena, pronotum, mesonotum, scutellum, postscutellum, tegula, wing, leg, tergit and sternit; color and pattern status were detailed. The structures showing the morphological characteristics of each species were examined in the LEICA brand EZ4 model stereo-microscope and the images of the distinctive characters were depicted. Turkey and the world distribution of the material examined for all types of phenology were described in detail. The distribution of each species was shown on the maps and the original names of the species with their current names were given. Literature was used in the diagnosis and control of samples. With this study, it was aimed to determine the morphological characteristics of Polistinae species distributed in Turkey and contribute to biodiversity.

Keywords: Insecta, Vespoidea, social wasps, paper wasps, *Polistes*.

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➢ ORAL PRESENTATION

Evaluation of carboxylesterase activity in hepatopancreas of azoxystrobin-treated crayfish (*Astacus leptodactylus* Eschscholtz, 1823)

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Abstract

Recently, biodiversity in aquatic ecosystems has been falling, and one of the main reasons for this is the residues of pesticides used in agriculture. Nowadays, some studies have shown that some strobilurins are more soluble in water than soil and air and thus can reach aquatic organisms. Although strobilurins are considered to have low acute and chronic toxicity for humans, birds, mammals and bees, recent research has clearly shown that these fungicides have an acute toxic effect on non-target freshwater organisms. Azoxystrobin is a broad-spectrum systemic fungicide and it is the best selling fungicide for use on crops in the world. As previously reported, azoxystrobin is highly toxic to fish and invertebrates in freshwater, estuarine and marine systems. The freshwater crayfish *Astacus leptodactylus* is valued and preserved only domestic dominant species in Turkey's largest lake. Carboxylesterases are used as biomarkers in ecological risk assessment studies because they have important roles in lipid and steroid metabolism and are responsible for the biotransformation of many ester compounds including pesticides. Therefore, in this study, the effect of azoxystrobin on carboxyl esterase activity in the hepatopancreas of *Astacus leptodactylus* which is a non-target organism was investigated. LC_{50} value was determined as 1656 µg AI L^{-1} after azoxystrobin application for 96 hours. This LC_{50} dose and three lower doses (828, 414 and 207 µg AI L^{-1}) were administered to crayfish for 96 hours to provide acute toxicity. The carboxylesterase levels were inhibited at approximately 35%, 29%, 5% compared to the control group after application of LC_{50}, $LC_{50}/2$ and $LC_{50}/4$, respectively. At the $LC_{50}/8$ application dose, the carboxylesterase level was activated approximately 17% compared to the control group. These inhibitions and activations were statistically significant in $p < 0.05$ and $p < 0.01$ confidence limits.

Keywords: Azoxystrobin, *Astacus leptodactylus*, carboxylesterase, acute toxicity.

➢ **ORAL PRESENTATION**

First record of subgenus *Neotrichoppia* (Acari: Oribatida) in Turkey

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Özet

Neotrichoppia belongs to Oppiidae family. The characteristic feature of *Neotrichoppia* is five pairs of genital setae, costula present, crista absent, rostrum rounded, sensillus slightly fusiform, mostly unilaterally cilliated. *Neotrichoppia* is located only in the Palearctic region. It contains 3 sub-genera, 8 species and 1 sub-species. *Neotrichoppia (Neotrichoppia)* and *Neotrichoppia (Ancestroppia)* are contained only one species. The genus *Neotrichoppia* Subías and Iturrondobeitia, 1980, was not previously recorded in Turkey. In this study identification of the first recorded species *Neotrichoppia (Confinoppia) confinis confinis* (Paoli, 1908) is provided. Morphological feature and distribution of the species are also given.

Anahtar Kelimeler: Acari, Oribatid, *Neotrichoppia*, systematic, first record, Sakarya, Geyve, Türkiye

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➢ **ORAL PRESENTATION**

Investigation of Acetylcholinesterase activity in the gills and digestive glands of penconazole-treated freshwater mussels (*Unio mancus, sp*)

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Abstract

The interest of the scientists involved in pesticide toxicity is particularly focused on triazole fungicides, the most important member of the fungicide family. Penconazole, the most commonly used triazole fungicide, when applied to plants by spraying, mixes with soil and water, thus making it toxic to non-target organisms. The present study aimed to the possible neurotoxic effects of penconazole exposure on the freshwater mussel (*Unio mancus*). For this purpose, acetylcholinesterase levels were evaluated as biochemical markers of exposure in the gills and digestive glands. Penconazole were administered to mussels at different concentrations (1.25, 12.5, 125, and 1250 µg AI L^{-1}) for 96 hours. Application doses are prepared according to the directives of the European Union The actual penconazole concentrations in the test waters were determined by LC-MS/MS analysis and the measured penconazole concentrations were determined to be about 84% of the nominal penconazole concentrations. These doses were caused activation by 38%, 52%, 54% and 66% in the gill-AChE activity, and inhibition by 34%, 37%, 39% and 52% in the digestive gland-AChE activity, respectively, compared to the control group ($p < 0.05$, $p < 0.01$). The inhibition of AChE is particularly well-documented as a specific biomarker target for assessing the exposure of nontarget aquatic organisms to pesticides. Protein synthesis suppressed by pesticide toxicity can be evaluated as the cause of inhibition in AChE activity. The increase in AChE activity caused by exposure to penconazole can be interpreted as the degradation of acetic acid and choline in order to restore the deterioration of the increased ACh in cholinergic synapses as a result of the binding of penconazole to this receptor as a postsynaptic nAChR agonist. In conclusion, the changes in AChE activities as a result of acute exposure to penconazole can be considered as early-warning signals in both tissues.

Keywords: Penconazole, Acetylcholinesterase, Freshwater mussel, LC-MS/MS.

➢ **ORAL PRESENTATION**

Exploring comperative effects of sodium lauryl sulphate (SLS) and sodium laureth sulphate (SLES) zebrafish embryos and larvae

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Abstract

Currently surfactants are widely distributed in the environments and have been continuously detected within aquatic environments as a consequence of their use on a global scale. As organic pollutants, their effects have drawn extensive attention. Sodium Lauryl Sulphate also is known as Sodium Dodecyl Sulphate (SLS / SDS) is a synthetic organic compound and used as an anionic surfactant in many hygiene products. Sodium Laureth Sulfate or Sodium Lauryl Ether Sulfate (SLES) is an anionic detergent and used as a foaming agent in many personal care products. SLES is produced from SLS with the ethoxylation process. In this study, the effects of SLS and SLES surfactants on zebrafish larval behavior were explored and compared. Five behavioral parameters were recorded using larval rest/wake assay including rest total, the number of rest bouts, rest bouts length, total activity, and waking activity. Moreover, we also tested the toxicities of these surfactants in developing zebrafish embryos. Results were indicated that these surfactants have concentration-dependent effects on zebrafish larval behavior and embryonic development. Our findings provide references for ecotoxicological comparison of different types of surfactants and first comparative results for SLES toxicity.

Keywords: Sodium Lauryl Sulphate, Sodium Dodecyl Sulphate, Sodium Laureth Sulfate, Zebrafish, Toxicity.

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➢ **ORAL PRESENTATION**

The effects of sodium laureth sulphate on zebrafish liver organotypic tissue culture

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Abstract

Anionic surfactant sodium laureth sulphate (SLES) is a foaming agent and used in the main component of most commercial products. Because of its low cost and effective utilization, it is used in many cosmetic products for their cleaning and emulsifying properties. However, in case of common use, surfactants are widely distributed in the environment especially aquatic habitats on a global scale. Risk analyses are the main process for any kind of xenobiotics and in vitro toxicological methods are becoming widely used for assessment in these evaluations. A major promise of in vitro systems is to obtain mechanism derived information that is considered pivotal for adequate risk assessment. In this study, biochemical and histological effects of SLES were evaluated in zebrafish 3D organotypic liver culture system. Four different concentrations (0.1, 0.5, 1.0 and 1.5 µg/ml) exposed for 24 and 96 hours to organotypic culture of liver samples. Catalase (CAT), glutathione-S-transferase (GST) enzyme activities and lipid peroxidation levels were analysed for biochemical parameters. Exposed tissue samples were evaluated with the routine histological procedure and compared with non-exposed samples for histopathological assessment. Results were showed that enzyme activities and lipid peroxidation levels were increased depending on increasing concentration both 24 and 96 hours exposure group. Vacuolizations, nuclear abnormalities, necrotic areas were observed in histopathological observations. All of these findings were indicated that SLES have potentially had liver toxicity on zebrafish organotypic liver culture system.

Keywords: Sodium Lauryl Sulphate, organotypic liver culture, zebrafish, toxicity

➢ **ORAL PRESENTATION**

Bakır oksit nanopartiküllerinin *Clarias gariepinus*'da serum enzim aktiviteleri üzerine etkisi

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Özet

Ağır metaller doğada düsük derisimlerde bulunmakla beraber, hızlı nüfus artışı ve buna bağlı olarak artan sanayileşme su ekosistemlerinde ağır metal derisiminin artmasına neden olmuştur. Antropojenik etkiler sonucu su ekosistemlerinde derişimi artan ağır metaller su organizmaları tarafından alınarak doku birikimi ve fizyolojik ve biyokimyasal değişikliklere neden olmakta ve üst trofik düzeylere daha yoğun olarak aktarılmaktadır. Bakır hayvansal organizmalar tarafından yapısal ve metabolik olaylarının gerçekleşebilmesi için iz miktarlarda gereksinim duyulan ancak belirli bir derişimin üzerinde alındıklarında organizmada özellikle metabolik olarak aktif dokularda birikerek toksik etkilerini gösteren bir metaldir. Bakır oksit nanopartiküllerinin (CuO NP) etkisi boyutu, yüzey alanının genişliği ve kimyasal özellikleri nedeniyle bakırın diğer formlarına göre farklılık göstermekte ve daha toksik olabilmektedir.

Bu araştırmada bakır oksit nanopartiküllerinin (CuO NP) 1 ve 5 ppm'lik ortam derişimlerinin 7 günlük süreyle etkisinde *C. gariepinus*'un serum ChE, AST, ALT, ALP ve LDH enzim aktivitelerinin belirlenmesi amaçlanmıştır. Deney süresi sonunda serum enzimlerinden ChE aktivitesi azalırken, AST, ALT, ALP ve LDH enzim aktiviteleri artış göstermiştir.

Anahtar Kelimeler: Bakır oksit nanopartikülleri, Serum enzimleri, *Clarias gariepinus*

Teşekkür: Bu çalışma, Çukurova Üniversitesi Bilimsel Araştırma Projeleri Koordinasyon Birimi tarafından desteklenmiştir.

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➢ **ORAL PRESENTATION**

Monitoring of residues of boscalid and acetamiprid pesticides in apples

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Abstract

The aim of the this research was to investigate the boscalid and acetamiprid pesticide residues applied on the apple fruits in the seven mounths, and the calculation of half- life (DT_{50}) of pesticides by using Hoskins equation. Additionaly, after peeling the apple skin, the quantitative change of the boscalid and acetamiprid residue on the apples had also been observed. On examining the decrease percentage of the boscalid and acetamiprid residue amount on apples, it's realized that one month later the residue amount has decreased to 47,10% and 59,37% relatively. Likewise, with the observation of pesticide degradation after 5 months boscalid was degraded under LOQ (0,01ppm) and acetamiprid was fallen under LOQ (0,01ppm) levels at the end of second month. By using of the Hoskins formula, the half-life of boscalid on unpeeled apples were detected as 39 days and for the acetamiprid as 23 days while on the peeled apples they were determined as 64 days and 25,91 days, respectively. The boscalid and acetamiprid residue amount on peeled apples in comparison with unpeeled apples were observed to decrease 65,28% and 9,37% respectively. LC-MS/MS (Agilent 6460 Triple Quad) system and QuEChERS (AOAC 2007.01) multiple residue extraction methods were utilized for these research.

Keywords: Apple, Boscalid, Acetamiprid, Maturation, Half Life, QuEChERS, LC-MS/MS.

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➢ ORAL PRESENTATION

Investigation of some heavy metal contents of multi-floral honeys and bee pollens collected from The Central Asia

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Abstract

The quality of bee products is dependent on the type of flowers from which the bees collect the nectar. Thus, the composition and chemistry of bee products is not standardized. Additionally, they might become contaminated with antibiotics, pesticides, and heavy metals. Thus, it is possible to rely on bee products such as honey and pollen to determine the extent of mineral pollution in spesific areas. Therefore, monitoring of heavy metal contaminations of honey has a great importance to consumer's health. The present study aimed to investigation of heavy metal contents of multi-floral bee honeys and pollens collected from the Kyrgyzstan and Turkey which are Countrues of Central Asia. For this purpose, a total of twenty honey and polen samples were collected directly from honey beekeepers in different geographic regions of Kyrgyzstan and Turkey. The concentrations of some heavy metals like iron (Fe), zinc (Zn), copper (Cu), manganese (Mn), lead (Pb), cadmium (Cd), nickel (Ni) and chromium (Cr) were determined in the honey samples. Statistical differences between honey samples from different geographic regions were tested by analysis of variance. According to the results of study, some of them were higher than standard levels and some were lower than those. No significant differences were observed in heavy metal levels in the honey samples collected from Kyrgyzstan. However, the concentrations of metals such as Fe, Cu and Pb in the samples collected from Turkey were higher than that of the samples collected from Kyrgyzstan. This observation can be related to various factors, such as industry, mining, emission of automobile exhaust gases, and different botanical origins.

Keywords: Honey, bee pollen, heavy metals, contamination, Central Asia

➢ **ORAL PRESENTATION**

Evaluation of physicochemical and antioxidant properties of raw honey in Central Asia

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Abstract

Especially, carbohydrates are the most essential nutrient as a nautural performance-energy source for humans. It is believed that bee products such as honey are the best supplements for human nutrition and health, but there is limited information on the ergogenic effects of bee products on body performance. The main target of this study was to analyse some energy components together with physicochemical and antioxidant properties of raw honey and to determine their potential as a performance-enhancing energy source for humans. For this aim, some physicochemical and biological values together with antioxidant capacity of raw honey were analysed. The findings have revealed that raw honey has an abundance of fenolic compounds and antioxidants, which are all important in achieving optimal health and body performance. Furthermore, honey can be an effective carbohydrate source and a better substitute to glucose for natural enerhy performance of human body, due to its constituent of various classes of sugars. However, evaluation and standardisation of quality properties of the bee products will be valuable for their potential nutritional and performance effects for humans.

Keywords*:* Bee products, raw honey, antioxidant, fenolics

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➢ **ORAL PRESENTATION**

The effects of chromium applications on yield and nutrient uptake of legume plants

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Abstract
The aim of the study was to investigate the effects of different chromium (Cr) doses on yield and nutrient uptake of chickpea, faba bean, pea and bean plants. The study has been carried out under greenhouse conditions with three replications in University of Sivas Cumhuriyet, Department of Crop and Animal Production. In the study, plastic pot was used with the capacity of 3 kg and Cr doses were; 0 mg kg^{-1}, 2.5 mg kg^{-1}, 5 mg kg^{-1}, 10 mg kg^{-1} and chickpea, faba bean, pea, bean plants was used as test plants. The shoot dry matter production, macro and micro elements concentrations were determined after harvest. According to the results, the highest shoot dry matter production was determined with 5.20 g pot^{-1} in 2.5 mg Cr kg^{-1} application in chickpea plant. In addition, phosphorus (P), iron (Fe), manganese (Mn) and copper (Cu) concentrations increased with 2.5 mg Cr kg^{-1} application respectively 0.65 %P, 203.1 mg Fe kg^{-1}, 47.2 mg Mn kg^{-1}, 11.5 mg Cu kg^{-1}. However, the highest potassium (K) and zinc (Zn) concentrations was determined in 10 mg Cr kg^{-1} application in the study.
Keywords: Chromium, legume, yield, macro-micro elements

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➢ **ORAL PRESENTATION**

Arsenic applications in rice plant

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Abstract

The present study was conducted to investigate the effects of different arsenic (As) doses on yield and nutrient uptake of rice plant. The study has been carried out under greenhouse conditions with three replications according to the experimental pattern of randomized plots in the plastic pots with the capacity of 3 kg. In the study As doses were; 0 mg kg^{-1}, 1 mg kg^{-1}, 2 mg kg^{-1}, 4 mg kg^{-1} and 2 rice species was used as Gala and Cameo. The rice plant was harvested nearly 60 days after sowing and shoot dry matter production, macro and micro elements concentrations were determined. The results have shown that the highest shoot dry matter production was determined with 7.96 g pot^{-1} in 2 mg kg^{-1} application in Gala rice species. Hovewer, shoot dry matter production decreased with increasing As doses in Cameo species. In the study, the highest nitrogen (N) and phosphorus (P) concentrations was determined in Gala rice species respectively in 1 mg As kg^{-1} (1.47 %N) and 4 mg As kg^{-1} (0.78 %P) applications. Generally, increasing As doses decreased shoot dry matter production, nitrogen, phosphorus, potassium, iron, manganesse concentraions especially in Cameo rice species.

Keywords: Arsenic, rice, yield, nutrient uptake

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➢ **ORAL PRESENTATION**

The application of different organic material and mineral matter in tomato plant

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Abstract

This study was carried out as a pot experiment to determine the effects of different organic materials (animal manure, leonardite, dolomite) on yield and nutrient uptake of tomato plant. In the study, organic applications was performed comparatively with chemical fertilizer. This study was carried out under greenhouse conditions in University of Sivas Cumhuriyet, Department of Crop and Animal Production with three replications. Each pot fertilized by 200 mg kg^{-1} N, 100 mg kg^{-1} P_2O_5 and 125 mg kg^{-1} K_2O. The doses of dolomite and leonardite were equivalent to 2000 kg ha^{-1} incorporated to soil. The dose of animal manure were equivalent to 20000 kg ha^{-1} incorporated to soil. In the study, H-2274 tomato species was used and one seedling was sowed each pot. The tomato plant was harvest nearly 45 days after sowing and shoot dry matter production, macro and micro elements concentrations was determined. According to the results, shoot dry matter production increased with leonardite and dolomite applications when compared with the control. In addition, the application of organic materials increased macro and micro element concentrations of tomato plant.

Keywords: Organic, chemical fertilizer, tomato, yield.

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➢ **ORAL PRESENTATION**

The influence of soil- and foliar-manganese fertilization along with farmyard manure and humic acid on yield and quality of pepper (*Capsicum annuum* L.)

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Abstract

The aim of this research is to evaluate the effects of the soil and foliar manganese (Mn) fertilization with farm manure (FM) and humic acid (HA) on the yield and quality of pepper (*Capsicum annum* L.). This experiment was conducted in field conditions in the 2003 growing season. The FM (3000 kg da^{-1}), HA (80 kg da^{-1}) and Mn (0, 2, 4, and 6 kg da^{-1}, $MnSO_4 \times H_2O$) were applied to the soil before transplanting the pepper seedlings. Foliar Mn fertilization (0, 1%, 2%, and 3%, $MnSO_4 \times H_2O$) was sprayed to leaf for 3 times after diluting 1×100^{-1} during the whole vegetation period. Results indicated that there was a significant interaction between Mn and organic materials (OMs) on vitamin C and leaf-Mn concentration and these parameters tended to increase with both OMs and Mn applications. Also, fruit yield of pepper showed a tendency to increase with foliar Mn application. Regardless of increasing Mn levels, fruit yield tended to increase with applied FM and HA. On the other hand, plant height and Mn concentrations in leaf and fruit showed a tendency to increase with foliar Mn application, whereas plant height, stem thickness, and distance between two nodes tended to increase with soil Mn application, regardless of OMs applications. It was concluded that OMs and Mn interaction partially affected the quality, fruit yield, and growth of pepper. And also, foliar Mn fertigation could be an additive Mn source for yield and growth of the plants when deficiency symptoms appear.

Keywords: Fruit yield, fertigation, humic substance, manganese, pepper growth

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➢ **ORAL PRESENTATION**

Madımak (*Polygonum cognatum*) bitki özütlerinin antimikrobiyal ve antioksidan aktiviteleri bakımından değerlendirilmesi

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Özet

Yöresel adı madımak olan *Polygonum cognatum*, Sivas ve çevresi de dahil olmak üzere özellikle Orta Anadolu'da yayılış gösteren yabani bir bitkidir. Yabani bitkilerin yüksek oranda antioksidan ve antimikrobiyal aktiviteye sahip oldukları bilinmesine rağmen, bu konuya dair bilimsel çalışmalar günümüzde yetersiz kalmaktadır. Bu çalışmada, Sivas yöresinden halk tarafından toplanarak pazarda satılan madımak bitkisinin gövde kısımlarının, metanol, etanol ve su fazı ekstraktlarında antimikrobiyal ve total antioksidan aktivitelerinin belirlenmesi amaçlanmıştır. Bahar mevsiminde pazardan satın alınan bitki örnekleri oda koşullarında ve gölgede kurutulmuştur. Sonrasında toz haline getirilerek, metanol, etanol ve su olmak üzere üç farklı çözücüde ekstraksiyonu yapılmıştır. Elde edilen bitki ekstraktları hemen antioksidan ve antimikrobiyal aktivite testlerinde kullanılmıştır. Bitki örneklerinde Total antioksidan (TAS), total oksidan (TOS) aktiviteleri ticari olarak satılan "Rel Assay Diagnostics" kitleri kullanılarak plate reader okuyucuda (Epoch Biotek) belirlenmiştir. Bitki ekstrelerinin mikroorganizmalara karşı Minimum inhibisyon konsantrasyonu'nu (MIC) belirlemek amacıyla mikrodilüsyon broth yöntemi kullanılmıştır. Çalışmada antimikrobiyal aktivite analizleri, *Staphylococcus aureus* (ATCC 29213), *Enterococcus faecalis* (ATCC 29212), *Pseudomonas aeruginosa* (ATCC 27853), *Escherichia coli* (ATCC 25922), *Bacillus cereus* (ATCC11778), *Klebsiella pneumonia* (ATCC 13883), *Candida albicans* (ATCC 10231) ve *Candida tropicalis* (DSM11953) mikroorganizmaları kullanılarak yapılmıştır. Sonuç olarak, bitkinin tüm ekstraktlarında, zayıf düzeyde antimikrobiyal aktivite ve orta düzeyde antioksidan aktivite tespit edilmiştir.

Keywords: Antimikrobiyal, Antioksidan, Madımak, TAS, TOS

➢ **ORAL PRESENTATION**

Bazı sirke çeşitlerinin antioksidan özelliklerinin incelenmesi

Metin Konuş, Can Yılmaz, Doğan Çetin*

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Özet

Sirke, değişik hammaddeler kullanılarak farklı yöntemlerle elde edilen bir fermantasyon ürünüdür. Gıdalarda koruyucu ve aroma verici madde olarak kullanılan sirke eski zamanlardan bu yana hastalıkların tedavilerinde de kullanılan geleneksel bir üründür. Antioksidanlar, serbest radikallerin oluşmasını engelleyen ya da radikalleri süpürerek hücrenin hasar görmesini engelleyen ve genellikle yapısında fenolik grup taşıyan moleküllere denmektedir. Bu çalışmada ticari olarak satılan nar, kuşburnu, elma ve üzüm sirkesi olmak üzere dört sirkenin antioksidan özellikleri DPPH ve Galvinoksil antioksidan kapasite yöntemleriyle belirlendi. Kullanılan her iki antioksidan yöntemi de serbest radikal ile antioksidan maddenin tepkimesi sonucu meydana gelen renk değişiminin spektrofotometrik olarak ölçülmesi prensibine dayanmaktadır. Sonuçlar standart madde olarak kullanılan askorbik asit (DPPH yöntemi için) ve troloks (Galvinoksil yöntemi için) ile karşılaştırıldı. Çalışmanın sonucunda kullanılan her iki antioksidan kapasite yönteminde (Galvinoksil ve DPPH yöntemi) de test edilen sirkelerin antioksidan kapasiteleri nar sirkesi > kuşburnu sirkesi > üzüm sirkesi > elma sirkesi olarak bulunmuştur.

Anahtar Kelimeler: Antioksidanlar, Antioksidan kapasite, Serbest radikaller, Sirke

➢ **ORAL PRESENTATION**

Flupentiksol'ün genotoksik ve oksidatif hasar oluşturma potansiyelinin belirlenmesi

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Özet

Flupentiksol dihidroklorür, şizofreni hastalığının tedavisinde kullanılan antipsikotik bir ilaçtır. Bu çalışmada; Flupentiksol dihidroklorür ile hazırlanan dört farklı dozun (0,75, 1,5, 3, 6 µg/ml) insan periferal lenfositlerinde kromozomal anormalliği (KA), mikronükleus (MN) oluşumu, mikronukleuslu binukleer hücre (BNMN) oluşumu, total antioksidan seviyesi (TAS) ve total oksidan seviyesi (TOS) üzerindeki etkileri incelenerek genotoksik, sitotoksik ve oksidatif hasar oluşturma potansiyelleri belirlenmiştir. Elde edilen daimi preparatlarda genotoksik aktivitenin belirlenmesi için yapılan incelemeler sonucunda insan periferal lenfositlerinde KA, MN ve BNMN hücre oluşumunun istatistiksel olarak önemli düzeyde doza bağlı olarak arttığı tespit edilmiştir. Sitotoksik aktivitenin belirlenmesi için yapılan incelemelerde mitotik indeks (MI) ve nükleer bölünme indeksinde (NBI) istatistiksel olarak önemli düzeyde doza bağlı bir azalma olduğu saptanmıştır. Oksidatif hasar oluşturma potansiyellerinin belirlenmesi için yapılan spektroskopik analizler sonucunda, TAS seviyesinin önemli düzeyde doza bağlı olarak azalış gösterdiği, TOS seviyesinin ise önemli düzeyde doza bağlı olarak artış gösterdiği tespit edilmiştir. Elde edilen sonuçlar bütünüyle değerlendirildiğinde, bu çalışmada, flupentiksol dihidroklorür etken maddesinin insan periferal lenfositlerinde genotoksik, sitotoksik ve oksidatif hasar oluşturma potansiyeline sahip olduğu saptanmıştır.

Anahtar Kelimeler: Flupentiksol Dihidroklorür, Genotoksisite, Oksidatif Hasar, Sitotoksisite

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➢ **ORAL PRESENTATION**

Nitrate prediction of groundwater and surface water using artificial neural networks: Eskişehir example

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Abstract

In this study, changes in the amount of nitrate in Eskişehir using surface water in the basin of the nitrate content determined by the Provincial Directorate of Agriculture modeling was presented with an approach based on Artificial Neural Networks (ANNs). Our country is in a critical region in terms of water resources, the determination of the status of water resources, it is important to conduct a lot of research for the development and preservation. For this purpose, quality monitoring stations in the measured parameters, be managed in a common database, the creation of a national water quality monitoring network, making long-term data collection is required. Regulations under the protection of waters against pollution by nitrates from agricultural sources; Provincial Directorate of Agriculture designated 32 stations in (13 surface and 19 underground water) surface and underground waters at 2015, 2016 and 2017 of the years serves nitrate analysis. The results of the current study show that ANNs can be a superior estimation tool. In the designed ANNs model, MSE and R values related to training, validation, testing and all data were 0.50446 and $2.90611e^{-3}$; 0.80044 and $5.87755e^{-3}$; 0,74144 and $7.29039e^{-3}$; 0.46694 and $2.20739e^{-3}$ respectively. All data are calculated with MATLAB (neural fitting) coding. ANNs modeled and estimated data Eskişehir province of nitrate in surface and ground water in future will be determined.

Keywords: Artificial Neural Networks, Nitrate, Eskişehir, surface water, ground water

➢ **ORAL PRESENTATION**

Yaygın olarak kullanılmayan bazı sirke çeşitlerinin antioksidan özelliklerinin incelenmesi

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Özet

Sirke, mayalanabilir farklı hammaddeler kullanılarak farklı yöntemlerle elde edilen bir fermantasyon ürünüdür. Gıdalarda koruyucu ve aroma verici madde olarak kullanılan sirke ayrıca dezenfektan olarakta kullanılmaktadır .Sirke eski zamanlardan bu yana hastalıkların tedavilerinde de kullanılan geleneksel bir üründür. Antioksidanlar, serbest radikallerin oluşmasını önleyen ya da radikalleri süpürerek hücrenin hasar görmesini engelleyen ve genellikle yapısında fenolik grup taşıyan moleküllere denmektedir. Bu çalışmada ticari olarak satılan alıç, enginar, ve karadut sirkesi olmak üzere üç sirkenin antioksidan özellikleri DPPH ve Galvinoksil antioksidan kapasite yöntemleriyle belirlendi. Kullanılan her iki antioksidan yöntemi de serbest radikal ile antioksidan maddenin tepkimesi sonucu meydana gelen renk değişiminin spektrofotometrik olarak ölçülmesi prensibine dayanmaktadır. Sonuçlar standart madde olarak kullanılan askorbik asit (DPPH yöntemi için) ve troloks (Galvinoksil yöntemi için) ile karşılaştırıldı. Çalışmanın sonucunda antioksidan kapasite Galvinoksil yöntemi için alıç sirkesi > enginar sirkesi > karadut sirkesi ve DPPH yöntemi için alıç sirkesi > karadut sirkesi > enginar sirkesi olarak bulunmuştur.

Anahtar Kelimeler: Antioksidanlar, Antioksidan kapasite, Serbest radikaller, Sirke

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➢ **ORAL PRESENTATION**

Memory enhancing and neuroprotective effects of *Hypericum perforatum* L. extracts on holinesterase and tyrosinase enzymes

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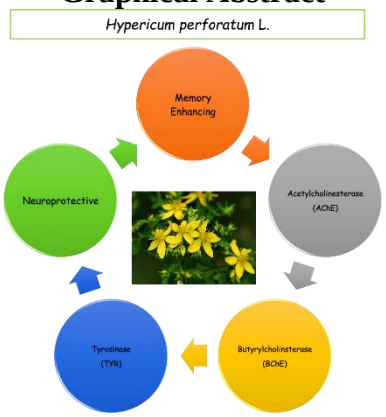
Abstract

Hypericum perforatum L., widely known as 'St John's wort, is a worldwide medicinal plant that has been mainly used for its antidepressant properties in traditional and conventional medicine. Considering its wide range of bioactive components, *H. perforatum* L. is of high importance for detailed analyzes. Potential antioxidant capacities and DNA protective effects of extracts obtained from flower, stem and leaf parts of *H. perforatum* L. were analyzed in our previous research. In our further research, hypericin was analyzed in terms of its antiproliferative, apoptogenic and cellular DNA fragmentation activities against various human cancer cells. As part of our ongoing projects, leaf and flower parts of *H. perforatum* L. were extracted sequentially with different solvents, and analyzed with regards to their enzyme inhibition potentials against acetylcholinesterase (AChE), butyrylcholinesterase (BChE), and tyrosinase (TYR) enzymes using spectrophotometric microtiter assays in the presented research. According to the results obtained from this research, the methanol extract possessed of higher inhibition on cholinesterase with the values ranged from 71.04±0.86 to 85.06±1.26%, and lower inhibition on tyrosinase enzymes, compared to the water extract. Moreover, the methanol extract from flower exerted the highest AChE and BChE inhibition (85.06±1.26 and 78.82±2.04, respectively), whilst the water extract from flower showed the highest inhibition towards TYR with the values of 65.92±0.38% at the 400 µg mL^{-1} concentration. Overall, our results revealed that different plant parts of *H. perforatum* L. has been shown to have excellent enzyme inhibition potentials on cholinesterase enzymes and tyrosinase enzyme. Consequently, *H. perforatum* L. could be considered as a good source for treatment of neurodegenerative disorders and diseases. These insights pave the way to further investigations aimed to find natural neuroprotective and memory enhancing agents in preventing of neurodegenerative diseases.

Keywords: Cholinesterase; enzyme inhibitory; *Hypericum perforatum* L.; memory enhancing; neuroprotection; tyrosinase

Graphical Abstract



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➢ **ORAL PRESENTATION**

Anticancer effects of *Clinopodium serpyllifolium* subsp. *serpyllifolium* extracts through promoting apoptosis and necrosis in human brain glioma and lung carcinoma cancers

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Abstract

Clinopodium serpyllifolium subsp. *serpyllifolium*, known as 'taş nanesi,' is an endemic medicinal plant used for gastrointestinal disorders, respiratory diseases, diabetes, hypertension, headache, wounds, and skin diseases in traditional medicine. Although there are several studies reporting about its wide range of biological activities, no literature has been found whether the plant has anticancer properties. Neuroprotective and antioxidant potentials of the plant were analyzed in our previous research. In the presented research, flowers and leaves of the plant were extracted, and their anticancer activities through promoting apoptosis and necrosis were tested against human lung carcinoma (A549, H1299), and glioma (C6) cancer cells. All the conditions were same as described in our previous researches. The LDH activity in the cultured cells was also performed according to the method of our previous researches. Based on their cytotoxicity, the concentrations of the extracts were selected for *in vitro* micronucleus assay. In addition, apoptotic activity in the cells treated and untreated with the plant extracts were determined in terms of DNA fragmentation. The ethanol extract obtained from flowers was exerted higher anticancer activity (IC_{50} from 4.84±0.10 to 22.71±0.08µg/mL, $p<0.01$) than the extracts obtained from the leaves. Moreover, the ethanolic-flowers extract seem to be possessed the strongest anticancer and antiproliferative activities on C6 cells (IC_{50}=4.84±0.12µg/mL), while water extract of the flower was found to have the strongest activity on H1299 cells (IC_{50}=5.62±1.06µg/mL at 50µg/mL concentration), which was followed by C6 cells. The leaves and flowers extracts were found to induce growth inhibition and apoptosis in a concentration and time dependent manner. Besides, apoptosis was observed in all the cultured cancer cells, which rapidly exhibited sign of apoptotic cell death as detected by DNA fragmentation. To sum up, the extracts could have significant anticancer and antiproliferative activities through enhancement of apoptosis and necrosis. The data obtained from our laboratory could be assumed as the first report for the literature.

Keywords: *Clinopodium* sp., apoptosis, necrosis, anticancer, DNA fragmentation, micronucleus
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➢ **ORAL PRESENTATION**

Assessment of neuroprotective and antioxidant potentials of *Tribulus terrestris* L. aqueous and methanol extracts using *in vitro* assays

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Abstract

Cholinesterase enzyme inhibitors from plant sources have become the most effective therapy strategy in the treatment of neurodegenerative diseases. The present study was aimed to evaluate anticholinesterase enzyme inhibition of the aerial parts of *Tribulus terrestris* L. (fam. Zygophyllaceae) extracts against acetylcholinesterase (AChE) and butyrylcholinesterase (BChE) enzymes. Since oxidative damage is one of the major factors contributing to neurodegeneration, in vitro antioxidant activities of the extracts were analyzed by using 2,2-diphenyl-1-picrylhydrazyl (DPPH), 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulphonic acid) (ABTS), ferric reducing antioxidant power (FRAP), and cupric ion reducing capacity (CUPRAC) assays. The total phenolic and flavonoid contents of *T. terrestris* L. extracts were also analyzed by the Folin-Ciocalteu method and aluminum chloride colorimetric assay, respectively. The water and methanol extracts of the plant were found to have lower activity on AChE with the values 47.13±1.02% and 52.78±0.48%, respectively, whilst exhibited much higher activity on BChE (71.94±0.62% and 80.12±0.93%, respectively). In terms of total polyphenolic compositions of *T. terrestris* L. extracts, the water extract possessed of lower TPC and higher TFC (98.78±0.06 mg g-1 extract as GAE and 258.06±1.10 mg g-1 extract as QE), compared to the methanol extract. As regards to antioxidant activity, the extracts screened herein showed powerful ion reducing antioxidant capacity on FRAP and CUPRAC, the best antioxidant capacity was also observed against DPPH and ABTS in a dose-dependent manner. In terms of the used extraction solvent, the methanol extract demonstrated higher bioactivity comparing with the water extract almost for all the antioxidant assays. To summarize, we evaluated probable *in vitro* neuroprotective effects, antioxidant capacities alongside phytochemical compositions of the extracts obtained from *T. terrestris* L. in the current study. The results of this study could be valuable scientific evidence in the prevention and treatment of oxidative stress related-diseases, however detailed *in vitro* and *in vivo* studies are necessary to discover plant-based pharmaceutics.

Keywords: *Tribulus terrestris*; anticholinesterase activity; Alzheimer's Disease; neuroprotection; antioxidant; polyphenolic content.

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➢ **ORAL PRESENTATION**

Exploring *in vitro* neuroprotective and antioxidant potentials of blooming parts of *Salvia aucheri* var. *canescens*

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Abstract

In our ongoing researches on discovering novel cholinesterase or tyrosinase inhibiting medicinal plants, the aqueous and methanol extracts of blooming parts obtained from *Salvia aucheri* var. *canescens* were analyzed for their neuroprotective and antioxidant potentials in the current work. To screen neuroprotective potentials, the extracts were tested against acetylcholinesterase (AChE), butyrylcholinesterase (BChE), and tyrosinase (TYR) enzymes using spectrophotometric microtiter assays. Since oxidative damage is one of the major triggering factors to neurodegeneration, in vitro antioxidant activities of the extracts were also analyzed by using 2,2-diphenyl-1-picrylhydrazyl (DPPH) and ferric reducing antioxidant power (FRAP) assays in a dose dependent manner. All reagents, conditions and calculations were same as described in our previous publications (Gezici et al., 2017; Senol et al., 2018; Gezici and Sekeroglu, 2019). As a result of total neuroprotective potentials of *S. aucheri* var. *canescens*, the tested extracts were found to have moderate enzyme inhibition capacity against cholinesterase enzymes. On the other hand, the extracts were exhibited lower enzyme inhibition capacity towards AChE and BChE enzymes with the inhibition values ranging from 6.04±0.12 to 22.29±1.08%, whereas showed much higher inhibition activity against tyrosinase enzyme at 200 µg mL^{-1} concentration. In addition, the methanol extract demonstrated higher inhibition on all the tested enzymes than that of the aqueous extract. In terms of antioxidant activities, the extracts screened herein showed to have remarkable antioxidant potentials in variable levels based on the mechanisms of the tests applied, in which more effective antioxidant effect was caused by the aqueous extract on DPPH with the scavenging effect above 85%. It is worth to note that, the results of our screening on the extracts obtained from *S. aucheri* var. *canescens* could provide valuable scientific evidence for oxidative stress related-diseases, however detailed further analyses are necessary to discover plant-based pharmaceutics.

Keywords: *Salvia* sp.; memory vitalizing; Alzheimer's Disease; neuroprotection; antioxidant;

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➢ **ORAL PRESENTATION**

Investigation of effects of kolliphor on HEK293 cells' viability

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Abstract

Kolliphor is a widely used vehicle chemical for various drugs including anticancer agents. Kolliphor is also known as castor oil consists of different lipids while the main ingredient is ricinoleic acid. HEK293 cells are human embryonic kidney cells. The aim of this study is to detect the cell viability of HEK293 cells with different concentrations of kolliphor. The HEK293 cells were cultured in MEM medium including 10% fetal bovine serum and 1% antibiotic/antimycotic. Cells were incubated in a humidified atmosphere with a stable 5% CO_2, and 37.2±0.5 °C degrees throughout the experiments. HEK293 cells were grown in sterile conditions and seeded as 10000 cells/cm^2 on 96 well plates at least triplicates for each dose of applied kolliphor. Kolliphor were applied as 0.01% (v/v), 0.02% (v/v), 0.05% (v/v), 0.10% (v/v), 0.20% (v/v), 0.50% (v/v) and 1.00% (v/v) for 24 hours. To test cell viability WST-1 assay were run. After 24 hours of incubation, the most severe effect on cell viability was detected for 1% kolliphor, while the lower doses like 0.01% and 0.02% did not alter the cell viability dramatically. In conclusion, it was important to exhibit the HEK293 cells' resistance to the kolliphor toxicity at lower doses. Because the kidney originated cells are a good model to test the nephrotoxicity of the drugs and chemicals. As a vehicle kolliphor is an important toxic agent with various side effects, thus the toxicity of the kolliphor on HEK293 was demonstrated.

Keywords: HEK293, Kolliphor, Cell viability.

➢ **ORAL PRESENTATION**

Genetik geçişli göz hastalıkları

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Özet

Günümüzde, göz hastalıkları ve bu hastalıkların genetik temelleri hakkında bilgi ve anlayıştaki gelişmelerde önemli bir artış olduğu görülmektedir. Kalıtsal göz hastalıkları, çeşitli yapısal/fonksiyonel anomaliye ve gelişimsel değişikliklere neden olabilen büyük ve heterojen bir grubu oluşturmaktadır. Bu hastalıklarda tanı, göz hekimleri ve genetik uzmanları arasındaki ileri düzeyde karşılıklı kurulan iş birliği ile kolaylaşmaktadır. Bu yazıda genetik kökenli olduğu bilinen retinoblastom, mitokondriyal hastalıklar, retina displazileri, retinitis pigmentosa, koroideremi, jirat atrofi, vb gibi bazı göz hastalıkları ele alınmıştır. Ayrıca, genetik hastalıklar gelişmiş ülkelerde bebeklerde ve çocuklarda en sık görülen körlük nedenidir. Bu hastalıklarda aile öyküsünü bilmek, aile içindeki benzer göz hastalıkları veya yatkınlıkları olan üyelere faydası açısından çok önemlidir.

Sonuç olarak, bilim adamları gözlerimizin görme ve sağlığını etkileyebilecek birçok gen ve bu genlerin varyantlarını haritaladılar. Göz sağılığımızı etkileyen bu kalıtsal hastalıklarda, genetik testler kullanılarak erken tanı konulması, hastaların tedavi planlarını oluşturma koşullarını değerlendirmesine ve daha sonra görme komplikasyonlarından kaçınmak için bakımın izlenmesine yardımcı olması açısından oldukça önemlidir.

Anahtar Kelimeler: Genetik göz hastalıkları, genetik danışmanlık, retinoblastom, mitokondriyal hastalıklar

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➢ **ORAL PRESENTATION**

Balıkesir ve çevresinde yetiştirilen *Nerium oleander* ve hibritlerinin DNA barkodlaması yoluyla filogenetik ilişkilerinin belirlenmesi

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Özet

Nerium oleander L. türünün Güneydoğu Asya orijinli olduğu düşünülmekte ve ülkemizde doğal olarak yayılış göstermektedir. Türkiye'de ismi "zakkum" olarak bilinmektedir. Kendiliğinden yetiştiği yerler genelde kuru dere yataklarıdır. Ülkemizde Marmara, Ege ve Akdeniz bölgelerinde sıkça görülmektedir. Bitkinin tamamı zehirli olmakla birlikte içerisindeki etken maddelerden dolayı kanser tedavisi ve sinek kovucu olarak da kullanılır. Bu çalışmanın amacı, Bursa, Balıkesir ve İstanbul illerinde süs bitkisi olarak kullanılan ve 15 farklı bölgeden toplanmış olan bazı *N. oleander* bireylerinden DNA izolasyon kitleri yoluyla DNA'larını elde edip, kloroplast genomuna ait *trn*L-F ve *rpl*32 dizilerini karşılaştırmaktır. 15 farklı popülasyona ait bu bireylerden petali 5 parçalı olan pembe ve beyaz çiçekli bireyler atasal olarak ve gül şeklinde petali olan beyaz ve pembe çiçekli bireyler de hibrit bireyler olarak kabul edilmiştir. *trn*L-F DNA dizilerinden 920 nükleotit elde edilmiştir ve hibrit bireylere özgü herhangi bir polimorfik bölge bulunamamıştır. Fakat tüm bireyler dikkate alındığında, 10 nükleotitlik bir insersiyon-delesyon bölgesi ve 4 adet tek nükleotitlik değişim bölgeleri bulunmuştur. Projede farklı çiçek formlarının veya renklerinin gruplar oluşturacağı tahmin edilmiştir. Fakat kloroplast ve çekirdek genomu verilerine göre; bitkilerin çiçek formlarından ziyade çiçek renklerinin akrabalık açısından yakınlık gösterdiği tespit edilmiştir. Yakın dikimi yapılmış ağaçlarının farklı soy hatlarına sahip olduğu ve atasal karakterde olan ağaçların hibritlerle yakın ilişkide olmadığı görülmüştür.

Anahtar Kelimeler: DNA barkodlama, *trn*L-F, *rpl*32, hibrit, *Nerium oleander*

➢ **ORAL PRESENTATION**

Biochemical calculation methods to determine enzyme activity

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Abstract
Enzymes are catalysts, they accelerate chemical reactions in cells, causing reactions to be completed thousands of times, even if they are not millions of times faster than enzymes. The rate at which different enzymes convert substrates into product may vary due to environmental conditions such as pH and temperature of the environment. Enzyme tests not only measure how fast an enzyme works, but also measure the appearance of the product or the degradation of the substrate. Most often, the concentrations of products and substrates can be measured in a spectrophotometer by using coloured products and coloured substrates in enzyme tests. In a continuous analysis, cuvettes with an enzyme reaction mix are placed in the spectrophotometer and a change in the absorption of a product or substrate is measured over time, where reaction takes place in the cuvette.
Keywords: Enzymes, inhibitors, activity.

➢ **ORAL PRESENTATION**

A ceramidase inhibitor-nanoparticle formulation cause cell death an cytotoxicity on human breast cancer cells

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Abstract

Lipid metabolism and its key enzymes as acid ceramidases are reported to have an important role in ceramide metabolism and in cell death. Product of ceramide metabolism are shown as antiproliferative metabolites. Supressing of acid ceramidases become to be indicated as novel target for the treatment of many cancer types in last years. Recently, ceramidase inhibitors of different types are synthesized and investigated on various cancer cells. D-erythro-MAPP as one of that inhibitors has not been investigated in details yet. This study aimed to evaluate the anticancer potential of this agent on very common cancer type MCF-7 via investigating its cytotoxicity, antiproliferative activity and cell death triggering actions by MTT assay and flow cytometry analyses. Based on ours results D-erythro-MAPP inhibited the proliferation of MCF-7 cells in short application of 24 hours in a dose dependent manner. Its toxicity under MCF-7 cells was shown to be by triggering apoptotic cell death. All analysis results together demonstrate that D-erythro-MAPP has valuable potency to cause death in human breast cancer cells in turn for being to be good candidate for an antineoplastic compound after deeper tests on drug investigation under different cells and in vivo.

Keywords: Breast cancer, apoptosis, Ceramidase inhibitor.

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➢ **ORAL PRESENTATION**

Evaluation of the cytotoxicity of D-erythro-MAPP nanoparticle formulation on human lung cancer

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Abstract

Lung cancer is one of the most common cancers in the world with very low overall of survival rate. Current traditional methods for its treatment are surgical resection, chemotherapy and radiation. Besides these methods, it is necessary to develop less toxic, more efficient and cheaper approaches and drugs for treatment of lung cancer. Sphingolipid metabolism provides a rich bioactive molecule network that plays a key role in the regulation of various cell functions. Ceramide has emerged as a key modulator in the growth of cancer cells and apoptosis. Due to the role of ceramide in regulating cell growth and cell death, metabolic and signalling pathways have emerged as potential targets for anticancer therapy. The usage of nano-based materials for medical applications have led to the invention for the number of nanoparticles with enhanced peculiar features and multi-functional action such as disease diagnostics and treatment. D-erythro-MAPP is a cell-permeable and specific alkaline ceramidase inhibitor capable of increasing intracellular ceramide levels by blocking the hydrolysis of ceramide to sphingosine and free fatty acid in turn leading apoptosis. In this study, a novel solid lipid nanoparticles formulation of D-erythro-MAPP, with potential targeting property were synthesized and evaluated for their anticancer potency in A549 cells. The results as cytotoxicity and antiproliferative and proapoptotic actions obtained by MTT and flow cytometry proved that these nanoparticles have a good potential to be an anticancer agent.

Keywords: A549, D-erythro-MAPP, Sphingolipid.

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➢ **ORAL PRESENTATION**

Investigation of anti-cancer of D-erythro-MAPP in human prostate cancer cells

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Abstract

Sphingolipid metabolism is shown to play role in cell death, survival and resistance against treatment in many cancers types. Dihydroseramide and ceramide are associated with antiproliferative or cell death responses and are mentioned to be very important for effective cancer therapy. In recent years, new informations have emerged about how sphingolipid metabolism survives cancer cells and/or how to cause cell death. Moreover, studies on sphingolipid metabolism and its relationship with cancer began to attract the attention of researchers. Prostate cancer is the most frequently diagnosed type of cancer and is the second most common cause of cancer-related death. The purpose of this study was to investigate the potential cytotoxic effects of ceramidase inhibitor D-erythro-MAPP on prostate cancer cells, DU-145 cells. The cytotoxicity of D-erythro-MAPP on DU-145 cells was investigated by MTT (3- (4,5-Dimethylthiazol-2-yl) -2,5-Diphenyltetrazolium Bromide) colorimetric assay. From the MTT test results, the IC_{50} concentration of D-erythro-MAPP on DU-145 cells for 24 hours of application was determined. The MTT results showed that D-erythro-MAPP cause death in DU-145 cells in a dose-dependent. Apoptotic profile of Du-145 cells treated with D-e-MAPP were examined by flow cytometry technique. As a result of this study, D-erythro-MAPP has been found to promote apoptosis with its cytotoxic effects and has been found to be valuable for the treatment of prostate cancer after being further investigated.

Keywords: D-erythro-MAPP, DU-145, MTT, Flow cytometry.

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➢ **ORAL PRESENTATION**

Bir seramidaz inhibitörü olan ARN14974'ün insan akciğer kanser hücreleri üzerine etkisi sitotoksisitesinin araştırılması

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Özet

Sfingolipid metabolizmasındaki enzimlerin hücrenin sağ kalım ve ölümünde önemli rol oynadığı bilinmektedir. Sfingolipid metabolizmasının temel unsurlarından biri olan seramidin hücredeki seviyesinin yapılan çalışmalarla apoptoza sürüklediği ortaya konmuştur. Bu nedenle kanser araştırmalarında sfingolipidler önemli yer tutmaktadır. ARN14974 bir seramidaz inhibitörü olup hücrede seramid birikimine yol açmakta ve hücrenin apoptoza sürüklenmesine neden olmaktadır. Bu çalışmada ARN14974'ün insan akciğer kanser hücreleri, A549 ve sağlıklı akciğer hücreleri Beas-2B üzerindeki sitotoksik, anti-proliferatif ve apoptotik etkileri karşılaştırmalı olarak araştırılmıştır. A549 ve Beas-2B hücre hatları ARN14974'ün farklı dozlarına 24 saat süre ile maruz bırakılarak hücrelerin canlılığı analiz edilmiştir. Yapılan çalışmalar doğrultusunda ARN14974, A549 insan akciğer kanser hücrelerinde apoptozu indükleyerek kanser hücrelerinin çoğalmasını engellemiştir. Bu sayede ARN14974'nin insan akciğer kanseri tedavisinde bir anti kanser ajan olma potansiyeline sahip olduğu gösterilmiştir ancak bu ajandan yeni bir tedavi ajanı tasarlanması için daha ileri testlerin hem farklı hücre hatlarında hem de in vivo olarak gerçekleştirilmesi gerekmektedir.

Anahtar Kelimeler: ARN14974, akciğer kanseri, apoptoz

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➢ **ORAL PRESENTATION**

Behavior of embryonic stem cell derived embryoid bodies on different matrix surfaces

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Abstract

Embryonic stem (ES) cells are pluripotent stem cells derived from inner cell mass of blastocyst and could be characterized by unlimited proliferation, self-renewal and multi lineage differentiation potential. Embryoid bodies (EBs) as three dimensional cell structures are derived from ES cells and comprise the cell types that are generated during embryonic development. EBs are used to derive various cell types *in vitro*, and mimic germ layer stages which enables to use EBs in embryonic development studies. Although EBs are widely used for ES cell research and differentiation studies, appropriate in vitro models and cell behavior in terms of cell movement and differentiation remains to be investigated. In the current study, mouse ES cell derived EBs were used as a model system to characterize cell behavior on different matrix surfaces during differentiation. Matrigel, gelatin and vitronectin have been selected as surface coating matrices and EBs were placed onto coated surfaces for cell movement and differentiation experiments. All experiments were conducted in serum free culture conditions and cell behavior analyses were performed by real time cell imaging analysis. Cell movement and differentiation into cell types of three germ layers were demonstrated by quantitative real time PCR and microarray analysis, immunocytochemistry staining of germ layer markers and protein expression analysis. According to the cell movement and differentiation analysis, Matrigel-gelatin is greater to provide cell attachment and migration during differentiation compared to other surfaces. ES cells inside the EB bulge structure tends to differentiate into mesoderm and ectoderm germ layers indicating the cell differentiation propensity on monolayer culture of three dimensional EBs. This study generated a novel approach for ES cell behaviour, cell fate decision and differentiation potential of EBs *in vitro*. The appropriate matrix surface and differentiation conditions are required to optimize ES cell research and generate clinically relevant cell populations *in vitro*.

Keywords: Embryonic stem cells, embryoid bodies, surface matrix, germ layers, mesoderm, ectoderm

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➢ **ORAL PRESENTATION**

Determination of the terminal glycan profile of reelin glycoprotein in the SH-SY5Y neuroblastoma cell line

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Abstract

Reelin (400 kDa) is a conserved extracellular glycoprotein that possess variety of function in neural developmental processes including synaptic plasticity, memory formation, cortex development and maturation. It also involved in a signaling pathway in which underlie cognitive deficit of neuropsychological disorders such as Alzheimer's Disease. Protein glycosylation is a co- and post-translational modification, which observed in many of the proteins of eukaryotic cell. It effects the characteristic of glycoproteins by means of biochemical, physiochemical and structural aspect in variety of process such as cancer progression. Many diseases are associated with alteration of glycosylation and/or recognition dysfunction of glycans in glycoconjugates. Although it is known that Reelin is a glycoprotein, there are limited knowledge that relies on the glycosylation of reelin. In this study, it was aimed to determine the terminal glycan profile of reelin glycoprotein in SH-SY5Y neuroblastoma cells. After determining the reelin with western blotting, to determine its terminal glycans, lectin blotting were performed using DIG Glycan Differentiation Kit that contain five different lectins, *Datura stromonium* agglutinin (DSA), *Galanthus nivalis* agglutinin (GNA), *Maackia amurensis* agglutinin (MAA), *Sambucus nigra* agglutinin (SNA) and *Arachis hypogaea* agglutinin (PNA). As a result, we determined four reelin fragment that contain 400, 310, 250 and 85 of kDa. Lectin blotting results to doing for determine terminal glycans of these reelin fragments have shown that reelin have β-N-Acetylglucosamine (β-GlcNAc), α-Mannose (α-Man), β-Galactose (β-Gal), sialic acids (α-2,3 and α2,6 bond). Nevertheless, the intensity of these glycans in reelin fragments have shown variable profile according to fragment of reelin. These findings may be helps to understand of reelin glycoprotein structure and the effect of glycans onto protein structure and interaction for reelin in some type of cancer via glycobiology perspective.

Keywords: Glycosylation, Lectin Blotting, Reelin, SH-SY5Y cells, Western Blotting.

This study was supported by Scientific Research Project, 18-FEN-19, from Ege University and was also part of the master thesis.

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➢ **ORAL PRESENTATION**

Monosaccharide analysis of purified reelin glycoprotein with CapLC-ESI-MS/MS

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Abstract

Protein glycosylation is one of the most widespread seeing co- and posttranslational modifications, which results in the addition of carbohydrates to proteins and effects proteins by means of folding, localization and trafficking, protein solubility, antigenicity, biological activity and half-life. In this way, glycosylation of protein influences biochemical, physiochemical and structural characteristics of glycoproteins. Reelin (400 kDa) is an extracellular glycoprotein that composed of approximately 3461 amino acids and contains a signal peptide, F-Spondin-like domain, unique region called 'H' and eight tandem reelin repeat followed by basic C-Terminal domain respectively. Each of these repeats includes epidermal growth factor (EGF) like motif at its centre and links up two sub-repeats. It activates the tyrosine phosphorylation-dependent signal transduction via binds to VLDLR and ApoER2, cell membrane receptors. Although reelin is to known as a glycoprotein, there is a little knowledge about its glycosylation. In this study, it was aimed to isolate the reelin glycoprotein from SH-SY5Y neuroblastoma cell line and to characterize monosaccharides of purified reelin. Purification of reelin protein, was performed with immunoprecipitation technique using monoclonal antibody against reelin. Mass spectrometry combined with liquid chromatography (CapLC-ESI-MS/MS) was performed to identify the monosaccharide composition of reelin. As a result, we purified 250 kDa of reelin as a single band in SDS-PAGE as well as western blot. Then we have shown that purified reelin obtained from SH-SY5Y neuroblastoma cells contain five type of monosaccharides which are N-Acetylgalactosamine (GalNAc), N-Acetylglucosamine (GlcNAc), Galactose (Gal), Glucose (Glc), Mannose (Man) and Sialic acid (Sia), according from high to low abundance respectively. Glycan motif and quantity is important to understand the implication and function of reelin in cancer when we are considering the alterations of glycosylation between cancer and normal cells. This study may help to understand the relations between cancer and reelin in detail by glycobiology perspective.

Keywords: Glycoprotein, Glycosylation, Immunoprecipitation, LC-MS, Monosaccharide, Reelin.

This study was supported by Scientific Research Project, 18-FEN-19, from Ege University and was also part of the master thesis.

➢ **ORAL PRESENTATION**

Bitki ekstraktları elde etme yöntemleri ve bu yöntemlerin bitki ekstrakt içeriğine etkisi

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Özet

Tıbbi bitki ekstraktları, kurutulmuş veya taze bitkilerin yapraklarından, meyvelerinden, çiçeklerinden, çekirdeklerinden, reçinelerinden ve odunlarından çeşitli yöntemlerle elde edilen karışımlardır. Bu yöntemlerden en sık kullanılanları, soxhlet, süper kritik akışkan, mikrodalga destekli, ultrason destekli, homojenizatör destekli ve hızlandırılmış çözücü ekstraksiyon yöntemleridir. Bu yazıda bitki ekstraktları elde etmek için kullanılan en önemli yöntemlerden bahsedelmiş ve Kullanılan yöntemlerin elde edilen ekstraktının kalitesi ve içeriği üzerine etkisi incelenmiş Ayrıca, bu yöntemlerin avantaj ve dezavantajları hakkında bilgi verilmiştir.

Anahtar kelimeler: ekstrakt**,** ekstraksiyon, tıbbi bitki, soxhlet, homojenizatör, ultrason destekli ekstraksiyon

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➢ **ORAL PRESENTATION**

Using various assays to evaluate antioxidant activity of aqueous extracts of bay leaves (*Laurus nobilis* L.) extracted by subcritical water extraction method

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Abstract

The **Subcritical** Water Extraction (SWE) is an environment-friendly method and commonly used by researchers to investigate the extract of many matrices. Also, it was used to compare the content of the obtained extracts with the ones obtained in the other methods. In this study, SWE was used in evaluating the aqueous extracts of *Laurus nobilis* L. (Bay leaves). Bay leaves is a member of *Laurus* genus belonging to Lauraceae family. This species is widely found in the Mediterranean region and other regions in similar conditions. It is famous for its smell and leaves which takes place as a flavoring in Mediterranean cooking. The leaves used in the present work were obtained dried from local herb and spice shop. The leaves were ground to small particles for preparation of the extraction process. Then, their extracts were analyzed by different antioxidant activity assays to get a deeper view of its antioxidant role. Folin-Ciocalteu reagent was used to determine total phenolic content. It was found as 1148.74 mg of gallic acid (GA) equivalent in 100 g of dried leaves. DPPH assay was performed to determine the antioxidant activity of Bay leaves. IC_{50} value of gallic acid was found as 0.02231 mg mL^{-1}. IC_{50} value of subcritical water extract of Bay leaves was found as 0.186 mg mL^{-1}.

Keywords: Antioxidant activity, Bay Leaves, DPPH, Folin-Ciocalteu, Subcritical Water Extraction

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➢ **ORAL PRESENTATION**

Evaluation of total phenolic content and antioxidant activity of extracts from endemic plant *Verbascum pseudoholotrichum* Hub.- Mor. using soxhlet extraction method

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Abstract

Verbascum pseudoholotrichum Hub. - Mor. is an endemic plant which lives on the damp slopes in Mersin. This species is a member of *Verbascum* genus belonging to Scrophulariaceae family. Scrophulariaceae family contains about 220 genera and 3000 species. The pharmacological importance of its members was established due to the chemical components of them (e.g. glycosides, saponins and anthraquinones). *Verbascum* (*mulleins*, sığır kuyruğu) is one of the genera in Flora of Turkey and the east Aegean islands having a lot of endemic species and a high probability of finding new species. In this study, as a part of master thesis, *V. pseudoholotrichum* was extracted by Soxhlet extraction method and the extracts were analyzed to evaluate the antioxidant activity of the plant. Three solvents (methanol, ethanol and water) were used in the extraction process. Folin-Ciocalteu method was used to determine the total phenolic content of the extracts as 180.9, 175.7 and 186.1 mg gallic acid equivalent in 100 g of the plant using methanol, ethanol and water as solvents, respectively. DPPH free radical scavenging capacity was obtained as milligrams GA equivalent per mg of extract and IC_{50} values of gallic acid and *V. pseudoholotrichum* were determined.

Keywords: antioxidant activity, DPPH, Folin-Ciocalteu, mulleins, Soxhlet extraction, *Verbascum pseudoholotrichum*.

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➢ **ORAL PRESENTATION**

A differential co-expression network based approach: Prognostic gene group in papillary thyroid cancer

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Abstract

Papillary thyroid cancer (PTC) is the most common malignancy of the endocrine system and its incidence has been rising over the past few decades. Therefore, the identification of molecular signatures involved in PTC pathogenesis is very crucial for early diagnosis and treatment strategies of the disease. In this study, four different functional genomic data were analyzed by comparing gene expression levels between tumor and patient matched non-tumor samples. PTC differential co-expression network was reconstructed and its modules were identified in tumor and non-tumor samples, separately. Topological and functional enrichment analyses of module genes were performed and the prognostic performance of module genes was evaluated using an independent PTC dataset from TCGA. According to analyses results, 171 mutual DEGs were identified in four thyroid carcinoma datasets and two modules for each conditions (i.e: tumor and normal samples) were defined. To identify disease genes and new interactions depend on disease specific gene expression profile, we focus on modules in tumor samples. As results of module identification, whereas 16 genes highly connected with each other in diseased samples (network density: 96.6%), these genes connection were destroyed in non-tumor samples (network density: 22.5%). An interesting result about second module 8 genes highly connected with each other in normal samples (network density: 100%) than tumor samples (network density: 68%). These gene groups are parts of co-expression network in healthy samples. To validate the prognostic capabilities of the module, Cox regression analysis was applied RNA-Seq dataset (n=498) of PTC, it was presented statistically significant results (log-rank p=0.0062 and hazard ratio (HR)=10.04). Our results demonstrate novel PTC related prognostic genes based on differential co-expression analysis. It may presented that oligonucleotide chips contained with these sixteen correlated genes will be designed for used diagnosis and treatment applications. Experimental and clinical validations of findings are required.

Keywords: network medicine, co-expression, transcriptome, biomarkers.

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➢ **ORAL PRESENTATION**

Çeşitli bebek mamalarında *Cronobacter sakazakii* varlığının araştırılması

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Özet

Cronobacter sakazakii bir çok yaş grubunda görülse de özellikle bebeklerde hayati risk oluşturan menenjit, sepsis ve nekrotizan enterokolit enfeksiyonlarına sebep olan patojen bir bakteridir. Enterobacteriaceae familyasının bir üyesi olan *Cronobacter sakazakii* 1 µm x 3 µm boyutunda, fakültatif anaerobik, hareketli ,gram negatif , çubuk şeklinde bir bakteridir. Çeşitli klinik vakalarda görülen *Cronobacter sakazakii* enfeksiyonlarının bebek maması tüketimiyle ilişkilendirilmesi sonucu bu konuya ilgiyi arttırmış ve çalışmalar yoğunlaşmıştır. WHO/FAO 2004 yılında toz bebek mamalarında *Salmonella* spp.'nin yanı sıra *Cronobacter* spp.yi de hijyen kriteri olarak göstermişlerdir. *Cronobacter sakazakii* 'nin taksonomisi, kontaminasyon kaynakları , gelişme şartları hakkında bilgi sahibi olmak *Cronobacter sakazakii* kaynaklı enfeksiyonları engellemenin en önemli adımı olarak görülmektedir. Bu araştırmada uluslararası ve yerli 6 farklı markadan 74 toz bebek maması (başlangıç, devam, tahıllı, sebzeli, karışık) *Cronobacter sakazakii* varlığı açısından ISO/TS 22964 kültürel yöntem kullanılarak incelenmiştir. Çalışmada ön zenginleştirme amacıyla tamponlanmış peptonlu su kullanılırken seçici zenginleştirmede vancomysin antibiyotiği ilave edilmiş mLST broth ve seçici besiyeri olarak *Enterobacter sakazaki* Agar kullanılmıştır. İnkübasyon sonucunda *Enterobacter sakazakii* Agar'da mavi-yeşil koloniler *Cronobacter sakazakii* şüpheli kolonileri olarak değerlenirilerek doğrulama için Tyriptic Soy Agar'a ekim yapılmıştır. Tyriptic Soy Agar'daki kolonilerin hücre morfolojisi ve biyokimyasal yöntemlerle tanımlaması sonucunda çalışılan 74 toz bebek mamasının 7'sinde *Cronobacter sakazakii* varlığı tespit edilmiştir. *Cronobacter sakazakii* tespit edilen mamaların büyük çoğunluğunun (%69) içeriği süt ve pirinç bazlı olup1 'nin uluslararası, 6'sının yerli marka olduğu görülmüştür. *Cronobacter sakazakii* kaynaklı enfeksiyonlarda,yetişkin bireylere oranla daha fazla duyarlı olan bebekler yüksek risk grubunu oluşturmaktadır. Bu nedenle mama üretimi sırasında eklenen bileşimlerin mikrobiyolojik güvenliğinin sağlanması, sürdürülebilmesi önem arz etmektedir. Bu nedenle, halkın bilinçlendirilerek ürünlerin hazırlanması ve muhafazasında kullanıcıların üreticilerin tavsiyelerine özen göstermeleri gerekmektedir.

Anahtar kelimeler : *Cronobacter sakazakii*, bebek maması, ISO

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➢ **ORAL PRESENTATION**

Ekmeklik buğdayda (*Triticum aestivum* L.) vanadyum stresinin meydana getirmiş olduğu moleküler ve biyokimyasal değişiklikler üzerine borik asitin etkisi

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Özet

Sanayileşmenin artması nedeniyle toprakların ağır metalle kontamine olması çevredeki canlıları olumsuz etkilemektedir. Toksik özellikte olan bu ağır metaller öncelikle bitki bünyesine oradan da diğer canlıların bünyesine geçmekte ve tüm canlılarda toksik etkiler yaratmaktadır. Metal toksisitesi, reaktif oksijen türevlerinin (ROT) üretimine neden olmakta DNA, proteinler ve membran lipidleri çeşitli makromoleküllerde geri dönüşü olmayan hasarlara yol açmaktadır.

Bitkilerde vanadyum stresi ile ilgili çalışmalar genellikle morfolojik ölçümleri, fizyolojik değerlendirmeleri kapsamakta ve moleküler çalışmalarda eksiklikler bulunmaktadır. Biyoteknolojik uygulamalarla strese dayanıklı bitki çeşitlerinin üretilmesi ve gelecekte ortaya çıkması muhtemel beslenme sorununun da önlenmesi hedeflenmektedir. Araştırmamızın bu konuda yapılmış çalışmalara katkı sağlayacağı ve ağır metallere dayanıklılığın genetik temelinin anlaşılmasına yönelik çalışmaların sınırlı sayıda olması sebebiyle yer kabuğunda oldukça fazla bulunan ve daha önce bitkilerde moleküler etkisi çalışılmamış olan vanadyumun *Triticum aestivum* L. 'Çetinel 2000' çeşidinde yaptığı DNA hasarı, genomik kararsızlığı ve biyokimyasal değişimler üzerine borik asitin etkileri araştırılmıştır. DNA hasarları ve Genomik kalıp sabitliği (GTS) üzerine olan genetik etkisi ISSR (Inter-Simple Sequence Repeats/Basit Tekrarlı Diziler Arası Polimorfizm) metoduyla, biyokimyasal etkisi ise hücre membranındaki hasarı belirleyen Malondialdehit (MDA) seviyesi ile belirlenmiştir.

Vanadyumun 3 farklı dozu (4,4 mM, 6,6 mM, 8,8 mM) borik asitin ise 2 farklı dozu (4 mM ve 8 mM) kullanılmıştır. Her doz için 8 ISSR primerinin polimorfizm değerleri hesaplanmış ve ortalamalar alınmıştır. Uygulanan vanadyumun tüm dozları DNA hasarına neden olmuş ve genomik kararsızlığı yükseltmiştir (%GTS). Vanadyum ile birlikte uygulanan borik asit dozlarında genomik kararsızlığın azaltıldığı belirlenmiştir. Vanadyum stresi MDA seviyesini doz artışına bağlı olarak artırırken, vanadyum ve borik asit uygulaması ise MDA seviyesini azaltmıştır. Bu sonuçlara göre vanadyum stresine karşı borik asit uygulaması iyileştirici etki gösterdiği sonucuna varılmıştır. ISSR bantlarında belirlenen değişimler, artan stresin şiddetine bağlı olarak oluşan ROT artışıyla meydana gelen oksidatif stresin tetiklediği nokta mutasyonu, delesyon, insersiyon gibi genomik DNA hasarlarını oluşturduğunu ve buna bağlı olarak GTS oranını azalttığını ortaya koymaktadır.

Anahtar Kelimeler: Borik asit, GTS, MDA seviyesi, Vanadyum

➢ **ORAL PRESENTATION**

Ekmeklik buğdayda (*Triticum aestivum* L.) vanadyum stresinin DNA metilasyonu üzerine etkisi

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Özet

Toprak kontaminasyonunda en önemli kirletici maddeler olarak kabul edilen ağır metaller, bazı fizyolojik ve moleküler değişikliklere neden olan, bitki verimliliğini olumsuz şekilde etkileyen abiyotik stres faktörlerinden biridir. Bitkiler biyotik ve abiyotik stresler karşısında hayatta kalabilmek için hücresel, fizyolojik ve moleküler seviyede tepki verirler. Uzun süreli ve yoğun strese karşı bitkilerin abiyotik streslere yanıtında antioksidan savunma mekanizmalarının yanı sıra hızlıca homeostazını değiştirebilme yeteneği mevcuttur. Bu değişimler, protein sentezi ve mRNA'daki değişimleri, sekonder metabolitlerin sentezini, hormon seviyesindeki değişiklikleri içermektedir.
Stres adaptasyonunda önemli rol oynayan mekanizmalardan biri de DNA metilasyonudur. DNA metilasyonu en iyi karakterize edilmiş epigenetik mekanizmalardan biri olup DNA'nın yapısındaki kimyasal bir değişimdir. DNA metilasyonu, stres yanıtı ve gen ifadesinin düzenlenmesinde en çok çalışılan epigenetik mekanizma olmanın yanı sıra çeşitli gelişimsel ve çevresel faktörlere oldukça duyarlı olan kompleks moleküler mekanizmadır. Ağır metal stresinin gen ekspresyonu, DNA metilasyonu ve histonlardaki posttranslasyonel modifikasyonlar gibi kromatin yapısında meydana gelen epigenetik değişikliklerle de bitkileri etkilediği bilinmektedir. Çevresel stres etmenleri tüm genomda özellikle sitozin metilasyonunda önemli değişikliklere neden olmaktadır. Sitozin metilasyonu hem transkripsiyonel hem de posttranskripsiyonel düzeyde gen ekspresyonunun düzenlenmesinde önemli bir role sahiptir.
Ağır metal stresinin bitki genomu üzerinde meydana getirdiği epigenetik değişimleri test etmek için CRED-RA analizi yapılmıştır. Analiz için 8 ISSR primeri kullanılmıştır. Vanadyumun 3 farklı dozu (4,4 mM, 6,6 mM, 8,8 mM) uygulanmıştır. Her doz için % polimorfizm değerleri hesaplanmış ve ortalamaları alınmıştır. Vanadyum dozları arasında kıyaslama yapıldığında polimorfizm oranları 4,4 mM'da %40,1, 6,6 mM'da %42,7 ve en yüksek polimorfizm yüzdesi 8,8 mM'da %44,2 olarak belirlenmiştir. Sonuç olarak vanadyum uygulaması DNA hipermetilasyonuna sebep olmuştur.
Anahtar Kelimeler: Abiyotik stres, DNA metilasyonu, Epigenetik, Vanadyum

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➢ ORAL PRESENTATION

Metoksi nitrokinolinlerin sentezi ve HeLa ve MCF7 kanser hücrelerine karşı antikanser potansiyellerinin belirlenmesi

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Özet

6,8-Dimetoksi ve 8-metoksi kinolin tek basamaklı reaksiyon ile yeni nitrolamış metoksikinolin türevlerine dönüştürüldü. Sentezlenen yeni türevlerin yapıları ^{1}H NMR ve ^{13}C NMR yöntemleri ile karakterize edildi. Mono ve dinitrolu metoksi kinolin türevlerinin HeLa (rahim ağzı kanser hücresi) ve MCF7 (meme kanseri hücresi) kanser hücrelerine karşı antikanser özellikleri, MTT hücre proliferasyonu ve LDH hücre sitotoksisitesi yöntemleri ile belirlendi. Elde edilen bulgulara göre, çalışılan her iki hücre hattında da dimetoksi nitrokinolin türevinin kontrol bileşiği 5-Florouasil bileşiğinden daha düşük IC50 konsantrasyonlarında etkili olduğu belirlenmiştir. Dinitro 8-metoksi kinolin türevi sadece MCF7 kanser hücre hattına karışı (IC50 = 28 µg/mL) antiproliferatif etki gösterirken, mono nitrolu türev her iki kanser hücre hattına karşı da inhibisyon etkisi göstermemiştir. Sonuç olarak, dimetoksi nitrokinolin türevinin, HeLa ve MCF7 inhibitörü olma potansiyeli varken dinitro 8-metoksi kinolin türevin ise hücre spesifik olarak sadece MCF7 karşı inhibisyon potansiyelinin olduğu ifade edilebilir.

Anahtar Kelimeler: Metoksi kinolin, nitrolama, antikanser, HeLa, MCF7

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➢ **ORAL PRESENTATION**

Bazı siyano kinolin türevlerinin antikanser ve antibakteriyel özelliklerinin belirlenmesi

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Özet

Bu çalışmada, grubumuz tarafından sentezlenen bir seri mono ve disiyano kinolin ve tetrahidrokinolin türevleri A549 (akciğer kanser hücre hattı) hücre hattına karşı antikanser aktivitesi ve Gram (+) ve Gram (-) patojen bakterilere karşı antimikrobiyal aktiviteleri incelenmiştir. Siyano kinolinlerin antibakteriyel aktivite belirlenmesi için patojen üç Gram (+) (Staphylococcus aureus ATCC25923, Staphylococcus aureus ATCC46300, Enterococcus faecalis ATCC29212) ve iki Gram (-) (Escherichia coli ATCC25922, Pseudomonas aeruginosa ATCC27853) kullanılmıştır ve MIC metodu ile yapılmıştır. Anti kanser aktivite çalışmalarında ise MTT hücre proliferasyonu ve LDH hücre sitotoksisitesi yöntemleri kullanılmıştır. Elde edilen bulgulara göre, A549 hücre hattına karşı 6-bromo-8-siyanokinolin ve 8-bromo-6-siyanokinolin bileşiklerinin önemli ölçüde antiproliferasyon (IC50= 5.4 ve 22.5 μg/mL, sırasıyla) göstermelerine karşın disiyano ve tetrahidrokinolin türevlerinin etkisiz olduğu belirlenmiştir. Bu bileşiklerin Gram (+) bakteriler üzerinde sergiledikleri MIC değerleri incelendiğinde, *S. aureus ATCC29213* suşuna karşı 6-bromo-8-siyanokinolin ve 6,8-disiyanokinolin bileşiklerinin (MIC değerleri sırasıyla; 250, 250 µg/mL), *S. Aureus* ATCC46300 suşuna karşı 6-bromo-8-siyanokinolin molekülünün (MIC değeri 125 µg/mL) pozitif kontrol olarak kullanılan SCF (sulbactam (30 µg) + cefoperazone (75 µg)) antibiyotiğinden daha fazla ya da benzer duyarlılıkta olduğu tespit edilmiştir. Fakat siyanokinolin bileşikleri çalışılan Gram (-) bakterilere karşı yeterince antimikrobiyal aktivite gösterememiştir. Sonuç olarak, 6-bromo-8-siyanokinolin türevinin, A549 inhibitörü olma potansiyeli ve bazı Gram (+) bakteriler karşı da antibakteriyel özelliklere olduğu ifade edilebilir.

Anahtar Kelimeler: Siyano kinolin, antibakteriyel, antikanser, A549.

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➢ **ORAL PRESENTATION**

Doğal antimikrobiyal katkı maddesi olarak çeşitli bitki sulu ekstraktlarının değerlendirilmesi

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Özet

Bu çalışmada gıda ürünlerinde kullanım açısından *Anthemis arvensis* L., *Thymus longicaulis* C. Presl, *Sambucus ebulus* L. ve *Origanum vulgare* L. sulu ekstraktlarının tek ve kombine şekilde antimikrobiyal aktiviteleri çeşitli gıda kaynaklı bakterilere karşı incelendi. Ayrıca ekstraktların antimikrobiyal aktivitelerini etkileyen sıcaklık ve pH kararlılıkları gibi faktörlerin etkisi araştırıldı. Yağlı sütte *O. vulgare* sulu ekstraktlarının kullanım olasılığı değerlendirildi.

A. arvensis sulu ekstraktları test edilen bakteriler üzerine inhibitör etki göstermedi. *T. longicaulis*, *S. ebulus* ve *O. vulgare* ekstraktlarının çeşitli kombinasyonları değerlendirildiğinde ise *O. vulgare*'nin tek başına *Enterococcus faecalis* ATCC 29212 (1000 µg/ml) ve *Staphylococcus aureus* ATCC 6538 (500 µg/ml) büyümesi üzerine en iyi inhibisyonu gösterdiği belirlendi. Önceki çalışmamızda rapor edilen HPLC ile fenolik madde analiz sonuçlarına göre *E. faecalis* ATCC 29212 için etken maddenin vanilin, *S. aureus* ATCC 6538 için karvakrol olabileceğini söyleyebiliriz. *O. vulgare* sulu ekstraktları 100 ºC ve 121 ºC de 15 dakika ısıtıldığı zaman antimikrobiyal aktivitesinde *E. faecalis* ATCC 29212' ye karşı her iki sıcaklıkta stabilite (500 µg/ml), *S. aureus* ATCC 6538' e karşı ise her iki sıcaklıkta artış (sırası ile 500 ve 250 µg/ml) bulundu. İnhibitör etki *S. aureus* ATCC 6538 için pH 3 ve 4, *E. faecalis* ATCC 29212 için ise pH 3, 4, 5 ve 6 değerlerinde daha iyi idi.

Gıdalarda antimikrobiyal katkı maddesi olarak uygulamalarını değerlendirmek için yağlı süte *O. vulgare* sulu ekstraktlarının farklı konsantrasyonları eklendi. *O. vulgare* sulu ekstraktlarının *S. aureus* ATCC 6538 ve *E. faecalis* ATTC 29212'e karşı antimikrobiyal aktiviteleri 24 saat 37 ºC de ve 7 gün 4 ºC de inkübe edilen yağlı sütte çalışıldı. 1000 µg/ml *O. vulgare* sulu ekstraktı eklenen yağlı sütte *S. aureus* ATCC 6538'in 37 ºC de popülasyonu 4 ºC deki popülasyonu ile kıyaslandığında, 37 ºC de belirgin bir azalış gözlemlendi. Fakat *O. vulgare* sulu ekstraktları aynı azalış etkisini *E. faecalis* ATTC 29212' ye karşı göstermedi.

S. aureus ATCC 6538' e karşı doğal antimikrobiyal katkı maddesi olarak çeşitli gıda ürünlerine *O. vulgare* sulu ekstraktlarının eklenebilmesi açısından gelecek vaat edici olabileceğini tat ve toksisite testleri yapıldıktan sonra söyleyebiliriz.

Anahtar Kelimeler: *Origanum vulgare*, sulu ekstrakt, antimikrobiyal, katkı maddesi

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➢ **ORAL PRESENTATION**

Single cell level microalgal green synthesis of silver nanoparticles: confocal microscopy and digital ımage analysis

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Abstract

Nanoparticles are attracting increasing attention due to their unusual and fascinating properties, which are strongly influenced by their size, morphology and structure. Among the developed nanoparticles, silver (Ag) nanoparticles are pertaining to have a wide range of application in the fields of physical, chemical and biological science. Physical and chemical methods are used to synthesize such nanomaterials, among the various known synthesis methods, biosynthesis of silver nanoparticles is preferred as it is environmentally safe, low cost and less toxic. In particular, the synthesis of nanoparticles in the cell can be achieved in a standard size and shape. In the present work, the coccoid green algae *Chodatodesmus mucronulatus* was used as a reducing agent for the synthesis of intracellular nanostructure silver particles (Ag-NPs). Algae are with autofluorescence characteristics. These properties are known to be due to chlorophyll pigments. In this context, a confocal laser scanning microscopy (CLSM) based method to assess to show that the amount of chlorophyll decreases at microalgae is reported.). During this process, changes in the amount of chlorophyll *a*, *b* and carotenoid of the *Chodatodesmus mucronulatus* were examined at 24 hours using UV-Vis spectrophotometer for 3 days. As a result, the amount of carotenoid, especially with the onset of the reaction, decreased markedly. After 72 hours of reaction, the amount of carotenoid decreased from 6,54 µg ml^{-1} to 0,00 µg / ml, chlorophyll *a* decreased 24,46 µg ml^{-1} to 0,06 µg ml^{-1},chlorophyll *b* decreased from 11,33 µg ml^{-1} to 4,15 µg /ml. This change (pigment amount in cells) was also observed with a confocal microscope every 24 hours. Using this technique, the effect of in-use concentrations of chlorophyll autofluorescence was defined. Determination of mean fluorescence intensity (MFI) per cell by collecting auto-fluorescence from single cells in x, y and z dimensions permitted evaluation at single-cell level. According to the results, there is a decrease in the amount of pigment in the cell. This suggests that the pigments may be capping agents and trigger nanoparticle synthesis.

Keywords: Microalgae, Chlorophyll, Confocal microscopy, Nanoparticle, Silver.

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➢ **ORAL PRESENTATION**

Bioremediation of crude oil by *Aspergillus parasiticus*

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Abstract

Fungi play an important role in the removal of hazardous organic compounds from the environment with their extracellular multiple enzyme systems. In bioremediation processes, fungi act as a bioreactor by breaking down or biosorbent by accumulating organic pollutants. In this regard, it was aimed to investigate crude oil bioremediation capacities of live, dead and culture supernatant of *Aspergillus parasiticus* by gravimetric and Gas Chromatography-Mass Spectrometry analysis. According to results, live biomass of *A. parasiticus* removed crude oil in only 4-days. Additionally, it was observed that culture supernatant of *A. parasiticus* was not as effective as live biomass in this process. Thus, dead biomass was also used to evaluate the biosorption capacity of *A. parasiticus* in removal of crude oil. As a result, there was no difference in the removal of crude oil by using either 2 g of live biomass or 10 g of dead biomass. GC/MS analysis showed that *A. parasiticus* had a significant impact on long chain *n*-alkanes which are more resistant to degradation. To sum up, *A. parasiticus* can be used as a removal agent in further crude oil bioremediation studies.

Keywords: *Aspergillus parasiticus*, crude oil, bioremediation

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➢ **ORAL PRESENTATION**

The novel design for posterior dynamic stabilization of the lumbar spine

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Abstract

Lower back pain is the one of the major health problems around the world. The treatments such as exercise, medications, physiotherapy, and rehabilitation can be used to prevent and relief the lower back pain as long as the health problem doesn't lead to instability and limit human's movements. In this study we have designed implants for posterior dynamic stabilization of lumbar spine. In this study designed implants for posterior dynamic stabilization of lumbar spine. First of all we've designed two different implant's parts on 3D CAD Design program and then implemented the lumbar spine's computer model on a finite element analysis program. First implant model demonstrated in Figure 1a includes five parts which are upper-lower screw, rod, pin and nut, with a hole on upper screw which supports movement on Y and Z direction. The second one demonstrated in Figure 1b includes four parts which are upper-lower screw, rod and nut, with same movements on Z and Y directions with different screw head. After designing the parts on solid work we have transferred it on a finite element analysis program and meshed the parts, then implanted on lumbar spine besides adjust all movements and boundaries until the simulation get similar to a real implanted lumbar spine.

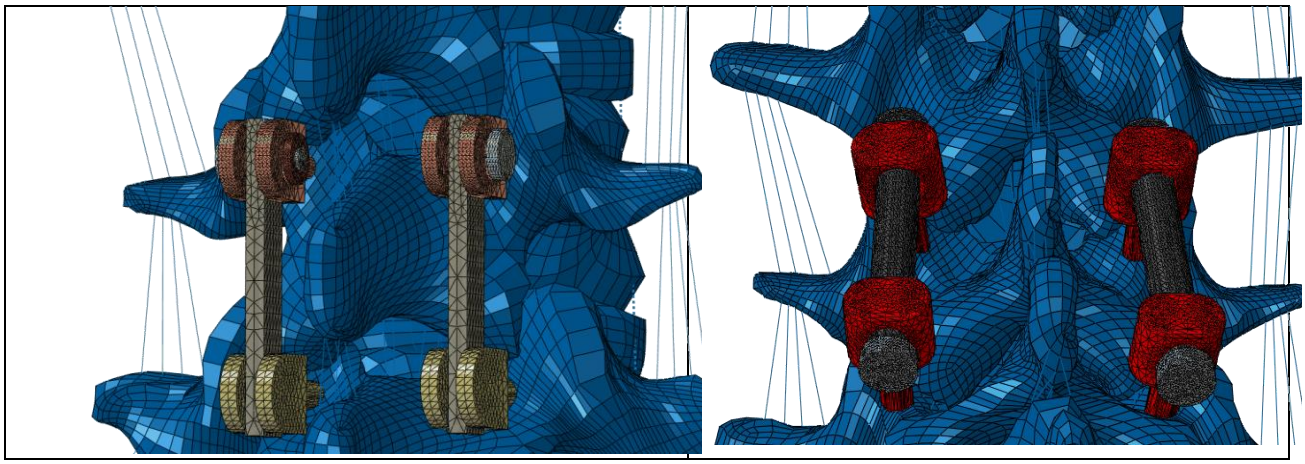

Figure 1: FE model of lumbar spine with first design implant

The simulation outcomes are the measurement of the range of motion (ROM) for two implants, by comparing this two devices we can achieve the standard ROM and acceptable mobility for the designed device.

Keywords: Posterior dynamic stabilization, Lumbar spine, Range of motion.

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➢ **ORAL PRESENTATION**

Antibacterial activity of propolis collected in different regions from Algeria

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Abstract

Propolis is a complex mixture of resinous substances collected by honeybees from various plant sources. The aim of the present study was to investigate the antibacterial activities of fatty acid and methanolic extracts from propolis samples collected from various geographical regions of Algeria against *Escherichia coli* ATCC 35218 and *Streptococcus agalactiae* Pas. Inst. 55118. The antimicrobial activities of the propolis extracts were tested using disc diffusion and microdilution-broth methods. The results of disc diffusion method showed that, the highest and the lowest inhibitory activities against *E. coli* ATCC 35218 and *S. agalactiae* Pas. Inst. 55118 were obtained from B (fatty acid, 12.56 mm) and Sample 7 (methanolic extract, 21.26 mm). The minimal inhibition and bactericidal concentration values for the test microorganisms were in the range of 0.5-4 µg/µL. Considering the results, the propolis extract showed various degree antimicrobial activity dependently on their geographic origin and ecosystems. Therefore, they can be suggested as natural additives or preservatives in various industries.

Keywords: Propolis, antibacterial activity, fatty acid, methanolic extract

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➢ **ORAL PRESENTATION**

Antimicrobial activity of jojoba leaf extracts against *Candida* species and probiotic candidate lactic acid bacteria

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Abstract

Jojoba (*Simmondsia chinensis*) is an evergreen medicinal plant and is cultivated for various purposes in many countries. Jojoba is being cultivated coastal areas of the Mediterranean and Aegean regions of Turkey. Nowadays, there is an increasing interest in the use of natural antibacterial compounds such as extracts and essential oils of plants which have long been used as natural agents for health promoting purposes due to the presence of antimicrobial compounds. In the study, antifungal activity of leaf extracts (ethanol, methanol and acetone) from Jojoba was investigated against to *Candida glabrata* RSKK 04019 and *C. albicans* ATCC 10231 to determine their potential use as natural antifungal additives. The antibacterial activity of the extracts at the same concentration (1500 mg) also tested on probiotic candidate lactic acid bacteria (eight *Streptococcus thermophilus* and two *Enteroccus faecium* strains) originated from human breast milk. The antimicrobial potential of Jojoba leaf extracts was determined by using disc diffusion method and microdilution-broth methods. The extracts (1500 mg/disc) of leaf from Jojoba showed antifungal activity against all the tested fungi from clinical origin at a range of 8.57-10.69 mm. Most of the probiotic candidate lactic acid bacteria strains can also survive their viability at the same concentration of the extracts (1500 mg). The results showed that the leaf extracts from Jojoba can be used as a natural antifungal agent against the Candida species. Also, the combination of the natural bio-preservatives (the extracts and the lactic acid bacteria strains) may have a potential use in health promoting substance.

Keywords: *Simmondsia chinensis*, anti-Candida, antibacterial

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➢ **ORAL PRESENTATION**

Meyve sineklerinde sisplatin ve valproik asitin indüklediği toksisiteye karşı kudret narının etkisi

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Özet

Kanser, hücrelerin kontrolsüz bölünmesi ve çoğalması ile ortaya çıkan, genetik ve çevresel koşulların etkisi altında olan kompleks bir hastalıktır. Standart olarak uygulanan kanser tedavi yöntemlerinden kemoterapide, kanser hücrelerini öldürmek için sitotoksik antineoplastik ajanlar başroldedir. Bununla birlikte, antikonsülvan kullanan hastalar antineoplastik bir ajanı da kullanmayı gerektiren kanser tedavi sürecine girebilmektedir. Antineoplastiklerin toksik etkisinin, birlikte uzun süreli kullanılan antiepileptiklerle daha çok arttığı bilinmektedir. Bilimsel ilerlemeler ve eczacılık tekniklerinin gelişmesiyle bitkilerin tedavi edici değere sahip etken maddeler kanser gibi birçok hastalığın bitkisel tedavisinde kullanılmaya başlanılmıştır. Bu çalışmada, antineoplastik ajan olarak kullanılan sisplatin (CP) ve antiepileptik olarak kullanılan valproik asitin (VPA) uzun süreli kullanımlarının meyve sineklerinin yaşama yüzdesi ve ömür uzunluklarında oluşturduğu olası toksik etkinin pek çok hastalığın tedavisinde iyileştirici ve koruyucu olarak kullanılan kudret narı ile giderilip giderilmeyeceği araştırılmıştır. Bu amaçla, kontrol, 0.05mM valproik asit ve sisplatin ile 2.5 ve 5mg/mL kudret narının çekirdek ve meyvelerine ait metanol ekstrelerini içeren deney setleri hazırlanmıştır. Ömür uzunluğu deneyleri, *Drosophila melanogaster*'in Oregon R soyuna ait dişi ve erkek populasyonlarında ayrı ayrı çalışılmıştır. Kontrol ve uygulama gruplarına ait sonuçların istatistiksel analizleri için tek yönlü varyans analizi uygulanmıştır. Çalışmamızda valproik asit ve sisplatine maruz kalan hem dişi hem de erkek populasyonlarda ömür uzunluğu ve yaşama yüzdesi bakımından kontrole göre önemli bir düşüş olduğu belirlenmiştir. Kudret narının çekirdek ve meyve ekstrelerinin valproik asit ve sisplatinle birlikte uygulandığı deney gruplarında yaşama yüzdesi ve ömür uzunluğu değerlerinin kontrole yaklaştığı gözlenmiştir. Antineoplastiklerin antiepileptiklerle birlikte uygulandığı gruplarda daha fazla olduğu gözlenen toksik etkiye karşı, kudret narının iyileştirici etkisinin, bitkinin sahip olduğu bileşenlerin yüksek antioksidan aktivitelerinden kaynaklandığı düşünülmektedir.

Anahtar Kelimeler: *Drosophila melanogaster*, valproik asit, sisplatin, kudret narı, ömür uzunluğu, yaşama yüzdesi

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➢ **ORAL PRESENTATION**

Effect of sodium dodecyl sulfate on copper (II) biosorption

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Abstract

Copper (II) is a toxic heavy metal for organisms. It has been observed that the incidence of disease tumors, thyroid tumors, neurological disorders, dermatitis, allergic rinse, gastrointestinal, pulmonary and hepatic disorder has increased in the presence of high Copper (II) concentrations. There are several treatment including chemical, physical and biological approaches for Copper (II) bioremoval. Chemical and physical methods can not be used on a large scale because of their complicated operation, difficult subsequent disposal and high cost. Biosorption is the main eco-friendly and greener biological process. Different biosorbent can be used for biosorption. Among them microbial biomass (yeast, fungi, microalgae, bacteria) is promising. In the present study, *Kluyveromyces marxianus*, which obtained from Ankara University Biotechnology Research Laboratory Culture Collection, cultivated in molasses medium and used as a biosorbent for Copper (II) removal. Different parameters affecting the process such as pH (3, 6, 9), initial copper (II) concentration (25, 50, 75, 100 mg/L), biosorption time (from 0 to 120 minutes) were optimized. Furthermore the effect of an anionic surfactant (SDS, Sodium Dodecyl Sulfate) on biosorption was investigated in the study. The highest Copper (II) bioremoval was obtained as 70.7% in the presence of 0.1 mM SDS and 25 mg/L heavy metal at pH 9.The present study shows that *K. marxianus* biomass is a promising agent for Copper (II) removal from aquatic environment.

Keywords: Copper, Surfactant, *Kluyveromyces marxianus*, biosorption.

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➢ **ORAL PRESENTATION**

Effect of temperature on conventional transesterification of *Coniochaeta hoffmannii* lipids for biodiesel production

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Abstract

The lipids obtained from *Coniochaeta hoffmannii* which is isolated from biscuit factory wastes was used as a raw material in this study. Catalyst type (NaOH and KOH), catalyst concentration (1%, 2% and 3%), dried biomass concentration (1, 2 and 4 g/L) and reaction time (0.5, 4 and 12 h) were optimized at different temperatures (40 and 60 ℃), for biodiesel production. When the temperature was increased, similar results were obtained at 40 and 60 ℃. Higher C16 and C18 fatty acid methyl ester yields were observed when KOH was used at 40 ℃. The highest C16+C18 fatty acid methyl ester yield was obtained as 83.7% in the presence of 4 g/L dried *C. hoffmannii* biomass, 3% KOH and methanol at the end of the 12 hours of reaction time. There was no significant difference for C16 and C18 fatty acid methyl ester yields when NaOH and KOH were used as catalyst.

Keywords: *Coniochaeta hoffmannii*, transesterification, temperature, biodiesel.

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➢ **ORAL PRESENTATION**

The investigation of the phytoremediation potential of water lettuce *Pistia stratiotes* for cadmium and lead mixtures

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Abstract

Contamination of aquatic habitats with heavy metals is treated as one of the most serious problems threatening aquatic life and human health. Due to their persistence in nature heavy metals have a tendency to bioaccumulate in aquatic organisms. There is an increasing interest in the removal of heavy metals using biological techniques due to their low energetic costs and higher efficiencies. Aquatic macrophytes are considered as promising candidates for the removal of pollutants including heavy metals.

The present study was aimed to investigate the phytoremediation potential of an aquatic macrophyte *Pistia stratiotes* exposed to cadmium and lead mixtures in nutrient poor media. Plants were exposed to 3 different concentrations of lead (Pb) and cadmium (Cd) mixtures (0.5 ppm Pb + 0.5 ppm Cd, 2.5 ppm Pb + 1.25 ppm Cd, 12.5 ppm Pb + 2.5 ppm Cd). Plants were harvested on 1, 4 and 7th days and the heavy metal concentrations were analyzed in whole plant material with ICP-MS. The bioconcentration factor (BCF) was calculated for each group. The significance of the results was analyzed using One-Way ANOVA.

The maximum BCF for Pb was observed in plants exposed to 2.5 ppm Pb + 1.25 ppm Cd mixture for 1 day and the maximum BCF for Cd was observed in plants exposed to 0.5 ppm Pb + 0.5 ppm Cd mixtures for 7 days. Our results indicated that *P. stratiotes* can be used as a remediator for the refinement of nutrient poor matrices contaminated with the Pb and Cd.

Keywords: Phytoremediation, Heavy metals, *Pistia stratiotes*, Cadmium, Lead.

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➢ **ORAL PRESENTATION**

Generic delimitation of tribe Coluteocarpeae by using ITS2 Secondary Structure

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Abstract

Tribe Coluteocarpeae is of the most controversial among 52 Brassicaceae tribes in terms of generic delimitation of the tribe members. Some researchers approve that the tribe consists of 13 different genera whereas some assigned all of these genera under *Noccaea* and *Pseudosempervivum*. Although phylogenetic studies depending on molecular data reveals that monophyly of tribe Coluteocarpeae was supported by a high posterior probability, several authors influenced by tradition still insist on assigning the members under different genera. The main aim of the current study is to contribute the classification of taxonomically problematic crucifer tribe Coluteocarpeae using secondary structure of internal transcribed spacer 2 (ITS2) region. Genomic DNA of 63 different species that represent all 13 genera from tribe Coluteocarpeae were extracted or retrieved from GenBank and ITS region amplified. For structural analysis, 5.8S-ITS2-28S regions were annotated using the HMMs-based annotation tool present at the ITS2 database V. Delimited ITS2 sequences were submitted to the RNA folding program Mfold Server and RNAstructure, Version 5.8. The structures and sequences were aligned by 4SALE. Visualization of the secondary structures was drawn using VARNA 3.93. By using ITS2 sequence-structural alignment dataset, phylogenetic tree was constructed using phangorn in the statistical framework R. The length of ITS2 sequence of investigated taxa vary between 124 to 201 bp long. The analysis of ITS2 folding pattern of all specimens produced mostly similar secondary structures with four different hairpin structures. But the length and content of helix are different. The longest one is Helix III and the lowest ones is Helix IV. Although compensatory base changes (CBC) species concept which occur in helix of ITS2 secondary structure is not enough for intrageneric classification, CBC and hemi-CBCs indicate all genera should be assigned under only single genus *Noccaea*.

Keywords: Coluteocarpeae, Brassicaceae, Secondary Structure, ITS

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➢ **ORAL PRESENTATION**

Haplotype network of *Noccaea densiflora* aggregate

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Abstract

Noccaea Moench (Coluteocarpeae, expanded Lineage II) is taxonomically one of the most problematic genera of the Brassicaceae. The radical revision of *Thlaspi* s.l. by Meyer in 1973split it into 12 segregate genera, including *Noccaea*, but subsequent molecular studies showed that this complex includes at least three unrelated genera (*Thlaspi* s.str., *Noccidium*, and *Noccaea*). But although some authors argued that all segregates should be considered as independent related genera, whereas others evaluated *Noccaea* as a large polymorphic genus. Besides molecular studies, morphological based taxonomic studies kept the debate of genus systematic on because of the convergence in the complex in almost every conceivable character. For example *N. densiflora* (Boiss. & Kotschy) F.K.Mey., *N. amani* (Post) F.K.Mey., *N. microstyla* (Boiss.) F.K.Mey., and *N. violascens* (Schott & Kotschy) F.K.Mey. form a complex the boundaries of which are unclear both morphologically and molecularly. In this study, to sort out the systematic problem of *N. densiflora* aggregate, TCS haplotype network, based on the internal transcribed spacer (ITS) sequences, were reconstructed. ITS data reveal that *N. densiflora* aggregate has 12 different haplotype and the origin of the aggregate is on the Amanus mountain range.

Keywords: Coluteocarpeae, Brassicaceae, ITS Haplotype, Noccaea

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➢ **ORAL PRESENTATION**

Mixotrophic cultivation of *Haematococcus pluvialis* for enhanced lipid production

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Abstract

The green microalgae *Haematococcus pluvialis* is photosynthetic microorganism that uses CO_2 as carbon source and sunlight as energy source. Although phototrophic cultivation is widely used in microalgae production, the cultivation is also performed in the medium which contains an external carbon source. In heterotrophic cultivation, microalgae cells are grown in the presence of external carbon source but no light. In mixotrophic cultivations there are an external carbon source and also light. Some microalgae can grow better under mixotrophic condition, which may combine the advantages of phototrophic and heterotrophic cultures. The main problem of mixotrophic cultures is higher cost because of organic carbon source. Some studies have thus focused on finding cheaper organic carbon sources to decrease production cost. The use of several industrial waste as a carbon source will provide both an assessment of waste and a low cost of production contribution. Due to high production capacity and low prices, utilization of the crude glycerol as carbon source is one of the promising options for lowering the production cost. In this study the effect of different concentrations (1-10 mM) of crude glycerol on the growth of *H.pluvialis* CCAP34/12 under mixotrophic cultivation was investigated. The maximum specific growth rate was detected as 0.03 day^{-1} with 1 mM crude glycerol. The concentration of chlorophyll-a and b decreased with increasing external carbon concentration. The highest protein content (5.24 mg/ g cell) and total carbohydrate content (0.26 mg/ g cell) was determined with 1 mM crude glycerol. The highest lipid content (4.32 mg/ g cell) was detected with 2.5 mM crude glycerol which was approximately 2.5 fold higher than the phototrophic cultivation. This suggests that *H.pluvialis* is a promising lipid production source in medium that contains crude glycerol. This production is a sample of biotransformation of a waste material to a value added product.

Keywords: *Haematococcus pluvialis*, mixotrophic culture, crude glycerol, lipid production.

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➢ **ORAL PRESENTATION**

CAPE loaded PLGA nanoparticles conjugated with angiopep-2 peptide for targeting glioma

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Abstract

Glioma is one of the malignant brain tumors with a high mortality rate[1]. Chemotherapy is one of the most important methods in glioma treatment, but the blood-brain barrier limits the effectiveness of chemotherapy. Drugs with big molecular weight cannot cross the blood brain barrier, only 2% of drugs with small molecular weight can pass[2]. Inadequate biodistribution of therapeutics is the biggest problem in glioma treatment. Therefore, various drug delivery systems are being studied to increase the drug pharmacokinetics/dynamics. Also, using these systems drugs can be functionalized to target to the desired diseased region in the body. Targeted drug delivery systems can specifically bind to the cell receptors on the blood-brain barrier and glioma cells. Thus, drugs can pass through the BBB and accumulate in the diseased cells and tissues. In this study polymeric drug delivery system was synthesized for targeting glioma cell line. For this purpose FDA approved PLGA polymer was used to synthesize spherical nanoparticles and targeted with angiopep-2 peptide. Angiopep-2 is a synthetic peptide and also a ligand for LRP-1 receptors in the BBB and glioma cells. LRP-1 receptors are overexpressed on the surface of the BBB and glioma cells compared to healthy brain and BBB cells[3]. For this study, polymeric drug delivery systems were designed to target glioma cells and increase the bioavailability of the drug. Angiopep-2 peptide was synthesized by microwave assisted solid phase peptide synthesize method. After cleavage of peptide, angiopep-2 peptide was analysed with LC-MS. Caffeic acid phenethyl ester is an anticancer molecule and active compound of the propolis. In this study CAPE molecule was encapsulated in PLGA nanoparticles by single emulsion solvent evaporation method[4]. Then, Angiopep-2 peptide was conjugated to the surface of CAPE loaded PLGA nanoparticles via EDC crosslinking agent. Characterization of the targeted nanoparticles were done with dynamic light scattering, FT-IR and SEM analysis. FTIR analysis showed that CAPE molecule was successfully encapsulated within the nanoparticles. Successful conjugation of angiopep-2 peptide and nanoparticles was verified with size and zeta potential results. Photon correlation spectroscopy analysis showed that size and zeta potential of the targeted PLGA nanoparticles were approximately 200 nm and 5 mV, respectively. Anticancer activity of Free CAPE, CAPE loaded NPs and targeted NPs were comparatively investigated on C6 glioma cell lines by MTT method.

Keywords: cancer, targeting, plga, angiopep-2, nanoparticles.

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➢ **ORAL PRESENTATION**

Synthesis and antifungal activity of ketokonazole-loaded PLGA nanoparticles

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Abstract

Fungal infections are seen as an increasing public health problem. Many newly developed broad-spectrum antibiotics have been successful in the treatment of life-threatening microorganism infections, thus, the recovery of patients susceptible to infection is made possible [1]. In recent years, bacteria and fungi have developed significant resistance to many traditional and synthetic drugs. In this context, nanoparticles have many advantages such as to provide effective active substance accumulation in the target area, to controlled release the active substance in periods for days or even weeks, to reduce the systemic toxicity of the drug on other organs and tissues, to have high intracellular intake due to small particle sizes and to prevent multiple drug resistance [2,3]. In this study, ketoconazole was used, from imidazoles as a part of antifungal therapy, in order to be encapsulated into PLGA nanoparticles. Ketoconazole is used in the treatment of different body fungal infections and shows its effect by inhibiting the 14α- demethylase enzyme by the cytochrome P450 which contributes to the synthesis of fungal ergosterol [4]. The ketoconazole loaded PLGA nanoparticles were prepared by oil in water (o/w) single emulsion solvent evoporation method [5]. The reaction yield of the produced nanoparticles was calculated from the amount of solid nanoparticles obtained gravimetrically. Encapsulation efficiency was detected by indirect quantification methods using UV-Vis spectrofotometer. Dynamic light scattering technique was used for determining of the average particle size and polydispersity index (PDI), zeta-potantial value of nanoparticles was determined by electrophoretic light scattering technique. The interaction between the polymer and the active molecule was investigated by using FT-IR spectroscopy. Morphological characteristics of nanoparticles were analyzed by Scanning Electron Microscopy (SEM). The antifungal activity of the produced ketoconazole-loaded PLGA nanoparticles on *C. Albicans* was investigated *in-vitro*.

Keywords: nanoparticles, polymer, PLGA, antifungal, ketoconazole, controlled release

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➢ **ORAL PRESENTATION**

Antibacterial activity and biofilm property of silver nanoparticles synthesized by using *Mimusops elengi* fruit extract

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Özet

Today, nanoparticles are effectively used in different areas. Initially, physical and chemical methods were used in the synthesis of nanoparticles. Biosynthesis (green synthesis) has emerged as an alternative to overcome the toxic effect of chemically synthesized nanoparticles. *Mimuspos elengi* is known as Spanish cherry and decoration plant. The fruit extract was used as as reduction factor and silver nanoparticles synthesized. Silver generally uses treatment of infections and burns due to especially its toxic effect against microorganisms. UV-vis spectrophotometer scanning electron microscope (SEM) analysis and X-ray diffrectometry (XRD) were applied to characterize the biosynthesized nanoparticles. The absorbance peak of AgNPs on UV-vis spectrophotometer were obtained between 400 and 450 nm. The antibacterial activities and bilofilm inhibition of AgNPs were investigated against some gram positive and gram negative bacteria as *Bacillus subtilis, Enterococcus durans, Escherichia coli, Klebsiella pneumonia, Listeria innocua, Salmonella enteritidis, Salmonella kentucky, Staphylococcus epidermidis* using Minimum Inhibition Concentration (MIC) assay. All bacteria strains were grown until 0.5 McFarland standard turbidity. The concentration of silver nanoparticle was prepared as 50 mM and was made serial dilution in 96-well plate. According to results, AgNPs present significant bacteriostatic and bacteriocidal effect against all tested bacteria. Furthermore the antibiofilm assay of AgNPs was applied and strong antibiofilm effect was observed. The used method proved to be a simple, eco-friendly, fast and non-hazardous alternative to chemically synthesized methods. Only a few minutes were adequate for the transformation of silver ions toward silver nanoparticle compounds at room temperature, without the use of any lethal chemical.

Anahtar Kelimeler: Silver nanoparticles; *Mimusops elengi* (Fruit extract); Bio reduction; biologic activity.

➢ **ORAL PRESENTATION**

Serratia marcescens ve *Chromobacterium violaceum* suşları ile gümüş nanoparçacıkların sentezi, karakterizasyonu ve bazı patojenik mikroorganizmalar üzerine etkisi

Demet Erdönmez

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Özet

Günümüzde insanlığın temel sağlık sorunlarından olan çoklu ilaç direnci gösteren mikroorganizmaların ortaya çıkışı sonrasında, antimikrobiyal etkinliği olduğu bilinen gümüş metalinin nanoparçacıklarının bu mikroorganizmalara karşı kullanımı üzerindeki ilgiliyi arttırmıştır. Nanoparçaçacıkların sentezlenmesi aşamasında ise sağlığı tehdit eden ve çevre kirliliğine sebep olan çeşitli kimyasallar kullanılmaktadır. Bunun önüne geçmek adına, bakterilerin metabolizmal faaliyetleri sonucunda nanopartiküllerin sentezlendiği tespit edilmiştir. Çalışmamızda prodigiosin pigmenti üreten Serratia marcescens ile viyolasin pigmenti üreten Chromobacterium violaceum kültür süpernatanı kullanılarak çevre dostu biyojenik yaklaşımla AgNPs üretimi gerçekleştirilmiştir. Sentezlenen nanoparçacıklar UV-görünür spektroskopi, X-ışını difraksiyonu (XRD), taramalı elektron mikroskobu (SEM) ve Fourier Dönüşüm Kızılötesi Spektroskopisi (FTIR) ile tanımlanmıştır. Karakterizasyonu tanımlanan nanopraçacıkların boyutları, 16 nm ile 80 nm arasında değişmektedir ve bu nanoparçacıkların antimikrobiyal etkinlikleri Escherichia coli, Pseudomonas aeruginosa, Staphylococcus aureus ve Candida albicans üzerinde saptanmıştır. Elde edilen verilere göre gümüş nanoparçacıklarının etkinliğinin çözelti halindeki gümüşe göre daha yüksek olduğu saptanmıştır. Ayrıca, bu nanoparçacıkların hem gram negatif ve gram pozitif bakteriler hem de maya hücreleri üzerinde de etkinliği gözlenmiştir. İki farklı bakteri süpernatanı ile hazırlanan nanopartiküllerin antimikrobiyal etkinlikleri ise birbiri ile uyumlu çıkmıştır. Bilindiği üzere gümüş nanoparçacıklar sayısız teknolojide kullanılmaktadır ve bakterisit özelliği nedeniyle çok çeşitli tüketici ürünlerine dahil edilmektedir. Doğal yollarla sentezlenen nanoparçacıkların kullanım kolaylığı ve sağlığa zararsız oluşları sebebiyle umut vaat vadetmekte ve biyolojik uygulamalarda etkinliği artıracağı düşünülmektedir.

Anahtar Kelimeler: Gümüş Nanopartikül, Antimikrobiyal, Serratia sp, Chromobacterium sp.

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➢ **ORAL PRESENTATION**

Analysis of thermophilic biofilms sampled on different abiotic surfaces by fourier transform ınfrared spectroscopy (FT-IR)

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Abstract

FTIR analysis is a spectrla method in which the infrared spectrum is used to detect chemical bonds. Four thermophilic bacilli (2 *Anoxybacillus*, 2 *Geobacillus*) were evaluated in terms of their biofilm matrix composition. The biofilm sampling was carried out under optimal conditions (60°C, in whole milk, 24 h) and on different abiotic surfaces (teflon, rubber, stainless steel, polycabonate, polypropylene, and polyvynil chloride). At the beginning of the study, 24, 48 and 72 h-old biofilm samples were prepared and the spectral patterns of the biofilm samples obtained from the surfaces were determined in the infrared spectra. According to the results, 24-h old biofilm sampling was found to be sufficient for the FTIR analysis. The biofilm samples on the surfaces were removed at the end of the incubation period (24 h) and washed three times with sterile saline to remove the non-adherent cells. As negative control, the surfaces were treated only with whole milk under the same incubation conditions. The dried samples were then analyzed in the FTIR device at a spectral resolution of 2 cm^{-1} in the 3500-780 cm-1 band. In order to increase the ratio of the signals taken from the samples to the background noise, biofilms were scanned 256 times and the signal measurement was performed. The method described here has not previously been used in the analysis of biofilm components of thermophilic bacilli and has provided important data for thermophilic biofilm matrix. In addition to the FTIR analysis, the total protein, carbohydrate and DNA contents of thermophilic biofilm matrix structures further enabled to understand the matrix components of the *Geobacillus*/*Anoxybacillus* biofilms and the selection of the most suitable agents to be used in biofilm removal according to the determined matrix characteristics.

Keywords: Thermophilic bacilli, biofilm, biofilm matrix, FT-IR

➢ **ORAL PRESENTATION**

Edirne Bölgesinde'ki Türk Holstein sığırların LEP geni 2. ekzon (E2JW, E2FB) ve TG geni 5' promotor bölgedeki (TG5) markörlerin et tekstürü, pH ve mozaikleşme üzerine etkilerinin araştırılması

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Özet

Etin gevrekliği ve mozaikleşmesi (MS) et kalitesini belirleyen en önemli özelliklerdir. Etlerdeki sertlik ve yumuşaklık, etteki yağ oranı ile bağlantılıdır. Kas içerisindeki yağ dağılımı da (mozaikleşme) et tekstürünü etkilemektedir. Et kalitesinin genotipleri ile kas lifine uygulanan kesme gücü (WBSF) ilişkilendirilmiştir. MS için MLD et dilimleri dijital kamera kullanılarak fotoğraflanıp görüntü işleme sistemiyle hesaplanmıştır. Gevreklik, etin sahip olduğu pH ile de ilişkilidir. Edirne'deki 100 baş Türk Holstein sığırlarında Leptin (LEP) ile Tiroglobulin (TG) genlerinde PCR-RFLP metodu ile LEP geni (E2JW,E2FB) ile TG geni (TG5) SNP markörleri kullanılarak örnek sığırların et kalitesine olumlu etki eden gevreklik, pH ve mozaikleşme ile ilgili SNP'ler belirlenip bunların fenotipik korelasyon ilişkileri araştırılmıştır. Çalışmamızda genotiplendirme Kapiller Elektroforez metoduyla yapılmıştır. LEP E2JW'de 3 farklı genotip (AA, AT, TT) LEP E2FB'de ise 2 farklı genotip (CT,TT) gözlenmiştir. TG geni monomorfik (CC) bulunmuştur. LEP E2JW lokusu 14. Gün MLD pH ölçümleri bakımından genotipler arası fark anlamlı bulunmuştur ($p<0,05$). En yüksek pH değeri AT, en düşük pH ise AA genotipinde gözlenmiştir. Yedinci günde pişmiş etlerin tekstürü bakımından LEP E2JW lokusu AA ve AT genotipindeki sığırların MLD etlerinin TT genotipindekilerden farklı olduğu belirlenmiştir ($p<0,05$). Türk Holstein sığırların LEP E2FB lokusunda WBSF, pH ve MS ile LEP E2FB ve TG5 markör genotipleri arasında olumlu bir ilişki kurulamamıştır ($p>0,05$). LEP E2JW lokusu A allelinin MDS çalışmalarında olumlu katkısı olacağı söylenebilir. TG5/LEP E2JW/E2FB markör lokusları bakımından sırasıyla CC/AA/CT veya CC/AT/CT genotipindeki Türk Holstein sığırların daha kaliteli et ürettiği belirlenmiştir.

Anahtar Kelimeler: PCR-RFLP, SNP, Polimorfizm, Tekstür, Mozaikleşme, pH, sığır eti

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➢ **ORAL PRESENTATION**

Edirne Bölgesinde'ki Türk Holstein sığırların LEP geni 2. ekzon (E2JW, E2FB) ve TG geni 5' promotor bölgedeki (TG5) markörlerin et rengi ve pH üzerine etkilerinin araştırılması

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Özet

Renk tüketici tercihlerini etkileyen en önemli taze et özelliklerinden birisidir. Et renginin değerlendirilmesi *Musculus Longissimus Dorsi (*MLD) kası üzerinden yapılmaktadır. Renk analizlerinin gerçekleştirilmesinde (L*a*b*) renk tanımlama sistemi kullanılmaktadır. L*:Parlaklık, a*:Kırmızılık-yeşillik, b*:Sarılık-mavilik renk indeksini ifade etmektedir. Et kalitesini belirleyen önemli özelliklerden biri de Hidrojen konsantrasyonudur (pH). Yüksek pH'ya sahip kasların daha koyu, sert ve kuru olduğu belirtilmiştir. Edirne'deki yüz baş Türk Holstein sığırlarında Leptin (LEP) ile Tiroglobulin (TG) genlerinde PCR-RFLP metodu ile LEP geni (E2JW,E2FB) ile TG geni (TG5) SNP markörleri kullanılarak örnek sığırların et kalitesine olumlu etki eden et rengi ve pH ile ilgili SNP'ler belirlenip bunların fenotipik korelasyon ilişkileri araştırılmıştır. Çalışmamızda genotiplendirme Kapiller Elektroforez metoduyla yapılmıştır. LEP E2JW'de 3 farklı genotip (AA, AT, TT) LEP E2FB'de ise 2 farklı genotip (CT,TT) gözlenmiştir. TG geni monomorfik (CC) bulunmuştur. LEP E2JW AA, AT ve TT genotipindeki pişmiş sığır etlerinde L* bakımından istatistiksel olarak farklar önemli bulunmuştur ($p<0,05$). Yedi gün boyunca bekletilip pişirilmiş etlerin parlaklığı, LEP E2JW lokusu AA ve AT genotipindeki sığır etleri TT genotipindekilerinden daha parlaktır ve fark önemlidir ($p<0,05$). LEP E2JW lokusundaki çiğ et b* renk değeri AA genotipindekiler AT ve TT'ye göre daha sarımtırak olup fark önemlidir ($p<0,05$). LEP E2JW lokusu 14. gün MLD pH ölçümleri bakımından genotipler arası fark anlamlı bulunmuştur ($p<0,05$). LEP E2FB lokusunda L*a*b* ve pH bakımından CT ve TT genotipindeki sığır etlerinde istatistiksel olarak anlamlı bir ilişki tespit edilmemiştir ($p>0,05$). TG5 lokusu monomorfik olduğundan L*a*b* ve pH ile genotipler arası ilişki kurulamamıştır.

Anahtar Kelimeler: PCR-RFLP, SNP, Polimorfizm, pH, L*a*b*, sığır eti

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➢ **ORAL PRESENTATION**

Effects of arsenite and fluoride on antioxidant capacity and steroidogenesis of Leydig cells

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Abstract

Excessive amount of arsenic and fluoride coexist in drinking water and food in many regions of world, which are threat to environment and human health. Previous studies with various animal models have shown that arsenic and fluoride have detrimental effects on the male reproductive system, but the effects of arsenic and fluoride in combination are not fully described. Present study aimed to investigate the sodium arsenite and sodium fluoride induced cellular damage on TM3 Leydig cells by determination of following parameters: cell viability, cell proliferation, amount of antioxidant enzymes (superoxide dismutase, catalase, glutathione peroxidase) and steroidogenic enzymes (3β-hydroxysteroid dehydrogenase and 17β-hydroxysteroid dehydrogenase). The amount of superoxide dismutase, catalase and glutathione peroxidase enzymatic antioxidants decreased at arsenite and fluoride exposed Leydig cells for 48 and 72h. Furthermore, arsenite and fluoride exposure caused decrease in 3β-hydroxysteroid dehydrogenase and 17β-hydroxysteroid dehydrogenase enzyme activities which are responsible for steroidogenesis.

Keywords: Sodium arsenite, Sodium fluoride, Leydig cell, Steroidogenic enzymes, Antioxidant system.

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➢ **ORAL PRESENTATION**

Infrared base analysis of *Syzygium aromaticum* L. essential oil in commercial samples

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Abstract

Near-infrared (NIR) and attenuated total reflection mid-infrared (ATR-MIR) spectroscopy measurements, combined with partial least squares (PLS) regression, have been employed as fast methodologies to determine eugenol in commercial samples of *S. Aromaticum* L essential oil. Models built for NIR and ATR-MIR providedroot mean square error of cross validation (RMSECV) of 0.194 % v/vand 0.191 % v/v, respectively, together with residual predictive deviation (RPD) values of 43.5 and 44.1, respectively. Data obtained were compared with those found by a chromatography reference procedure. The accuracy of proposed methodologies was evaluated also from recovery studies of commercial oil samples spiked with different amount of pure clove essential oil. Recovery percentages between 97 % and 103 % and between 92 % and 107 % were achieved for NIR and MIR, respectively.

Keywords: NIR; ATR-MIR; clove essential oil; eugenol; eugenyl acetate;

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➢ **ORAL PRESENTATION**

Extraction of phenolic compounds from grape seeds using subcritical water

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Abstract

A substantial amount of solid waste such as skins and seeds of grapes is generated during the wine production which is one of the most important agricultural activity around the world. Grape seeds which comprise around 15 % of the wine industry waste, are quite rich in bioactive compounds, especially in phenols. Extraction is a critical step for the recovery of phenolic compounds that are active as an antioxidant, anti-inflammatory, and anticarcinogenic which are used particularly both in food and pharmaceutical industry. There are several methods for extraction of phenolic compounds that includes organic solvent usage, however, certain disadvantages of these solvents are toxicity of solvents to the environment and the human body, and not being inexpensive. This research study is conducted on the employment of the Subcritical Water Extraction (SWE) method both to eliminate the disadvantages of other methods and to extraction based on green chemistry principles. The parameters which are effective on the extraction of phenolic compounds from Öküz Gözü grape seeds, solid waste of wine industry waste, are investigated by using the Response Surface Method (RSM). Central Composite Design (CCD), a useful method in RSM, is employed in modeling studies. Temperature (65 – 200 ºC), water flow rate (1 – 4 ml/min) and particle size (-8+16, -16+30 and -30+50 mesh) were determined as independent variables of CCD and their effects on total phenolic and total flavonoid contents were evaluated accordingly. In the experimental section, the total amount of phenolic and flavonoid compounds of the extracts, obtained from the SWE process, were analyzed with spectrophotometric methods. According to the variance analysis (ANOVA), a high regression coefficient values were obtained as R^2=0.95 and R^2=0.97 for the total phenolic and the total flavonoid contents, respectively.

Keywords: Grape seed, extraction, phenolic compounds, response surface methodology, subcritical water, winery wastes.

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➢ **ORAL PRESENTATION**

Modelling of antioxidant capacity from öküz gözü grape seed using subcritical water extraction

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Abstract

Grape seeds, rich in antioxidants, are by-products of processes such as wine, vinegar, and grape molasses industries. Antioxidants are highly important compounds for living systems because they can inhibit oxidation products and repair the damages caused by them. They are highly effective on prevention of various diseases such as cancer and cardiovascular diseases and slowing down the aging process. Antioxidants, used in foods, cosmetics and pharmaceuticals are extracted from many fruits and vegetables as well as grape seeds too. There are various methods to recover antioxidants effectively, however, these methods have disadvantages such as low extractive yields, higher cost and toxicity of used organic solvents. Therefore, the Subcritical Water Extraction (SWE) method which is environmentally friendly and highly efficient in a short time, is employed in this research study. The parameters effective on the extraction of antioxidants from Öküz Gözü grape seeds, solid waste of winemaking, are investigated by using the Response Surface Method (RSM). Central Composite Design (CCD), a useful method in RSM, is employed in modeling studies. Temperature, water flow rate and particle size were determined as independent variables in CCD and their effects on antioxidant activities (capacities) were investigated. In the study, as antiradical scavenging activity testes; DPPH (2,2-Diphenyl-1-picrylhydrazyl) and ABTS (2,2 1-Azino-bis (3-ethylbenzothiazoline-6-sulfonic acid)) methods were applied to extracts obtained from SWE system on the determined parameters. The DPPH and ABTS antiradical testes of the extracts were analyzed by spectrophotometric methods. According to the variance analysis (ANOVA), regression coefficient values were obtained as R^2=0.91 and R^2=0.93 for the DPPH and ABTS antiradical scavenging activity, respectively.

Keywords: Antioxidant, Grape Seed, Subcritical Water Extraction, Response Surface Methodology, Winery Wastes.

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➢ **ORAL PRESENTATION**

Substrate and medium optimization for bioethanol production via syngas fermentation

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Abstract

Regarding to The World Health Organization (WHO), air pollution is the largest problem of the 21st century for human health and environment. The major air pollutants are nitrogen oxides (NOx), carbon monoxide (CO) and carbon dioxide (CO_2), sulfur dioxide (SO_2), volatile organic compounds (VOCs) and ozone(O_3-) and they are negatively affecting the environment. The syngas is the combination of these pollutant gases mainly composed of CO, H_2, N_2, CO_2 etc. Syngas fermentation is an anaerobic biochemical conversion pathway in which these main components can be converted into acids and alcohols (ethanol, butanol, acetic acid, butyric acid, etc.) by activity of microorganisms. According to International Energy Agency (IEA)'s Medium-Term Renewable Energy Market Report 2017, renewable energy is the fastest growing energy sector. The fossil fuels that is expected to be depleted in 50 years are the prior source to meet the clean energy demand nowadays and bioethanol is mostly used clean biofuel for transportation by blending with gasoline. Syngas fermentation is an effective process that combines degradation of air pollutant gases (especially CO) with biofuel production such as bioethanol. In this study pure CO was used for bioethanol production by using *Clostiridium ljungdahlii*. At first part of the study the feeding volume and strategy was optimized by 5 mL, 10 mL, 20 mL, 25 mL and 5mL/5days CO injection. In the second part of the experiment the possibility of using alternative waste materials (corn syrup and whey powder) instead of trace elements of growing medium was tested. 10 mL CO feeding was found as the optimum value with 6,7 g/L bioethanol production. Corn syrup and whey powder were found to effect pathway of the microorganism. Whey powder(16,5 g/L Ethanol) is more effective than corn syrup(5.5 g/L Ethanol) and commercial chemicals.

Keywords: Syngas fermentation, *Clostridium ljungdahlii*, Bioethanol Production, CO, medium optimization

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➢ **ORAL PRESENTATION**

Fonksiyonel gıda özelliği arttırılmış propolisli ayran

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Özet

Doğal ürünlerden biri olan propolis, bal arıları tarafından üretilir, içeriği çeşitli polenlerden, yağlardan, özel reçinelerden ve mumsu maddelerden oluşmaktadır. Propolis fenolik bileşikler açısından da zengin ürünlerden birisidir. Fenolik bileşiklerin, oksidasyon önleyici etkiye sahip olması, düşük yoğunluklu lipoprotein kolestrolü inhibe etmesi sebebi ile sağlık üzerine olumlu etkileri belirtilmiştir. Bu etkiler hipertansiyon ve kardiyovasküler hastalıkları önlemeye yardımcı olur. Sağlık açısından değerli özelliklere sahip olan propolisin direkt tüketimi sağlanamadığı için gıda sektöründe pek fazla yer bulamamıştır. Gıda destekli olarak son yıllarda birçok çalışmaya konu olan propolisin, fonksiyonel ürünlerin elde edilmesinde kullanılabileceği öngörülmektedir. Yapılan literatür taramalarında, farklı gıdaların doğal bileşikler veya bitki ekstreleri ile fonksiyonel özellik kazandırıldığı birçok çalışmaya rastlanılmıştır. Fakat Türk kültüründe yer alan geleneksel içeceğimiz olan ayranın fenolik bileşiklerce zengin olan sulu propolis ekstraktı ile birlikte kullanımı tespit edilmemiştir. Bu çalışmada, Artvin Şavşat yöresine ait propolisin sulu ekstraktı ayrana eklenerek yeni oluşan üründe toplam fenolik madde, DPPH radikali süpürme aktivitesi ve demir (Fe^{+3}) indirgeme kuvveti gibi antioksidan testler uygulanmıştır. Elde edilen sonuçlarda en yüksek polifenolik içerik 14,712 µg GA/ml ayran tespit edilmiştir. En yüksek DPPH radikal süpürme aktivitesi % 37,46, FRAP metodunda en yüksek antioksidan aktivite ise 11,31 µg TE/mL ayran tespit edilmiştir. Sonuçlar değerlendirildiğinde ayrana propolis eklenerek polifenolik içeriğinin arttırılabildiği ve fonksiyonel gıda sektörüne faydalı özellikleri artırılmış yeni bir ürün kazandırılabileceği gözlenmiştir.

Anahtar Kelimeler: Antioksidan, Ayran, Polifenol, Propolis

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➢ **ORAL PRESENTATION**

Quantitative detection of curcuminoids by HPLC

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Abstract

Polyphenolic curcuminoids, namely curcumin, demethoxycurcumin and bisdemethoxycurcumin, are extracted from the rhizome of turmeric (*Curcuma Longa Linn*.) and have been used as a medicine in many Asian countries due to their wide range of biological activity including antioxidant, antibacterial, anti-inflammatory and anticarcinogenity. However, insolubility of curcuminoids in water brings about poor absorption and rapid metabolism in body resulting in very low plasma levels following their uptake. Detection and estimation of low concentrations of curcuminoids typically require chromatographic separation (column, thin layer, and high performance liquid chromatograpy (HPLC)). In this study, a simple, rapid and sensitive HPLC method was developed for the quantitative analysis of curcuminoids based on related literature. Chromatographic measurements were performed using curcumin from Acros Organics (>98%) and a Kromasil® reversed phase C18 column (250 mm x 4.6 mm, particle size: 5µm). Effects of parameters such as mobile phase content, flow rate, and detection wavelength were investigated. The optimum resolution was achieved when the mobile phase consisted of 2% acetic acid and acetonitrile (40:60 v/v) at a flow rate of 1 $ml.min^{-1}$ using an Agilent 1100 series variable-wavelength detector at 425 nm. The selected method was linear from 1 to 50 µg/mL for all curcuminoids with a correlation coefficient of 0.98 or higher. The methodology meets the requirements for being reliable and feasible through having high linearity, precision, reproducibility, and low limit of detection (LOD) and limit of quantitation (LOQ) levels. The analytical procedure has about 6 min retention time that makes it suitable for high-throughput measurements.

Keywords: Curcumin, demethoxycurcumin, bisdemethoxycurcumin, method validation.

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➢ **ORAL PRESENTATION**

Petrorhagia (Ser.) Link cinsi polen mikromorfolojisi

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Özet

Bu çalışmada Türkiye'de yayılış gösteren *Petrorhagia* (Ser.) Link (Caryophyllaceae) cinsine ait türlerin polen yapıları mikromorfolojik yöntemle, taramalı elektron mikroskobu (SEM) kullanılarak incelenmiştir. Cins Ülkemizde 4 türü endemik olmak üzere 12 türle temsil edilmektedir. Bu çalışmada incelenen türler ve endemizim durumları: *Petrorhagia lycica* (P.H.Davis) P.W.Ball. & Heywood (endemik), *P. cretica* (L.) P.W.Ball & Heywood, *P. alpina* (Hablitz) P.W.Ball. & Heywood subsp. *alpina*, *P. alpina* (Hablitz) P.W.Ball. & Heywood subsp. *olympica* (Boiss.) P.W.Ball. & Heywood, *P. saxifraga* (L.) Link, *P. pamphylica* (Boiss. & Balansa) P.W.Ball. & Heywood (endemik), *P. peroninii* (Boiss.) P.W.Ball. & Heywood (endemik), *P. prolifera* (L.) P.W.Ball. & Heywood, *P. dubia* (Raf.) G.López & Romo. Genellikle taşlık alanlar, tarla ve yol kenarları gibi habitatlarda yayılış gösteren cinsin türleri 2003-2007 yılları arasında proje kapsamında toplanılmıştır. Çalışma sonucunda *Petrorhagia* cinsi polen şeklinin sferoid olduğu ve türlerin tamamında polenlerin porlu (poliporat) yapıda oldukları bulunmuştur. Ancak türler arasında; polen büyüklükleri, por sayıları, polen ve operkulum ornemantasyonları farklılıklar göstermektedir.

Anahtar Kelimeler: Caryophyllaceae, *Petrorhagia* (Ser.) Link, polen, SEM

➢ **ORAL PRESENTATION**

Geopolimer üretiminde nanopartikül kullanımının incelenmesi

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Özet

Bu çalışmada metakaolin esaslı jeopolimer numunelerinin alumina/kitosan nanoparçacıklarıyla performans geliştirilmesi üzerine çalışılmıştır.
İnorganik polimerlerin (jeopolimerlerin) mekanik özelliklerini, kalsiyum hidroksit ve kalsiyum fosfat gibi maddelerin biyoaktif davranışı ile birleştirerek, dayanıklı bir implant geliştirilmesi amaçlanmıştır.
İleri teknoloji mühendislik seramiği örneği olan bu malzeme yüksek sıcaklıklarda ısıtılarak iyileştirme sonucu bir implant/protez olarak biyomedikal alanlarda kullanılabilirliği incelenmiştir. Üretimi yapılacak biyojeopolimerin sert/yumuşak doku ve kemik üzerinde rejenerasyon sağlayabileceği öngörülmektedir.
Biyomalzemelerin biyoaktivitesini belirlemenin en iyi yollarından biri, bunları simüle edilmiş vücut sıvısına maruz bırakmaktır. Bu sebeple çalışma kapsamında yapılacak in vitro deneylerde, jeopolimerin biyoaktivite testinde, numuneler yüzey reaksiyonu üzerindeki kalsiyum içeriğinin etkisini incelemek amacıyla vücut sıvısına alternatif bir solüsyonda bekletilecektir.
Az miktarda ilave edilecek nanopartiküllerin, jeopolimerin mekanik performansına etkisinin araştırılması amacıyla serbest basınç test cihazı ile sıkıştırma ve split tensile testleriyle gerilim ve dayanımları ölçülecektir. Ayrıca 7, 14 ve 28 günlük ıslatılmış numune yüzeyleri Taramalı Elektron Mikroskobu, X-Işını Difraksiyonu ve Fourier Dönüşümlü Kızıl Ötesi Spektrometresi karakterizasyonu kullanılarak araştırılmıştır.
Sonuç olarak bu çalışmada; üretilen alümina/kitosan nanoparçacık katkılı metakaolin esaslı jeopolimer numunelerinin yüksek mekanik özelliklerine sahip olabilirliği ve aynı zamanda biyouyumlu malzemeler olarak implant, kemik ikameleri şeklinde kullanılabilirliği konusu araştırılıp, sonuçlar değerlendirilmiştir.

Anahtar Kelimeler: Jeopolimer, biyoaktivite, nanopartikül, alumina, kitosan, hidroksiapatit

➢ **ORAL PRESENTATION**

Biyobozunur polimerlerden 3 boyutlu yazdırma teknolojisiyle implant ve doku iskelesi üretimi

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Özet

3 boyutlu yazdırma teknolojisi sürekli gelişmekte olan yeni bir teknolojidir. Özellikle son zamanlarda çokça ilgi görmüş ve kullanım alanları hızla genişlemiştir. 3-boyutlu baskı, bir dijital modelden kompleks geometrilerde 3-boyutlu bir nesnenin üretimine çok kısa sürede imkân sağladığından, günümüzde oldukça dikkat çekmektedir. Özellikle, kullanılabilecek yazdırma tekniklerinin biyobozunur, biyouyumlu polimerlerin kullanımına imkân vermesi ve vakaya özgü tasarıma olanak sağlaması nedeniyle medikal alanda kullanımları artmıştır. Bu makalede; 3-boyutlu yazdırma teknolojisi, biyobozunur baskı materyalleri ve implant ve doku iskelesi uygulamaları üzerinde durularak, PLA'dan prototip olarak bir implant ve doku iskelesi tasarımı yapılmıştır.

Anahtar Sözcükler: 3-boyutlu baskı, 3-boyutlu yazdırma teknolojisi, biyobozunur, medikal, implant, doku iskelesi

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➢ **ORAL PRESENTATION**

Isolation of lignin from biomass using deep eutectic solvents in microwave reactor

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Abstract

Biomass has great potential in Turkey due to the appropriate climate condition. Although its complex structure, biomass can be converted to useful products and can be replaced by fossil fuels. The complex structure of biomass results in difficulty of conversion processes. Before utilization of biomass, pretreatment plays crucial role. Generally, chemical processes are employed for the pretreatment of biomass. The traditional processes used in the isolation of cellulose, hemicellulose and lignin produce huge amount of solvents or waste and cause environmental pollution.

Deep eutectic solvents (DES) have been attracted attention in the processing of biomass. Deep eutectic solvents used in this study, were made of a hydrogen bond donor and hydrogen bond acceptor. At eutectic point, DES is clear, homogeneous solution and DESs have a capability to solve biomass samples.

Based on biomass, it may contain varying amount of cellulose, hemicellulose and of lignin. In this study, DESs were used in the isolation of lignin from biomass in microwave reactor. Removal of lignin is important in biomass processing; during process lignin may cause coke formation and reduction in amounts of valuable products. In this study, almond shell was used as biomass sample, also DES formed by choline chloride and oxalic acid. Experiments were carried out at temperatures of 160, 170 and 180°C and reaction times of 1.0, 2.5 and 5 minutes. The maximum lignin isolation was found as 89% at 170°C within 2.5 min.

Keywords: biomass, deep eutectic solvents, lignin, isolation

➢ **ORAL PRESENTATION**

TiO_2 nanotüp dizinleri ile acid orange 7 boyarmaddesinin fotokatalitik oksidasyonu

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Özet

Endüstriyel atıksularda bulunan organik kirleticilerin giderimine yönelik olarak son yıllarda heterojen ileri oksidasyon prosesleri geliştirilmiştir. Bu proseslerde organik kirleticiler UV ya da güneş ışığı varlığında TiO_2 gibi yarı iletkenlerin fotokatalizör olarak kullanılmasıyla oluşturulan $OH^{\cdot}$ radikalleri ile giderilmektedir. Nano yapılı TiO_2 fotokatalizörleri nanoparçacık, nanotel, nanoçubuk ve nanotüp gibi birçok morfolojik yapıda bulunmaktadır. Bu yapılar içinde TiO_2 nanotüpler (TiNT) yüksek yüzey/hacim oranına sahip olmaları nedeniyle fotokatalitik uygulamalarda tercih edilmektedir. TiNT elektrokimyasal anodik oksidasyon, kalıp ve hidrotermal gibi yöntemlerle elde edilmektedir. Bu çalışmada dizin halinde TiNT oluşumuna olanak sağlaması açısından elektrokimyasal anodik oksidasyon yöntemi uygulanmıştır. TiNT ağırlıkça % 0.4 NH_4F ve % 2 damıtık su içeren 200 mL etilen glikol elektrolit çözeltisi kullanılarak 30 V gerilim altında oda sıcaklığında 3 saat boyunca karıştırma ortamında anodizasyon işlemi gerçekleştirilerek elde edilmiştir. Elde edilen TiNT'in karakterizasyonu SEM ve XRD ile yapılmıştır. Sentezlenen TiNT Acid Orange 7 azo boyarmaddesinin fotokatalitik oksidasyon ile gideriminde kullanılmıştır. Boyarrmade başlangıç derişiminin etkisi incelendiğinde, 5, 10 ve 20 ppm derişimlerinde 300 dakika sonunda sırasıyla %91, %40 ve %21 renk giderimi elde edilmiştir. Reaksiyon ortamına $Na_2S_2O_8$ eklenmesiyle fotokatalitik etkinliğin arttığı görülmüştür. UV ışını yerine güneş ışığı kullanıldığında 10 ppm derişimindeki boyarmadde çözeltisine 1 mM $Na_2S_2O_8$ eklenmesi ile 300 dakika sonunda %95 renk giderimi elde edilmiştir.

Anahtar Kelimeler: TiO_2 nanotüp, anodik oksidasyon, Acid Orange 7, renk giderimi

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➢ ORAL PRESENTATION

Chemical recycling of waste polyethylene terephthalate bottles with neutral hydrolysis to produce terephthalic acid

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Abstract

Polyethylene terephthalate (PET) is an important and widely used polymer. Ever increasing production and consumption of PET created serious environmental concerns. Chemical recycling of waste PET can be an effective solution to the environmental problems created by PET wastes. In this study chemical recycling of waste PET was conducted with hydrolysis method. Shredded waste PET bottles were depolymerized in a water filled autoclave batch reactor to synthesize terephthalic acid without a catalyst. It was seen that waste PET was fully depolymerized into a white solid product terephthalic acid. Solid product was analysed with an optical microscope and fourier-transform infrared spectrometer (FTIR). It was concluded that terephthalic acid could be successfully synthesized under specified conditions.

Keywords: waste PET bottle, polyethylene terephthalate, terephthalic acid, TPA, hydrolysis, depolymerisation

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➢ **ORAL PRESENTATION**

Fotofermentatif hidrojen üretiminde pH değerinin etkisi

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Özet

Hidrojen, kütle başına yüksek enerji içeriği ve temiz yanma ürünleri nedeniyle günümüz enerji ihtiyacının büyük bir çoğunluğunu karşılayan fosil yakıtlara bir alternatif olarak gösterilmektedir. Ancak hidrojenin sürdürülebilir bir yakıt olması için sürdürülebilir bir şekilde üretilmesi gerekmektedir. Mikroorganizmalar kullanılarak elde edilen hidrojen, yani biyohidrojen, yenilenebilir kaynaklarla üretildiği için sürdürülebilir bir alternatif olarak göze çarpmaktadır. Çeşitli biyohidrojen üretim teknikleri arasında da mor-kükürtsüz bakterilerle ve organik moleküllerin parçalanmasıyla gerçekleşen fotofermentatif üretim, yüksek dönüşüm verimi ve güneş ışığının doğrudan kullanımına olanak verdiği için tercih edilmektedir. Ancak özellikle melas gibi şeker temelli ve karmaşık karbon kaynakları kullanıldığında sıvı ortamın pH değeri düşmekte, bu da üretim sürecini etkilemektedir. Şimdiki çalışmada, bu etki sistematik olarak incelenmiş ve farklı sükroz derişimlerinde, kontrollü sıcaklık ve ışık yoğunluğunda mor-kükürtsüz *Rhodobacter capsulatus* YO3 bakterisiyle denemeler gerçekleştirilmiştir. Karşılaştırma amacıyla pH kontrolü yapılan ve yapılmayan 55 mL'lik reaktörler kullanılmış ve bu reaktörlerde pH değerinin yanı sıra hidrojen üretimi ve büyüme eğrileri takip edilmiştir. Sonuçlar, pH kontrolü yapılan reaktörlerde istikrarlı ve yüksek derişimde hidrojen elde edildiğini göstermekte ve büyük ölçekli hidrojen üretimi için pH kontrolünün şart olduğunu doğrulamaktadır.

Anahtar Kelimeler: Fotofermantasyon, biyolojik hidrojen, pH, sükroz

➢ **ORAL PRESENTATION**

Fabrication of superhydrophobic surfaces on aluminum substrates by dip coating method

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Abstract

In general, the wettability of a solid surface has great significance because of self cleaning, corrosion behavior, etc. and is strongly influenced by the chemical composition and its geometric structure. The wettability of a surface can be determined by the contact angle (CA) measurements. A hydrophilic surface can be described with the (CA) is lower than 90◦ and a hydrophobic surface can be described with the CA is higher than 90◦. Superhydrophobic surface with high CA (> 150◦) and low sliding angle (SA) has many potential applications in industries and daily life. The fabrication of superhydrophobic surfaces generally includes roughening and modification steps. In the experimental studies, aluminum plates (5 cm x 2 cm x 1 cm) were sanded using emery paper, and then cleaned by using acetone and ethanol in an ultrasonic bath. The clean aluminum surfaces were immersed in NaOH solutions at different concentrations. Finally the etched surfaces were modified with palmitic acid at ambient temperature for 1 h by dip coating and dried in an oven at 100 ℃ for 1 h. The surface morphology of the coated surfaces was characterized by scanning electron microscopy (SEM-EDX). The superhydrophobicity of the surfaces was determined by CA measurements. The best result was obtained by 1 M NaOH concentration and modification by 0,05 M palmitic acid. The maximum CA value value was obtained as 156,93 °.

Keywords: aluminum, palmitic acid, sodium hydroxide, superhydrophobic.

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➢ ORAL PRESENTATION

Improvement of superhydrophobic coatings on aluminum surfaces by acid etching method using phosphoric acid

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Abstract

Water repellency and self-cleaning properties are the most important characteristics for outdoor environment. The water contact angle (CA) of a surface is lower than 90◦, the surface is described as a hydrophilic surface. In addition, a surface is higher than 90◦, the surface is described as a hydrophobic surface. In superhydrophobic surfaces, CA is upper than 150 ◦ and the sliding angle (SA) is lower than 10 ◦. They have attracted growing research attention, due to their important practical applications. In principle, superhydrophobic surfaces can be obtained by roughness of surface and reduction of surface tension. In this study, aluminum plates (5 cm x 2 cm x 1 cm) were polished with sandpaper. Then the plates were cleaned by sonication in acetone and ethanol. Afterwards, the cleaned aluminum surfaces were chemically etched by phosphoric acid (H_3PO_4) at different concentrations. Surface modification was done by dodecyltriethoxysilane at different concentrations and times. All these experiments were performed under atmospheric conditions. Finally coated samples were cured at 100 ◦C for 1 h. The morphology of the synthesized surfaces was characterized by scanning electron microscopy (SEM-EDX). The superhydrophobicity of the surfaces was determined by CA measurements. The best superhydrophobicity was obtained by acid etching method with %3 H_3PO_4 concentration and modification by 0,01 M dodecyltriethoxysilane for 1 h. As a result of CA measurements, maximum 156,83 ◦ value was obtained for coated aluminium surfaces. SEM image showed that the etched aluminum surface.

Keywords: aluminum, dodecyltriethoxysilane, phosphoric acid, superhydrophobic.

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➢ **ORAL PRESENTATION**

Biosorption of Brilliant Blue G dye by a magnetically modified chestnut shell nanobiosorbent

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Abstract

Controlling the environmental release of dyes has gained research interest as the textile industry rapidly grows and it is known that many of them posess toxic effects on human beings, plants and animals (Hassaan and El Nemr, 2017). Wastewater with different types and high amounts of dyes is produced every year (Cotillas et al., 2018) and this amount of release is enough not only to increase the chemical oxygen demand (COD) but also to intoxicate aquatic environment (Robinson et al., 2001). In order to protect nature and accordingly human health, these effluents should be removed by efficient and environment friendly methods. In this context, several methods have been used including adsorption, photocatalytic degradation (Minoo, 2018), biodegradation and biosorption. Among these biosororption is a low cost and environmentally friendly method as mostly biomass is used in the removal of the dyestuff which is found plentily in nature and has low economical value. In this study, a magnetic nanobiosorbent was prepared by modification of chestnut shell with magnetite (Magnetite Modified Chestnut Shell-MMCS). The prepared MMCS nanobiosorbent was used for the removal of Brilliant Blue G (BBG) dye from solution using batch adsorption technique. The effect of PH, amount of adsorbent, stirring time and concentration of adsorbent on biosorption capacity was investigated. At the original pH of the dye and with 4.0 g / L of adsorbent, the adsorption equilibrium was established at 50 minutes. Adsorption data were evaluated with kinetic and isotherm models. In all experiments, quantitative determination of dye was carried out with UV/GB-spectrophotometer at 610 nm wavelength.

Keywords: Nanobioadsorbent, magnetite, chestnut shell, Brillant Blue G, biosorption

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➢ **ORAL PRESENTATION**

Synthesis of new pyrazolium based tunable aryl alkyl ionic liquids and their use in removal of methylene blue from aqueous solution

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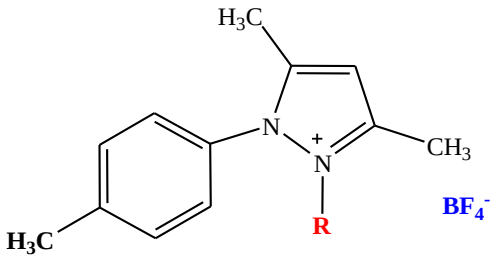
Abstract

Methylene blue (MB), is one of the most commonly used dyestuffs in the textile industry, has very harmful effects on the living organisms and aquatic life because of its relatively stable structure compared with other dyes and its poor biodegradability in the natural environment [1]. Thus, many studies have been carried out for the removal of MB from the aqueous solution including adsorption (with a variety of adsorbents), biological treatment, and liquid-liquid extraction processes using ionic liquids (ILs) [2-5]. In the past decade, a new generation of ionic liquids so-called tunable aryl alkyl ionic liquids (TAAILs) which have an aryl ring at the nitrogen atom of the heterocycle has drawn attention [6-9]. Unlike standard dialkyl substituted ILs, with an aryl ring a wide range of possibilities is provided to tune the properties of TAAILs. Recently, TAAILs have been used for different applications such as extraction of noble metals, and catalysis [10,11].

In this study, two new 1-(p-methylphenyl)-2-alkyl-3,5-dimethylpyrazolium BF_4^- salts were synthesized and characterized. The removal of methylene blue from aqueous solution has been carried out with high extraction efficiency using synthesized TAAILs. The results obtained were compared to demonstrate the influence of the alkyl chain length on the melting points of the synthesized salts and their extraction efficiency of MB from aqueous solution.



R: $-C_2H_5$, $-C_5H_{11}$

Keywords: TAAILs, Methylene blue, Pyrazolium cations, BF_4^-, Alkyl chain length

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➢ **ORAL PRESENTATION**

Evaluation of phytochemical content and antioxidant activity of *Punica granatum* Linn. flower

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Abstract

Pomegranate is one of the most common fruit consumed in Turkey. This study aimed to determine the content of total phenolic, total flavonoid and antioxidant activity of *Punica granatum* L. flower in different extracts. Antioxidant activities of different extracts were determined by 2,2-diphenyl-1-picrylhydrazyl (DPPH•) radical scavenging, reducing power and metal chelating methods. The result showed that, total phenolic content for the extracts ranged from 41.3 to 225.90 µg gallic acid equivalents(GAE) / g extract. The contents of flavonoids were found to range from 140 to 2496 µg quercetin equivalents (QUE)/ g extract. All pomegranate flower extracts were exhibited significant antioxidant activity according to DPPH and reducing power assays. Especially, the methanolic extract of pomegranate flower possess significant scavenging activity against DPPH• (85.80 %), as well as the largest contents of phenolic compounds and flavonoids. The antioxidant capacity of the methanolic extracts was also higher than those of BHT and α-tocopherol in DPPH and reducing power assays. These results indicated that the antioxidant activity of extracts of *Punica granatum* L. flower may be related, at least in part, to the presence of high content of flavonoids compounds and other phenolics.

Keywords: Pomegranate flower, *Punica granatum* Linn., antioxidant activity, phenolic compounds.

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➢ ORAL PRESENTATION

Ultrasonic assisted photocatalytic oxidation of Bisphenol-A using graphene oxide-$CoFe_2O_4$ catalyst

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Abstract

This study investigates the degradation of Bisphenol-A by ultrasonic assisted photocatalytic oxidation process using graphene oxide-$CoFe_2O_4$ as a heterogeneous catalyst. Graphene oxide (GO) was synthesized from natural graphite by a modified Hummers method after a pre-oxidation process [1]. For the GO-$CoFe_2O_4$ (1:2) synthesis, GO were dispersed in ultrapure water (150 ml) and placed in an ultrasonic (US) bath. The mixture solution of $Co(NO_3)2{\cdot}6H_2O$ and $Fe(NO3)_3{\cdot}9H_2O$ was slowly added to the GO solution, which was placed in US bath. After pH was adjusted to 11, the solution was sonicated 5 h. The graphene oxide-$CoFe_2O_4$ composite was typically characterized through conventional spectroscopic and surface analytical methods. The effects of oxidant type, treatment time, pH, catalyst concentration and oxidant concentration were examined. Hydrogen peroxide and persulfate were used as oxidant in the oxidation of BPA and persulfate was found to be more effective. Persulphate, catalyst, US and UV were not effective alone, the oxidation of BPA was effectively performed when these agents were used together due to formation of highly reactive radicals ($^{\bullet}OH$, $SO4^{\bullet-}$) [2].

Keywords: Bisphenol A, Graphene oxide, Photocatalyst, Oxidation.

Acknowledgements. This work was funded by Mersin University Research Fund (Project No: BAP 2019-1-TP2-3442).

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➢ **ORAL PRESENTATION**

Removal of carcinogenic azo dyes from wastewater using calix[8]arene derivative

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Abstract

This paper presents a study on the removal of azo dyes [Reactive Black 5 (RB5), Trapaeolin 000 (TP), Chicago Sky Blue (CSB), and Evans Blue (EB)] from aqueous solution using new pyrazine-2-carboxylate derivative of calix[8]arene (**3**). The sorption of carcinogenic azo dyes by calix[8]arene derivative **3** indicates that amino group play the important role for the formation of electrostatic interactions and hydrogen bond.

Keywords: Calix[8]arenes, Azo dyes, Solid–liquid extraction

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➢ **ORAL PRESENTATION**

Investigation of the protective effect of some antioxidant compounds on orange aroma

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Abstract

Flavors are products that are added to foods to give or change taste and / or smell, which is not intended to be consumed as it is. Aromas; It is used to give the food a different flavor than its own aroma, to recover the aroma lost during the process, to mask the aroma components naturally present in the food and to adversely affect the quality of the product obtained, or to strengthen the weak aroma of the food (Bauer et al. 2008). Terpenoids and their derivatives are among the most basic components found in aromas. These components are easily affected by natural factors such as ambient temperature and daylight and are oxidized in a short time. This situation arises as a slimming, changing taste and odor in aroma characters in a short time. Antioxidant compounds are used as preservatives in order to increase shelf life in aromas containing high-fat terpenoids such as orange oil (Choi and Han 2014). Today, butylhydroxyanisole is one of the most widely used synthetic preservatives in flavors, but this synthetic antioxidant is known to cause many health problems. In this context, the effects of antioxidant compounds such as gallic acid and salicylic acid on the shelf life of easily oxidizable orange aroma were investigated in order to determine whether they can be used instead of BHA. The change in total antioxidant capacity / activity due to oxidation of orange aroma stored in climatic test chamber over time CUPRAC Assay (Apak et al., 2004) and DPPH Assay (Sanchez et al., 1998). In addition, terpenoid content of orange aroma and oxidation of these compounds were determined by GC-MS (Jiang et al., 2016) method. According to the experimental results, gallic acid can be used as an alternative preservative to BHA.

Keywords: Orange flavor, butylhydroxyanisole, gallic acid, CUPRAC method, DPPH method.

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➢ **ORAL PRESENTATION**

Physical properties and characterization of chitosan films with rosemary extract

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Abstract

Chitosan is a polysaccharide composed of □-(1,4)-linked N-acetyl-D-glucosamine and □-(1,4)-linked D-glucosamine units. Recently, chitosan has gained considerable attention in many different areas as being a bio-based and biodegradable material. Food packaging is one of this areas, which chitosan films are researched as an environmentally-friendly food packaging material to protect the food from external conditions such as UV light, humidity, microorganisms etc. Here, in this study, edible chitosan films were prepared by the incorporation the extract of rosemary *(Rosmarinus officinalis)* in chitosan film solutions. The films were prepared by casting method and then ionically crosslinked by sodium tripolyphosphate. The effects of incorporation of rosemary extract to chitosan films were evaluated by different characterization methods. Antioxidant, optical, swelling and water wapor permeability of films were studied. Antioxidant activity test that was applied by using DPPH assay showed that the addition of rosemary extract into chitosan film solutions enhanced the antioxidant activity of prepared chitosan films significantly ($p < 0.05$). It was seen that that the physical properties of extract included chitosan films were enhanced with comparison to pure the chitosan film. The results of this study suggested that chitosan films included rosemary extract are potential candidates for food packaging applications in future applications.

Keywords: Chitosan; Crosslink; Rosemary

➢ **ORAL PRESENTATION**

Nanoparticle based antioxidant capacity/activity assays

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Abstract

Polyphenolic compounds, vitamins such as vitamins A, C and E and biothiols have great importance in the prevention of oxidative stress-related diseases such as cancer, cardiovascular and neurodegenerative diseases due to their strong antioxidant properties. Therefore, it is very important to determine the antioxidant power of the actual specimens (fruits and vegetables, medicinal plants or biological fluids) in which these compounds are present.

Nanoparticles - structures with a size of at least 1-100 nm - have become increasingly interesting due to their superior properties than bulk materials, and in many different fields such as medicine, pharmacy, textile engineering, biotechnology and bioengineering, electronics and optics application area. However, nanomaterial-based methods are rarely used in food science (especially in antioxidant research), probably due to the subsitochiometric character of the corresponding reduction reaction in the formation of nanoparticles with antioxidants. Nanomaterials are often used in biological assays, pharmaceutical analyzes and pharmaceutical product development due to their dimensional similarity to biological macromolecules and their size-dependent optical and electronic properties.

There are mostly spectrophotometric, colorimetric and less frequently voltammetric methods for determining the antioxidant capacity/activities of polyphenolic compounds and biothiols. Most of these methods are based on the synthesis of nanoparticles with chemical agents or natural products and the growth of these nanoparticles synthesized in the presence of antioxidants to be determined. In another part of these methods, selective determination of antioxidant compound (mostly biolithiols) is performed by binding an appropriate ligand to the synthesized metal nanoparticle.

Nanoparticle based antioxidant capacity/activity determination methods may be more sensitive and selective than the classical antioxidant capacity/activity determination methods in the literature because of the superior properties of nanoparticles..

Keywords: Nanoparticles, antioxidant capacity, antioxidant activity, polyphenols, biothiols.

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➢ **ORAL PRESENTATION**

Biodiesel production from rapeseed oil by the usage of natural and Lithium impregnated bentonites as heterogeneous basic catalysts.

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Abstract

Intension of this study is the production of an alternative energy source from rapeseed oil with renewable heterogeneous basic catalysts. It has been a great challenge to produce biodiesel as a green energy source from metal deposited basic heterogeneous catalysts. Calcinated natural bentonite (C-BT) and Li impregnated bentonite (Li-BT) catalysts were evaluated as being good candidates with their large surface area and strong methoxide production abilities due to their calcium and magnesium rich natures. Li impregnation increases exchange ability of the surface of the support (here bentonite (BT)). Li atoms bind methanol and facilitates the methoxide production yield. Firstly the BTs were activated by calcination and Li impregnation experiments were completed. Then obtained catalysts were analysed with FTIR, TGA and SEM/EDS measurements. In order to evaluate the biodiesel production performances of these two catalysts, GC-MS results of biodiesel yields were examined individually. As result the best conversion yield was obtained from Li-BT used experiments as 98.80 % besides C-BT revealed with no yield. These studies can be enlarged by the consequtive catalytic experiments in detail. In conclusion it is clear that people don't have to use expensive catalysts and petroleum sourced hazardous chemicals to produce renewable energy. With the motto of "Save the world", green house effect can be reduced by using simple chemical production ways.

Keywords: Heterogeneous basic catalyst, biodiesel, rapeseed oil, bentonite, renewable energy.

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➢ **ORAL PRESENTATION**

The usage of discarded battery coals as electrodes and improving their hydrogen gas production performances by impregnation with Zr and Ce metals

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Abstract

Hydrogen gas production is one of the major topic of the industry and energy production fields, for the last decades. Especially it is popular with showing high energy density. Among the other industrial methods electrolysis is the cleanest one without any by product emissions. It has been very popular to recovery of the discarded materials (such as batteries) as an environmentally friendly equipments. Here the coal of a used up battery is utilized as an electrode in the electrolysis system in order to produce hydrogen gas ($H_{2\ (g)}$). Then these electrodes were modified with impregnation of Zr and Ce metals. At first, HNO_3 and H_2SO_4 solutions were compared as electrolytes with plain electrodes and H_2SO_4 is defined as the optimum electrolyte medium (maximum $H_{2\ (g)}$ production densities as $24.10xE^{-5}$ mL sec $^{-1}$ and $87.22xE^{-5}$ mL sec $^{-1}$, charge densities as $1137.40xE^{-4}$ C sec^{-1} and $2976.19xE^{-4}$ C sec^{-1} and current densities as $45.68xE^{-7}$ i sec^{-1} and 165.34 xE^{-7} i sec^{-1} for 0.1 M HNO_3 and H_2SO_4 solutions respectively). Then all of these modified electrodes were utilized to the electrolysis system and compared in the case of $H_{2\ (g)}$ production yield, charge and current density values. The best performances were obtained from Ce modified electrode (maximum $H_{2\ (g)}$ production density as $125.00xE^{-5}$ mL sec $^{-1}$, charge density as $4265.24xE^{-4}$ C sec^{-1} and current density as $236.96xE^{-7}$ i sec^{-1} in 0.1 M of H_2SO_4 electrolyte). Hydrogen is one of the most promising, clean and sustainable energy carrier, that can be produced effectively by the usage of Ce modified battery coal.

Keywords: Heterogeneous basic catalyst, biodiesel, rapeseed oil, bentonite, renewable energy.

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➢ **ORAL PRESENTATION**

Synthesis, characterization and visible-light photocatalytic activity of $CaBiO_3$ for degradation of methylene blue

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Abstract

Due to the rapid industrialization of modern world, contamination of water resources is an important growing problem especially in the factories where toxic dyes are intensively used. The conventional methods for the treatment of colored wastewaters include chemical oxidation, adsorption, biological treatment, ion exchange and photocatalytic degradation. Among all these methods photocatalytic degradation is recently most promising method due to the high efficiency, low cost and eco-friendly. There are so many catalysts studied in the ultraviolet region, where TiO_2 is the most widely used because of being natural and cheap. But visible region sensitive catalysts has gained importance due to the fact that the visible region in the solar spectrum is much wider than the ultraviolet region. For this reason, development of visible light active photocatalysts are attracting the current interest of the researchers.

This study focuses on synthesis and characterization of visible light active $CaBiO_3$ and its efficiency in photocatalytic dye degradation of methylene blue. $CaBiO_3$ was synthesized by sol-gel method at 800 ºC calcination temperature. The synthesized product was characterized by scanning electron microscopy (SEM), fourier transform infrared spectroscopy (FTIR) and X-ray diffractometer (XRD). The photocatalytic activity of the sample was investigated under visible light irradiation. Three different pH values were studied for methylene blue degradation at 1.10^{-5} molar methylene blue solutions. $CaBiO_3$ exhibited significantly better photocatalytic activity at pH:6.0 with 96.7% degradation yield at 60 min which is a relatively short reaction time than pHs 4.5 and 8.5 with yields of 91.25% and 25.75% at 200 min, respectively.

Keywords: $CaBiO_3$, photocatalysis, methylene blue

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➢ **ORAL PRESENTATION**

Synthesis, characterization and application of heterocyclic Pd(II) Complexes With O,N,O pincer type donor ligands

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Abstract

Multidentate ligands having -N,C,N, -N,C,P, -N,C,O and -O,N,O play an important role in transition metal chemistry [1]. These complexes possess a wide range of application in medicinal chemistry, materials science and catalysis [2]. In this context, palladium complexes extensively studied classes of catalyst in cross-coupling reactions [3]. The present work includes describe the synthesis, characterization and catalytic application of new palladium(II) complexes with O,N,O pincer type donor ligands. The O,N,O pincer type donor ligands were obtained from selected amino acid, barbituric acid and triethyl orthoformate. Palladium(II) complexes were prepared by their precursor ligands with KOH, $Pd(OAc)_2$ and co-ligand (pyridine, triphenyl phosphine and N-methyl imidazole) in ethanol. The structures of *all compounds* were fully characterized by using spectroscopic methods. The catalytic activity of synthesized Pd(II) complexes on Suzuki-Miyaura coupling reaction were investigated different aryl bromide and they showed good activity.

Keywords: Multidentate ligands, Palladium complexes, Cross-coupling reactions

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➢ **ORAL PRESENTATION**

Palladium(II) 1,3-diethyl-2-thiobarbiturate complexes: Synthesis and application in Suzuki-Miyaura Reaction

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Abstract:

Thiobarbituric acid derivatives bear nitrogen, oxygen and sulfur atoms in the six-membered ring so they are useful polyfunctional ligands for organometallic chemistry [1]. Also, barbiturates derivatives have an active methylene group which helps to synthesis of different barbiturate derivatives such as formyl [2], acethyl [2], hydrazone [2] and enamine [3]. Although barbiturate containing metal complexes have been mostly used in studies of biological activity, the use of them is very rare in coupling reaction [4]. This study presents synthesis of 5-aminomethylene-2-thiobarbiturates-palladium(II) complexes and investigation of their catalytic activities for Suzuki-Miyaura coupling reaction. 5-aminomethylene-2-thiobarbiturates were prepared from one pot reaction of 1,3-diethyl-2-thiobarbituric acid, aryl amine and triethyl orthoformate. The palladium(II)-thiobarbiturate complexes were obtained *via* reaction of 5-aminomethylene-2-thiobarbiturates with $[Pd(C_6H_5\text{-}C_5H_4N)(\mu\text{-}OAc)]_2$. The structural elucidations of synthesized compounds were done by using ^{1}H and ^{13}C NMR spectroscopy. The catalytic studies showed the Pd(II) complexes behave as good catalyst for Suzuki-Miyaura coupling reaction.

Keywords: Thiobarbituric acid, Aminomethylenethiobarbiturate, Palladium(II) complex, Suzuki-Miyaura reaction

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➢ **ORAL PRESENTATION**

Synthesis, characterization, electronic and nonlinear opotical properties of new schiff base of sulfamethoxazole and its Pd(II) complex

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Abstract

New Schiff base 2-hydroxy-3-methoxybenzaldehyde sulfamethoxazole **(5MS-S1),** and its Pd (II) complex was synthesized for the first time. The synthesized compounds were characterized by FT-IR, ^{1}H NMR, ^{13}C NMR, LC-MS, magnetic susceptibility, conductivity measurements. The complex having general composition of [ML2] was found. The results of elemental analysis showed 1:2 (metal/ligand) stochiometry for the complex. Magnetic and spectral data indicate a square planar geometry for Pd (II) complex. ^{1}H and ^{13}C shielding tensors for **5MS-S1** were calculated with GIAO/DFT/B3LYP/6-311++ G(d,p) methods in DMSO. The nonlinear optical (NLO) properties and frontier molecular orbitals have been investigated by B3LYP/6-311++ G(d,p) and B3LYP/ LanL2DZ level of theory.

Keywords: Sülfametoksazol, NLO, Pd(II), DFT

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➢ **ORAL PRESENTATION**

Synthesis, characterization, spectroscopic and electronic properties of sulfa drugs

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Abstract

New Schiff base was synthesized 2-hydroxy-3-methoxybenzaldehyde sulfisoxazole (**5MS-S2**) derived from sulfisoxazole and substituted salicylaldehyde. The synthesized compound was characterized by FT-IR, ^{1}H-^{13}C NMR, LC-MS. 2-hydroxy-3-methoxybenzaldehyde sulfisoxazole has also been characterized by single crystal X-ray diffraction. ^{1}H and ^{13}C shielding tensors for crystal structure were calculated with GIAO/DFT/B3LYP/6-311++ G(d,p) methods in DMSO. The nonlinear optical (NLO) properties and frontier molecular orbitals have been investigated by B3LYP/6-311 ++ G(d,p) and B3LYP/ level of theory.

Keywords: Sulfisoxazole, DFT, NMR, NLO, HOMO-LUMO

Acknowledgements: The authors would like to thank the **TUBITAK Foundation (No: TBAG 107 Z 749**) for the financial support of this project.

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➢ **ORAL PRESENTATION**

Electrochemical biosensors and applicatıons in chemistry

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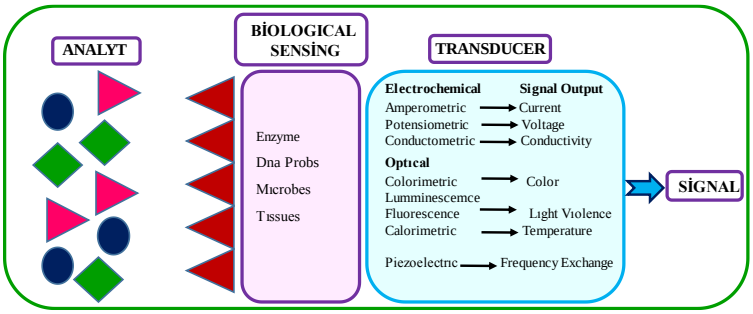
Abstract

Development in the micro-electric field, and the discovery of the high-sensitive response capacity of the biological molecules have led rapid advancements on biosensor technology in many areas of the science. Biosensors, a kind of special sensor that generally used for biological analysis, are defined by "International Union of Pure and Applied Chemistry" (IUPAC) as devices that can convert the biological response to which is produced by a chemical compound into optical, thermal or electrical signals. Biosensors, which are widely used in chemical, health, food sectors, environmental cleaning and defense against biological warfare, are generally consist of two parts. The first of these is the section called biosensor (bio component), which recognizes that molecule by interacting with the target molecule. The second part that called the transducer is the section converts the chemical and physical signals that occur when the target molecule reacts with the bio component to a measurable numerical value.



Electrochemical biosensors have also an important place among chemical sensors. DNA biosensors, which of these types biosensors, represent a new field of research with interesting possibilities for practical application in a variety of fields, such as environmental and medical screening. In addition, a great advantage of the DNA electrochemical biosensors compared with other types of biosensors is that do not require over-expensive components and small inexpensive devices can easily be developed [1-5].

Keywords: Biosensor, Electrochemical, Biological Sensing, DNA Probes

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➢ **ORAL PRESENTATION**

Syntheses and characterization of mixed ligand complexes of Cu(II) with 5,7-dihydroxyflavone and diimine

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Abstract

Flavonoids are natural products which are known to have biological activity for human health. The best known and most studied flavonoid compound, as a well–known antioxidant, is quercetin. 5,7-dihydroxyflavone, also called chrysin, is one of the lesser–known flavonoids. It is found in carrot, honey, propolis, some plants, many fruits and mushrooms. Research has shown that chrysin has a broad of biological activities, such as antioxidant, antiinflammatory agent, antineoplastic agent, hepatoprotective agent, anticancer agent and a plant metabolite [1-2]. In addition, in the literature, the biological activity of flavonoid-metal complexes has been increased compared to free ligand [3] For that reason, studies on the syntheses and applications of flavonoid–metal complexes are quite extensive in literature. However, studies on metal complexes of 5,7-dihydroxyflavone are limited. In this work, new mixed ligand complexes of Cu(II) ion were synthesized by using 5,7-dihydroxyflavone and dimine ligands (2,2'-bipyiridine, 1,10-phenanthroline, bathophenanthroline). The structural features of the synthesized ligand complexes were investigated using spectroscopic methods (FT-IR, UV-Vis, LC-MS) elemental analysis, magnetic susseptibility and molar conductivity measurements. It was found that the 5,7-dihydroxyflavone, diimine and Cu(II) ion form 1:1:1 complexes.

Keywords: 5,7-Dihydroxyflavone (Chrysin); 2,2'-Bipyridine; 1,10-Phenanthroline; Bathophenanthroline; Cu(II) complexes.

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➢ **ORAL PRESENTATION**

Dipirometen esaslı yeni Zn (II) komplekslerinin sentezlenmesi ve karakterizasyonu

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Özet

Bu çalışma temel olarak iki aşamada gerçekleştirilmiş olup Dipirometen temelli bileşiklerin hazırlanması ve onların absorpsiyon ve emisyon uygulamalarından oluşmuştur. 4-Hidroksibenzaldehit ve fitalimitten çıkılarak Dipirometen esaslı metal katyonları elde edilmiştir.

Çalışmanın ikinci aşamasında gerçekleştirilen spektroskopik çalışmalarla hazırlanan dört Dipirometen grubu ile hazırlanan Zn (II) komplekslerinin Uv-vis ve florimetrik ölçümleri gerçekleştirilmiştir. Spektroskopik uygulamaların sonunda hazırlanan metal komplekslerinin biyokimyasal uygulama alanlarına uygunluğu tartışılmıştır.

Anahtar Kelimeler: Dipirometen, Uv-vis, emisyon, kompleks

➢ **ORAL PRESENTATION**

Bodipy temelli floresans Hg (II) sensörünün sentezi ve spektroskopik uygulamaları

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Özet

Bu çalışmada, Bodipy merkezinin, uyarıldıktan sonra aldığı enerjiyi bağlanan metal iyonuna aktarma işlemi incelenmiştir. Bu amaçla öncelikle bir ucu Bodipy ve diğer ucu ligand özelliği gösterebilen bir yapı hazırlanmıştır. Metal iyonunun hazırlanan Bodipy temelli liganda bağlanmasının ardından temel ve uyarılmış hallerinin elektronik geçişleri ve florsan şiddetindeki değişimler araştırılmıştır. Son ürün olarak bir Bodipy türevi hazırlanmıştır. Hazırlanan Bodipy temelli yapının spektroskopik veriler doğrultusunda hangi metal iyonu için seçiciliğin tespiti ve dolayısıyla kemosensör olarak kullanılabilmesinin tartışması yapılmıştır (çalışmada bileşik çözelti halinde çalışılmıştır). Sonuçlara bakıldığında ise Bodipy bileşiğinin Hg(II) iyonu için hassas ve seçici olduğunu ortaya koymuştur ve bu bileşiğin ilgili metal iyonları için floresans kemosensör olarak kullanılabileceği sonucuna varılmıştır.

Anahtar Kelimeler: Bodipy, kemosensör, floresans

Teşekkür: Bu çalışma için maddi destek Selçuk Üniversitesi BAP tarafından sağlanmaktadır ve minnetle kabul edilmektedir.

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➢ **ORAL PRESENTATION**

Acid blue 193 adsorption on the effect of pH and poly(divinylbenzene-vinyl imidazol) investigated

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Abstract

Colored dyes are important water pollutants which are generally present in the effluents of the textille and other industries.The high level of production and extensive use of dyes generates colored wastwater which produces toxicological and technical problems and environtmental pollution.Some dyes, for instance,are reported to cause allergy,dermatitis,skin irritation,cancer and mutation in human.Thus,the removal of color dyes from wastwater before they are contacted with unpolluted natural water bodies important.These dyes are of great importance fort he sake of their application properties,low cost and shades which are diffucult to obtain in acid group of dyes.Adsorption is one of the effective methods to remove colored textille contaminants from wastwater.Therefore,pH effects of removal a acid dye, acid blue 193, from aqueous solutions were studied by adsorption on poly(divinylbenzene-vinylimidazole) [poly(DVB-VIM)].The absorbance of acid blue 193 (at 580nm) is measured.In this study, linear regression analysis of pH effects on adsorption has been examined in details [between pH:2 and pH:12]. In addition, the interactions between the polymer and the pH range were investigated.

Keywords: Acid dye,acid blue 193,poly(DVB-VIM), pH

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➢ **ORAL PRESENTATION**

Computational investigation of zeolitic-imidazolate frameworks (ZIFs) for adsorption and diffusion based separation of noble gas mixtures

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Abstract

Zeolite imidazolate frameworks (ZIFs) possess exceptional chemical and thermal stabilities together with tunable pore sizes, high porosities, and large surface areas which opens new and exciting application areas of ZIFs, such as gas separation and purification. Although, there have been significant number of studies investigating syngas separation performances of ZIFs, currently very little is know about their noble gas separation performances. Noble gases, such as Xe, Kr, and Ar, are inert and they have very low conductivity, very low melting and boiling temperatures. Among those gases, Xe plays particular role in many applications, such as lighting, imaging, anesthesia, nuclear magnetic resonance, sterilization, bactericidal lamps used in food preparation and processing, and many other applications requiring high level of thermal efficiency. The conventional approach for obtaining pure Xe is cryogenic distillation of air which is energetically intensive. Adsorbents and membranes, on the other hand, are shown to be promising candidates for Xe separation. In this regard, we computationally investigate adsorption and membrane oriented Xe/Kr and Xe/Ar separation performances of ZIFs, namely ZIF-6, ZIF-11, ZIF-60, ZIF-67, ZIF-69, ZIF-78, ZIF-79, and ZIF-81 using Grand Canonical Monte Carlo and Molecular Dynamics simulations. Single component and mixture gas uptakes, Xe adsorption selectivities, gas permeabilities, and Xe permeation selectivities are predicted for all ZIFs at various pressures from 2 bar to 30 bar. Our results suggest that while ZIF-11 is ideal for adsorption-based Xe separation, ZIF-67 can be considered as a promising candidate for membrane oriented separation of Xe.

Keywords: Grand Canonical Monte Carlo, Classical Molecular Dynamics, Noble Gas Purification, Adsorption, Diffusion.

➢ **ORAL PRESENTATION**

Removal of azo dyes from aqueous solutions with new generation polymer composite materials

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Abstract

Both cheap and easy to synthesize, wireless lighting, detergent and microbial attacks use of synthetic dyes due to their high protection The dye is growing in the industry. Dyes acidic, basic, dispersing, azo, diazo, anthraquinone base and metal complex. Azo-dyes, chromophoric group It is a water soluble synthetic and containing a wide variety of structures.

60-70% market has a share. Treatment of washing water from industrial production processes, complexity of complexes it is now very difficult with conventional waste water treatment methods. Directly to their environment can cause very serious problems. Azo-boyar collection fragmentation products design It is carcinogenic. Direct discharge of wastewater under anaerobic conditions of toxic aromatic amines may result.

Adsorption, coagulation-flocculation, oxidation, filtration and Physical and chemical methods such as electrochemical methods for the removal of dye from waste waters Available. These methods are very expensive and compare in practice. Adsorption is the most common used as a dye removal technique. Dyeing the destruction of paints chemical or biological It is made by oxidation.

In this study, this is a azo dyestuff acid blue 25 optimum pH:3 AŞ1 polymer removal of azo dyes from aqueous solutions with new generation polymer composite materials

Keywords: Acid Blue 25 , adsorption, composite polymer

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➢ **ORAL PRESENTATION**

Magnetic activated carbon-zinc oxide nanocomposite under UV and visible light on the removal of dye from aqueous solutions

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Abstract
Organic dyes are widely used in many industries such as textiles, paper, cosmetics, leather, plastics, food, printing, and pharmaceuticals. In case of discharge of dyes into rivers, they can cause serious environmental problems and toxicity to organisms. For this reason, various physicochemical and biological methods are used to remove the pollution of dyes. In this study, activated carbon (AC) was produced by chemical activation from waste rubber. Then, magnetic (Fe_3O_4) AC-ZnO triple nanocomposites (AC/Fe_3O_4-ZnO) were obtained by the thermal method in one step. The five different AC/Fe_3O_4-ZnO nanocomposites were characterized by SEM-EDAX and XRD. The comparison dye removal of AC/Fe_3O_4-ZnO nanocomposites under UV and visible light dye (Malachite green) was performed. According to the results, the highest adsorption capacities of AC/Fe_3O_4-ZnO nanocomposites under UV, visible light and dark were found to be 110, 104 and 100 mg/g respectively.
Keywords: Waste Rubber, AC/Fe_3O_4-ZnO, Composite Adsorbent, Dye Adsorption

Acknowledgments: This study was supported by Bülent Ecevit University Scientific Research Projects (project no: 2018-52349806-01).

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➢ **ORAL PRESENTATION**

Technological importance of asteroid mining

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Abstract

With the ever-growing demands of the population and the ever-growing world of consumption and technology, the resources of the planet Earth are limited. According to Cohen (2007), some of the Earth's major resources, such as metals and minerals needed to develop the technology and food industries, may be depleted within the next 40-50 years, based on known terrestrial reserves and increased consumption. For industrial and technological development of humanity, new discoveries are needed in future realization as well as future discoveries. Asteroids are celestial bodies of scientific importance to reveal the formation, chemical composition and evolution of the Solar System. As the name implies, "Near Earth Asteroids", metal have been found to be potentially close to possible because they are sufficiently close and can be found in precious metals and minerals. The reservoirs of important substances such as water, metals and semiconductors can be found in these celestial bodies. Although the Asteroids and the Earth are composed of the same elements, the Earth's relatively stronger gravity has attracted all the heavy elements to its core over time. An asteroid rain deprived of such valuable elements results in the formation of gold, cobalt, iron, manganese, molybdenum, nickel, osmium, palladium, platinum, rhenium, radium, ruthenium and tungsten elements (from the core to the surface). Today, these metals are extracted from the Earth's crust and are required for economic and technological advancements. Therefore, the geological history of the Earth can be a very good step for the future of asteroid mining.

Keywords: Asteroid mining, REEs, technology, metals.

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➢ **ORAL PRESENTATION**

Synthesis and characterization of 1,4-dilauroylamidanthraquinone as a novel phase change material for some thermal energy storage applications

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Abstract

Increasing population, industrialization, and changing lifestyles have increased the energy needs of the world in the last quarters. The rapid depletion of fossil fuels, global warming, greenhouse effect and increasing environmental pollution have brought about clear and efficient use of energy. For these reasons, researches have been looking for alternative energy sources from renewable resources. The latent heat storage method means energy storage with phase change. Unlike sensible heat storage, phase change materials (PCMs) have some advantages such as high isothermal energy storage density with a relatively small volume changes during transitions.

This paper is about synthesis, structural and thermal characterization, and thermal trustworthiness of 3-lauroyloxyethyl amine as a novel PCM. This novel PCM was synthesized via the reaction between acyl chloride of lauric acid and triethanol amine without using any catalyst with considerably high yield. Synthesized PCM was characterized structurally by Fourier transform infrared (FTIR) spectroscopy with an attenuated total reflection (ATR) accessory and proton nuclear magnetic resonance (^{1}H-NMR) techniques. Loss of hydroxyl groups in the product was accepted as the evidence of the synthesis. Thermophysical properties including melting and freezing temperature, phase change enthalpy, total enthalpy, specific heat capacity and degradation temperature of 3-lauroyloxyethyl amine were determined by using a differential scanning calorimeter (DSC) and a thermogravimetric analyzer (TGA). Phase change temperatures and enthalpy of melting and crystallisation of the PCM were found considerbly lower than the precursor lauric acid, which is attributed to the bulky connection of the crystallizing side groups through anthraquinone unit. TGA measurements indicated that 3-lauroyloxyethyl amine was stable up to 210 °C, which is sufficiently high as compared to the possible working temperatures. Crystal morphology of the PCM was examined by polarized optic microscopy (POM) analysis. It was revealed that the morphology do not alter as compared to pristine stearic acid. All of the consequences pointed out that synthesized high chain dicarboxylic acid amines could be validated as a novel solid-liquid PCM for solar thermal applications.

Keywords: lauric acid; thermal energy storage; phase change material

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➢ **ORAL PRESENTATION**

Synthesis and characterization of 3-stearoyloxyethyl amine as a novel phase change material for some thermal energy storage applications

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Abstract

Increasing population, industrialization, and changing lifestyles are increasing the energy needs of the world day by day. The rapid depletion of fossil fuels, global warming, greenhouse warming and increasing environmental pollution have created understanding clear and efficient use of energy. For these reasons, researches are about finding alternative energy sources for renewable energy sources [1,2]. The latent heat storage method is usually mentioned as energy storage with phase change. Phase change materials (PCMs) have some advantages such as high isothermal energy storage density with a relatively small volume changes during transitions unlike sensible heat storage [3-5].

This paper is about synthesis, structural and thermal characterization, and thermal trustworthiness of 3-stearoyloxyethyl amine as a novel PCM. The novel PCM was synthesized via the reaction between acyl chloride of stearic acid and triethanol amine without using any catalyst with considerably high yield. Synthesized PCM was characterized structurally by Fourier transform infrared (FTIR) spectroscopy with an attenuated total reflection (ATR) accessory and proton nuclear magnetic resonance (^{1}H-NMR) techniques. Thermophysical properties including melting and freezing temperature, phase change enthalpy, total enthalpy, specific heat capacity and degradation temperature of 3-stearoyloxyethyl amine were determined by using a differential scanning calorimeter (DSC) and a thermogravimetric analyzer (TGA). Phase change temperatures and enthalpy of melting and crystallisation of the PCM were found slightly lower than the precursor, which is attributed to the bulky connection of the crystallizing side groups. TGA measurements indicated that 3-stearoyloxyethyl amine had stable up to 200 °C, which is sufficiently higher as compared to the possible working temperatures. Crystal morphologies of PCM were examined by polarized optic microscope (POM) analysis. All of the consequences pointed out that synthesized high chain dicarboxylic acid amines can be validated as a solid-liquid PCM for solar thermal applications.

Keywords: lauric acid; thermal energy storage; phase change material

➢ **ORAL PRESENTATION**

Temel bilimler ve nanoteknoloji

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Özet

Nanoteknoloji; bir malzemeyi oluşturan yapıların herhangi bir amaç için kullanılmak üzere atom seviyesinde yeniden düzenlenmesidir. Fizik ve kimya gibi temel bilimlerden doğan nano boyuttaki moleküler yapılar, sağlık teknolojisinin aradığı önemli fırsatları sunmaktadır. Nanoteknoloji ile son yıllarda daha fonksiyonel, daha hızlı, az yer kaplayan, az enerji harcayan, ucuz, olağanüstü yeni özelliklere sahip malzeme, cihaz ve sistemlerin üretilebilmesi; tıbbi görüntüleme, mikrobiyoloji, dokuların yenilenmesi, bazı kronik hastalıkların tedavisi gibi pek çok uygulama alanında önemli gelişmelerin kaydedilmesini beraberinde getirmektedir.

Anahtar Kelimeler: Nanoteknoloji, Tıp ve Sağlık, Nano Yapılar, Nano Cihazlar.

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➢ **ORAL PRESENTATION**

Removal of acidic dyestuffs from solution media with cross-linked, porous copolymer microspheres with magnetic properties

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Abstract

The aim of this study is to synthesize polymorphic spheres with high adsorption capacity in magnetic form. Azo dyes are an important part of the pollution in the wastewater released from the textile industry. Color removal is very successful in textile wastewater by adsorption process. Recently, its widespread use is due to its high efficiency and relatively simple equipment. The porous microspheres with magnetic properties between the successful adsorbents perform invariably in the color removal of textile wastewater. For this purpose, when the composite materials are synthesized, it is intended to remove the dyestuff from the aqueous medium by adsorption process. Conventional treatment methods are insufficient in removing dyes from waste water or carry dyes to a second phase and cause further pollution.
In order to determine the ph value of adsorption, other parameters were kept constant. In the study of pH 2-12 maximum adsorption was observed at pH 3.

Keywords: Acid Violet 7, Adsorption, Magnetic polymer.

Acknowledgment: This work was partly supported by the Research Fund of The University of Uludag Project Number: OUAP(F)-2019/9.

➢ **ORAL PRESENTATION**

The adsorption of dyes on polymer and ınvestigation Of pH effect

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Abstract

The dyestuff we work in is a mixture and reagent (rem blue mix). Wavelength scanning was carried out in dye solutions and we accepted the adsorption at 600 nm. The adsorption of different concentrations of aqueous solutions in the UV device at a certain pH range were measured. (between pH:2 and pH:12). The pre-testing with several polymers and decision to work with poly(divinylbenzene-piridin). The study was carried out together with the polymers in a certain pH range and the adsorption of the rem blue mix on the polymers adsorbents. (between pH:2 and pH:12).

Keywords: rem blue mix, adsorption, poly(DVB-piridin)

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➢ **ORAL PRESENTATION**

Çeşitli su ve atık su kaynaklarında demir gideriminde antiskalant verimliliğinin incelenmesi

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Özet

Günümüzde artan çevre kirliliği ve yüksek kaliteli su ihtiyacı, su arıtım sistemleri kullanımını artırmıştır. Bu sistemlerin etkin ve yüksek verimlilikte kullanımı için su içerisine antiskalant (taş önleyici) kimyasallar dozlanarak, sistem içerisindeki konsantrasyon artışıyla doygunluğa ulaşan iyonların çökelmesi engellenir. Bu çalışmada; kuyu, deniz ve atık su kaynaklarından sağlanan suyun geri kazanımında, dozlanan antiskalanta oranla demir gideriminin verimliliği incelenmiştir. Yapılan çalışmalarda kullanılan antiskalantın etken madde miktarı HPLC ile belirlenmiş ve daha sonra sistem içerisine 0.9-3.2 mg/L antiskalant dozlanarak giderim verimleri, sistemin kütle yük denkliği yardımıyla, hesaplanmıştır. Hesaplamalar sonucunda demir giderim veriminin %70 in altında kaldığı görülmüştür. Bu giderim oranına göre çökelme hızının yüksek olacağı ve sistem tıkanmalarına sebebiyet vereceği öngörülmektedir. Kullanılan antiskalantın etken maddesinin yanında demir giderimi için ilave taş önleyici kullanılması gerektiği sonucuna varılmıştır.

Anahtar Kelimeler: HPLC, Antiskalant, demir giderimi

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➢ **ORAL PRESENTATION**

New boronate compounds and N-heterocyclic carbene (NHC)-stabilized boronate compounds: synthesis and spectroscopic properties

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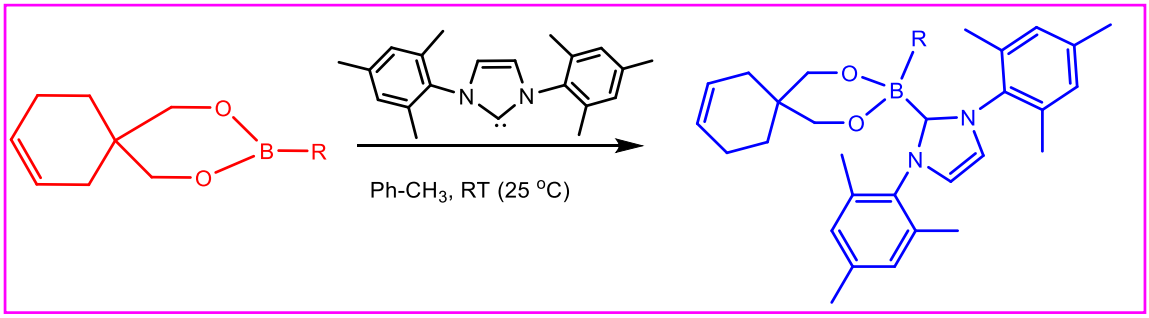
Abstract

Boron compounds are nowadays broadly applied not only in academia but has also found its way into a wide range of industrial processes due to unique properties, different chemical structures, spectroscopic properties and rich history in catalytic chemistry. Because boron center has an unoccupied p-orbital and which allows them to form four-coordination bonds with N-Heterocyclic Carbene (NHC) nucleophiles as well as covalent B-O and B-C bonds make the structure stable in air. We hope that the N-Heterocyclic Carbene (NHC) boronate esters continue to generate a lot of interest compared to the boronate esters due to their application is not limited to the use as strong σ-donating character ligands in boron chemistry. In view of the promising results, a new boronate esters and N-Heterocyclic Carbene (NHC)-stabilized boronate esters were synthesized for novel Lewis acids purposed for metal-free catalysis and characterized by various spectroscopic techniques including NMR (^{1}H, ^{13}C, and ^{11}B), FT-IR, UV-Vis, LC-MS/MS spectroscopy, melting point, and elemental analysis techniques. Following a full characterization, the study of different spectroscopic properties of these novels boronate esters was done in detail.



Keywords: (NHC)-stabilized Boronate Esters, Lewis acid/base, Spectroscopy, Synthesis

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➢ **ORAL PRESENTATION**

Removal of textile dyestuffs and physicochemical parameters by magnetic polymers with photocatalytic properties

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Abstract

The aim of this study is to synthesize polymorphic spheres in magnetic form with high adsorption capacity. With these composite materials synthesized, it is intended to remove the dyestuffs from the aqueous medium by selective adsorption. The majority of the wastewater released in the textile industry is composed of dyes containing azo groups. Classical treatment methods are insufficient to remove dyestuffs from waste water. For this purpose, it is aimed to remove dyestuff with adsorption process.

Different parameters such as initial pH value, dye concentration, adsorbent concentration were determined to determine optimum adsorption conditions.

In the study of pH 2-12 maximum adsorption was observed at pH 3. The adsorption amount of 50 ppm dyestuff solution determined as the optimum concentration was 37,50 mg / g at pH 3. The time to equilibrium of adsorption was determined as 120 minutes.

To determine the isotherm where adsorption is compatible, Langmuir and Freundlich adsorption isotherm models were used and adsorption was observed to be suitable for Langmuir isotherm model.

Keywords: Reactive Green 19, Adsorption, Magnetic polymer.

Acknowledgment: This work was partly supported by the Research Fund of The University of Uludag Project Number: OUAP(F)-2019/9.

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➢ **ORAL PRESENTATION**

The synthesis, characterization and spectroscopic study of new amine bis(phenolate) ligand and their boron complexes

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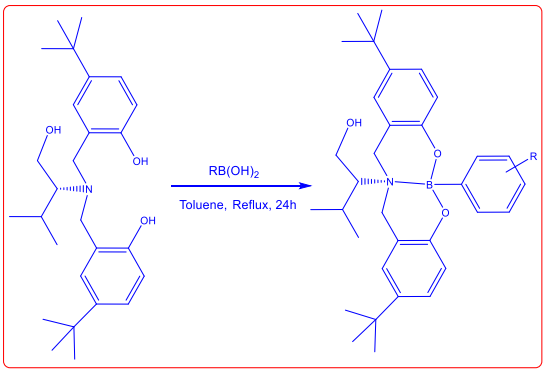
Abstract

Since the boron center can be readily converted from neutral trigonal planar sp^2 to tetrahedral sp^3 hybridization under suitable conditions, it is possible to synthesize three and four-coordinated boron compounds with unique properties and different chemical structures. Also, three-coordinated boron compounds are strong Lewis acids because boron has an empty p-orbital which allows them to form four-coordination bonds with various nucleophiles as well as covalent B-O and coordinated covalent B-N bonds make the structure stable in air. In this context, the various salen ligand containing boron structures and related molecules have become an important part of today's fine chemical industry and laboratory studies for the preparation of functionalized molecules. On the other hand, recent studies have revealed fascinating new roles for boron compounds due to their unique electronic and physicochemical properties and the wide range of application fields in the chemistry and other science fields. In view of the promising results, a new amine bis(phenolate) ligand with the corresponding neutral boron complexes have been successfully synthesized and characterized at ambient conditions. All the newly synthesized amine bis(phenolate) ligand with the corresponding neutral boron complexes were characterized by NMR (^{1}H, ^{13}C, and ^{11}B) spectroscopy, FT-IR spectroscopy, UV-Vis spectroscopy, LC-MS spectroscopy, melting point, and elemental analysis. Following a full characterization, the study of spectroscopic properties of these novels salen ligands and their boron-phenyl complexes was done in detail.



Keywords: (NHC)-stabilized Boronate Esters, Lewis acid/base, Spectroscopy, Synthesis

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➢ **ORAL PRESENTATION**

Kauçuk-metal yapıştırıcısı sentezinde melamin formaldehit reçinenin etkisi

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Özet

Bu çalışmada, NBR (nitril) kauçuk ile demir metalinin vulkanizasyonu için gerekli olan kauçuk-metal yapıştırıcısının sentezi, karakterizasyonu ve uygulamaları araştırıldı. Kauçuk-metal yapıştırıcısı sentezinde melamin formaldehit reçinenin etkisi araştırıldı. Kauçuk-metal yapıştırıcısı, polimer, reçine, organik ve mineral dolgular ve çapraz bağlayıcıların solvent içerisinde karıştırılmasıyla sentezlendi. Demir metal plaka yüzey enerjisinin arttırılması, yüzey alanın arttırılması ve yüzey temizliği için çinko-fosfat kaplama yapıldı. Hazırlanan kauçuk-metal yapıştırıcısı sprey uygulama ile metale uygulandı. Daha sonrasında NBR (nitril) kauçuk ile vulkanizasyon edildi. Vulkanizasyon sonrası kauçuk ile metalin yapışması incelendi.

Anahtar Kelimeler: Nitril Kauçuk, kauçuk-metal yapıştırıcısı, melamin formaldehit reçine, vulkanizasyon

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➢ ORAL PRESENTATION

Experimental and theoretical studies of sulfisoxazole based potential bioactive molecule and its palladium(II) complex

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Abstract

In this work, the new Schiff base sulfisoxazole-derivatived (S2M-S) and its Pd(II) complex were synthesized**.** The synthesized compounds were characterized by FT-IR, ^{1}H an^{13}C NMR, LC-MS, we have performed computational studies by using DFT method were implemented. The geometry of the sulfisoxazole (S2M), its Schiff base S2M-S and Pd(S2M-S)$_2$ were optimized at the DFT/B3LYP/6-311 G(d,p) method with Gaussian 09 program package. The complex having general composition of [ML$_2$] was found by using the spectroscopic results. Magnetic and spectral data indicate a square planar geometry for Pd (II) complex.

Keywords: Sulfa drug, Sulfisoxazole, Pd(II) complex, Theoretical studies.

Acknowledgements: We thank TUBITAK [Project Grant No: 117Z749] for financial support

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➢ **ORAL PRESENTATION**

New Schiff base with sulfamethoxazole and its Pd(II) complex: Synthesis, spectroscopic and computational studies

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Abstract

In this work, the new Schiff Base (**S1M-S**, 2-Hydroxy 4-(dietilamino)benzaldehyde derived from sulfamethoxazole and its Pd(II) complex were synthesized**.** The synthesized compounds were characterized by FT-IR, ^{1}H /^{13}C NMR, LC-MS, magnetic susceptibility, conductivity measurements. In order to insight into the structure of the compounds, computational studies by using 6-311G(d, p) functional in which B3LYP functional were implemented. The geometry of the sulfamethoxazole (**S1M**), its Schiff base **S1M-S** and palladium complex (**Pd(S1M-S)**$_2$) were optimized at the DFT method with Gaussian 09 program package. The spectroscopic results showed 1:2 (metal/ligand) stoichiometry for the complex [ML_2]. Magnetic and spectral data indicate a square planar geometry for Pd (II) complex.

Keywords: Sulfa drug, Sulfamethoxazole, Pd(II) complex, Spectroscopic analysis.

Acknowledgement: We thank TUBITAK [Project Grant No: 117Z749] for financial support.

➢ **ORAL PRESENTATION**

Ab-initio study on physical properties of TbMn2Ge2

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Abstract

This report is a part of a systematic study on physical properties of the $ThCr_2Si_2$-type rare earth intermetallic, carried out by theoretical method. REMn2X2 compounds (where X = Si and Ge) crystallize in the body-centred tetragonal structure of $ThCr_2Si_2$-type (space group 14/mmm). To employ Wien2k code to obtain physical properties of $TbMn_2Ge_2$, the band structures, total and partial densities of states are presented and discussed in the context of the available experimental data and theoretical calculations. Our calculations show that compound has metallic characteristic.

Keywords: Wien2K, Density of states and Electronic band structure

➢ **ORAL PRESENTATION**

Fonksiyonel organik malzeme bileşenli hibrit aygıtın elektriksel parametrelerinin belirlenmesi

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Özet

Bu çalışma, organik malzeme bileşenli hibrit cihazın üretilmesi ve elektriksel parametrelerinin belirlenmesi üzerine odaklanmıştır. Hibrit elektronik cihazı hazırlamak için, organik malzemenin başlangıç çözeltisi, önceden temizlenmiş silikon alttaş üzerine, yaygın olarak kullanılan, kolay ve ucuz bir kaplama tekniği olan dönel kaplama yöntemi ile kaplanmıştır. Daha sonra, 10^{-5} Torr basınç altında termal buharlaştırma yöntemiyle gölge maskesi kullanılarak üst metal kontaklar oluşturulmuştur. Üretilen örneğin akım voltaj ölçümleri karanlıkta oda sıcaklığında yapılmıştır. İdealite faktörü, engel yüksekliği ve seri direnç gibi temel elektriksel parametreler akım-voltaj verileri kullanılarak belirlenmiştir. Ek olarak, bu elektriksel parametreleri hesaplamak ve onaylamak için Norde fonksiyonu kullanılmıştır. Son olarak, elde edilen sonuçlar yardımıyla, organik ara yüzey katmanının, cihazın elektriksel parametreleri üzerindeki etkisi incelenmiştir. Bu çalışma, organik arayüzey katman varlığı nedeniyle engel yüksekliğini değiştirmenin/ayarlamanın mümkün olabilirliğini göstermiştir.

Anahtar Kelimeler: Engel yüksekliği, organik arayüzey

➢ **ORAL PRESENTATION**

An iron chromophore-sensitized TiO_2 photoelectrode for water oxidation

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Abstract

Splitting water artificially by photoelectrochemical cells to produce hydrogen fuel has markedly contributed to the field of sustainable energy. Owing to the sluggish water oxidation process, the design of efficient and earth-abundant water oxidation photoanodes has been one of the bottlenecks in water splitting. Herein, the utilization of iron-based (iron cyano polypyridyl) complexes as substitutes for rare and expensive ruthenium-based complexes to sensitize TiO2 for water oxidation process will be presented. Synthesis of these complexes has been confirmed by ATR-FTIR, UV-Vis spectroscopy, XPS, SEM (EDX) techniques. The performance of the electrodes has been validated by comprehensive electrochemical studies.

Keywords: Hydrogen fuel, Water oxidation photoanode, water splitting, Iron chromophores.

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➢ **ORAL PRESENTATION**

Temperature effects on the adsorption with microbeads in reactive orange 16 poly (Egdma-Vim)

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Abstract

In this study poly(ethylene glycol dimethacrylate-vinyl imidazole) [poly(EGDMA–VIM)] microbeads were employed as adsorbent for reactive dye black 5. Temperature effects of reactive orange 16, from aqueous solutions were studied by adsorption on m-poly(EGDMA-VIM). The poly(EGDMA-VIM) microbeads were synthesized and characterized; their use as adsorbent of temperature effects were investigated. The m-poly(EGDMA-VIM) microbeads were characterized by scanning electron microscope (SEM), fourier-transform infrared spectroscopy (FTIR) studies and swelling studies. In this study, the effects of temperature on adsorption were investigated. In this study, 4, 25, 45 and 65 degree temperatures were studied.

Keywords*:* pH; temputure, reactive dye; reactive orange 16; m-poly(EGDMA-VIM); adsorption

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➢ **ORAL PRESENTATION**

Supercapacitor device performances of rGO/PPy/carbon black nanocomposite

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Abstract

Supercapacitors or electrochemical capacitors are used to be the mostly supercapacitor devices to gain a higher electrochemical performances [1-3]. rGO, polypyrrole (PPy) and rGO/PPy/carbon black nanocomposites were synthesized by electrospinning method. Carbon black has many advantageous in their usage due to easy synthesis, low cost [4], long time stability, high specific surface area, and good electrical conductivity [5]. These nanocomposites were characterized by FTIR-ATR, SEM-EDX, TGA-DTA, BET surface and XRD analysis. Nanofibers were used in two electrode system in supercapacitor devices. Electrochemical performances were examined by 3 different methods (CV, GCD and EIS analysis). In addition, energy and power density performances were studied to calculate optimum conditions. A proper equivalent circuit model was used to interpret circuit parameters of EIS method.

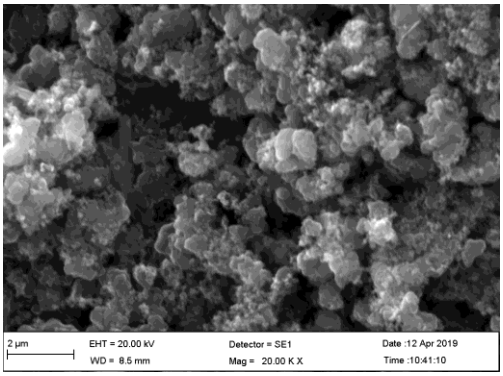

Figure 1. SEM images of rGO/PPy/carbon black nanocomposite.

Keywords: reduced graphene oxide, supercapacitor, polypyrrole, electrospinning, circuit model.

Acknowledgement: The authors are honored to accept The Scientific Research Project Unit at Tekirdag Namik Kemal University, (project number: NKUBAP.01.ÖNAP.19.213) financial support as the source of the study's funding.

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➢ **ORAL PRESENTATION**

Zeolit katkılı kitosan çözeltisi uygulanmış kumaşların antibakteriyel özelliklerinin incelenmesi

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Özet

Bu çalışmada, kitosan ve doğal zeolit kullanılarak hazırlanan çözeltiler %100 pamuk kumaşa emdirme yöntemiyle uygulanmış ve bu kumaşlar renk, nem yönetimi, antibakteriyel ve antioksidan etkinlik testleriyle incelenip işlem sonrası değişimler karakterize edilmiştir. Antibakteriyel etkinlik tayini için ASTM 2149 ve CLSI 02 Disk Difüzyon metodu uygulanmıştır. Hazırlanan çözeltilerin kumaşlar üzerindeki etkilerini gözlemlemek için test sonuçları, SEM görüntüleri ve FTIR spektrumları analiz edilerek çalışmanın etkinliği değerlendirilmiştir.

Anahtar Kelimeler: Kitosan, zeolit, pamuk, antibakteriyel,tekstil

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➢ **ORAL PRESENTATION**

Synthesis of TiO_2 based nanocomposites and their supercapacitor applications

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Abstract

New design of TiO_2 based nanocomposites are used in supercapacitors to enhance the energy and power density stored in the electrodes [1, 2]. Titanium dioxide (TiO_2) is shown in TiO_2 based supercapacitor, carbon/TiO_2 based supercapacitor, metal/TiO_2 based supercapacitor, conducting polymer / TiO_2 based supercapacitor, and ternary nanocomposite of TiO_2 based supercapacitor. Pseudocapacitors are used in metal oxides and conducting polymers as electroactive materials with reversible Faradaic redox reactions [3]. In literature, pore size of TiO_2 nanoparticles can be affected by many factors such as pH value etc. So, it can be controlled by many parameters to synthesize higher pore size materials [4]. TiO_2 nano materials have been presented in many papers such as sol-gel [5], solvothermal [6], and hydrothermal [7] etc. As a result, TiO_2 based nano-materials enhance the electro-activity of supercapacitor electrode, and may be used in real device applications.

Keywords: Supercapacitor, Titanium carbide, titanium nitride, titanium dioxide, pseudocapacitance.

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➢ **ORAL PRESENTATION**

Removal of azo dyes from aqueous solutions with new generation polymer composite materials

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Abstract

AZO dyestuffs are synthetic organic compounds which can be synthesized from 1862, which contain azo groups in their compounds (-N = N-) used in textile industry. There are approximately 3500 azo dyes in the world and constitute 65% of the dyestuffs in the world. As a result of scientific studies on the damages of products produced with the use of azo dyes, it has been observed that these products can be absorbed into the body through direct contact and prolonged use through the skin. Allergenic, carcinogenic and mutagenic effects occur over time. Reactive dyestuffs 10-50% cannot react with textile fibers during dyeing of textile product andhydrolyzed into the waste water into the ecosystem. These dynestuffs with a complex aromatic structure are toxic and carcinogenic molecules. It's colorfulrelease of wastes to the environment, aesthetic pollution in addition to water eutrophication and perturbationcreate problems such as. For creatures living in seas, lakes and riversshow mutagenic effects. In addition, dyestuff molecules in the wastewater phasehazardous side by reaction with oxidation, hydrolysis or other chemicalscreate products.In this study, the polymer addition method was used for the removal of aqueous solutions containing an azo dye, Acid Blue 29.

Keywords: Acid Blue 29, adsorption, composite polymer

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➢ **ORAL PRESENTATION**

Synthesis of rGO/Co_3O_4 nanocomposites and supercapacitor characterizations

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Abstract

Co_3O_4 is used as a electrode material for supercapacitors due to its relatively low cost, good electrochemical performance, well-defined redox behavior and high theoretical capacitance (C_{sp}= 3560 F/g)[1]. In this work GO is reduced with microwave-assisted method to form rGO. The obtained rGO/Co_3O_4 nanocomposites were characterized by Fourier-transform infrared spectroscopy-Attenuated transmission reflectance (FTIR-ATR), scanning electron microscopy (SEM), energy-dispersive X-ray analysis (EDX), Brunauer-Emmett-Teller (BET) surface area, thermal-gravimetric analysis (TGA-DTA). Supercapacitor device performances were taken by cyclic voltammetry (CV), galvanostatic charge-discharge (GCC), and electrochemical impedance spectroscopy (EIS) as two electrode configuration.

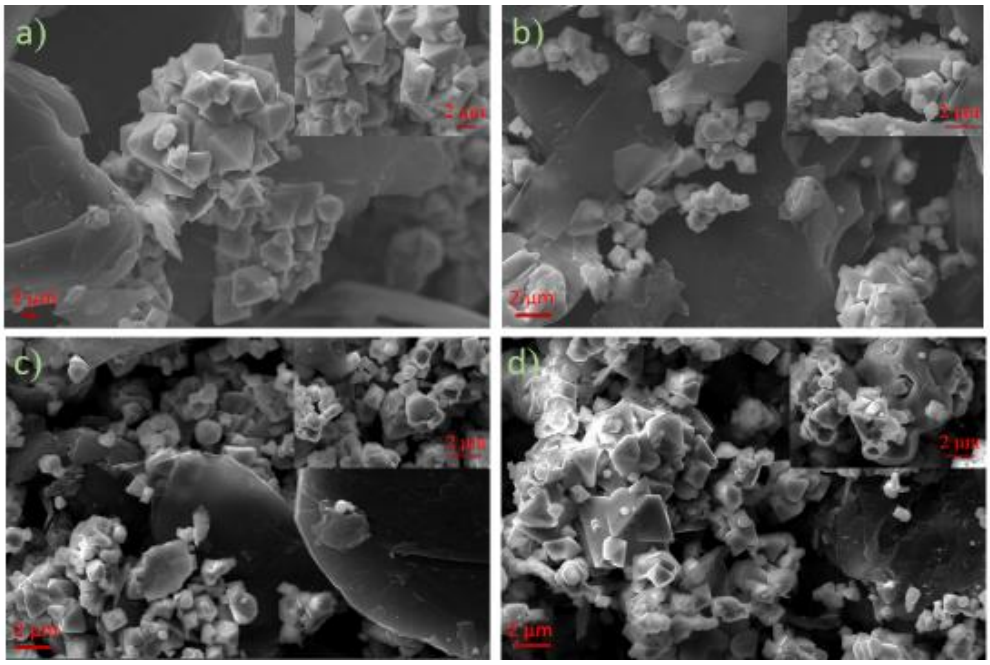

Figure 1. SEM images of rGO/Co_3O_4 nanocomposite, **a)** $[rGO]_o/[Co_3O_4]_o$=1/1, **b)** $[rGO]_o/[Co_3O_4]_o$=1/2, **c)** $[rGO]_o/[Co_3O_4]_o$=1/5, and **d)** $[rGO]_o/[Co_3O_4]_o$=1/10.

Keywords: supercapacitor, nanocomposite, reduced graphene, Co_3O_4.

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➢ **ORAL PRESENTATION**

Nickel oxide nanoparticles decorated poly (L-Cysteine) on screen-printed electrodes by one-step electrodeposition for amperometric detection of glucose

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Abstract

Recently development of high-performance glucose biosensors has attracted intensive attention because of their important applications in food industry, clinical diagnostics, and biotechnology [1]. Nanomaterials are used to incorporate in electrochemical biosensors due to their characteristics like high mechanical strength, large surface area and good chemical stability. Nickel oxide (NiOx) nanoparticles have been widely used in biosensor fabrication. They can be used for the immobilization of different molecules like enzymes [2]. L-cysteine (L-Cys), an important amino acid exist in natural proteins, has a key role in biological systems. L-Cys also can be utilized as a modification material at sensor construction because poly(L-Cys) provides plentiful active sites for binding analytes, rapid electron transfer and tunable conductivity [3].

In this work, a novel amperometric glucose biosensor was constructed based on the immobilization of glucose oxidase (GOx) onto the nickel oxide nanoparticles decorated poly(L-Cys) modified screen-printed electrode (SPE). This composite material is formed by the electrochemical reduction of Ni(II) in the presence of L-Cys via one-step electrodeposition. In order to compare the electrochemical properties of L-Cys, one electrode was prepared by applying only NiOx nanoparticles on SPE surface. The resultant GOx/NiOx-poly(L-Cys)/SPE biosensor displayed higher sensitivity, larger linear range and lower detection limit for glucose. The morphology of the modified electrodes has been investigated by scanning electron microscopy, and their electrochemical properties has been researched by cyclic voltammetry and electrochemical impedance spectroscopy in 0.1 M KCl solution containing $Fe(CN)_6^{3-/4-}$. The parameters affecting the analytical performance of the biosensor have been studied in detail and optimized. The proposed biosensor exhibited enhanced electrocatalytic activity and good response performance to glucose.

Keywords: Glucose, L-Cysteine, Nickel oxide nanoparticles, Amperometry

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➢ **ORAL PRESENTATION**

Reactive extraction of oxalic acid from its aqueous solutions using tripropylamine

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Abstract

Carboxylic acids are organic acids containing a functional carboxylic group that is symbolized with −COOH. Carboxylic acids have wide usage in pharmaceutical and chemical industries as an additive or a raw material. Oxalic acid is a dicarboxylic acid. It is consumed in many industries such as metal processing, metal treatment, the pharmaceutical industry, textile industry, etc. In this study, experiments were implemented to examine the extraction of oxalic acid using Tripropylamine (TPA) diluted with various diluents in order to find the most favorable extractant combination to separate acid from aqueous solutions. The organic-phase combinations were prepared by merging TPA with 1-butanol, isoamyl alcohol, methyl ethyl ketone (MEK), methyl isobutyl ketone (MIBK), diisobutyl ketone (DIBK), isobutanol, n-hexane, dimethyl glutarate, ethyl propionate, and diethyl carbonate, respectively. The distribution coefficient, loading factor, and the extraction yield data were calculated for the interpretation of the results. It is found that in comparison with the physical extraction experiments performed with pure solvents oxalic acid extraction from aqueous solutions can be improved significantly by introducing TPA to the extractant composition. According to the results, the maximum oxalic acid extraction is obtained with an extraction efficiency of 99.86 % and a distribution coefficient of 716.9 at 2.61 mole/kg of TPA dissolved in MEK is used as the extractant mixture.

Keywords: Oxalic Acid, Reactive extraction, Tripropylamine.

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➢ **ORAL PRESENTATION**

Synthesis and characterization of mucoadhesive nanoparticular system based on bio-reducible chitosan

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Abstract

There has been a significant increase in the use of bio-reducible biodegradable polymers and conjugates in drug delivery systems in recent years. The synthesis of the bioreducible polymer is generally achieved by the use of disulfide bonds (-SS-) in the main chain, side chain, or as a crosslinker. These polymer carriers exhibit excellent stability in extracellular fluids, whereas in intracellular components they show rapid degradation in the reduced environment, such as the cytoplasm or nucleus. Thus, the controlled release of bioactive molecules is quite excellent. In this study, the synthesis of the mucoadhesive nanoparticular carrier system (nChi-SS) based on bio-reducible chitosan (Chi-SS) was carried out according to the Michael addition reaction mechanism via free primary amine groups of chitosan molecule. Their physicochemical properties (particle size, distribution and zeta potential, etc.) were determined, and their characterization was also realized. In order to determine the mucoadhesive properties of the nChi-SS, the flow-through method was applied to the vaginal mucosa. Consequently, it was observed that nChi-SS is an alternative mucoadhesive nanoparticular system for vaginal drug delivery applications.

Keywords: Mucoadhesion, chitosan, bioreducible, Michael addition.

➢ **ORAL PRESENTATION**

Effect of avocado leaves (*Persea gratissima*) extract on the calcium oxalate crystallization

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Abstract

In this study, calcium oxalate crystallization was investigated in avocado leaves (Persea gratissima) extract medium. The calcium oxalate was synthesized as a result of the reaction between calcium chloride and sodium oxalate. The crystals obtained were characterized through X-ray diffraction (XRD), scanning electron microscopy (SEM) and transmission electron microscopy (TEM), Fourier-transform infrared spectroscopy (FTIR), thermogravimetric analysis (TGA) and zeta potential measurements. XRD results showed that the calcium oxalate obtained in pure media consisted of crystals with a monohydrate form with monoclinic structure. SEM and TEM images confirmed that the crystals underwent a morphological change in avocado extract medium. FTIR analysis indicated that the avocado leaves extract affected the functional groups of the calcium oxalate. Zeta potential measurements showed that calcium oxalate crystals had –3.2 mV zeta potential value and surface of the crystals became more negative when compared with pure media and the value increased to –31.8 mV in extract medium.
Moreover, the thermal decomposition behavior of calcium oxalate crystals was investigated in detail. As a result, it can be concluded that avocado leaves may be used as a crystal modifier for calcium oxalate crystallization.

Keywords: Calcium oxalate, crystallization, *Persea Gratissima*, morphology

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➢ **ORAL PRESENTATION**

Struvite precipitation assessment in the presence of methionine and serine

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Abstract

Struvite (ammonium magnesium phosphate) is a member of the hydrated phosphates family and it contains magnesium, ammonium, and phosphate. Struvite precipitation has become an interested subject from many different aspects especially in medical applications as kidney stones. Until now, struvite crystallization was investigated from different points of view and it was observed that its crystallization was affected by various physicochemical parameters such as pH, temperature, supersaturation, operation conditions and existence of additives. Of these parameters, it is seen that the additives have a strong impact on its crystallization mechanism. When studies conducted by utilizing different additives such as inorganic and organic substances are taken into consideration, it is revealed that amino acid is one of the additives having a powerful effect on struvite precipitation. Therefore, the structure, morphology, functional group, and particle size of the struvite crystals were evaluated experimentally through scanning electron microscopy, X-ray diffraction, Fourier transform infrared spectroscopy (FTIR), and particle size analysis in the absence and then the presence of methionine and serine amino acids. The results showed that both additives exerted significant effects on struvite precipitation.

Keywords: Struvite, precipitation, additive, morphology

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➢ **ORAL PRESENTATION**

Loading of tuberculosis drugs to nanofiberstructures, fiber optimization

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Abstract

Tuberculosis is a disease caused by a bacillus called mycobacterium tuberculosis which can be seen in other organs, especially in the lungs. Tuberculosis is an infectious, infectious, inflammatory, acute or chronic-trending bacterial infection. Since the treatment is insufficient with a single drug and the bacilli are resistant to this antibiotic, various antituberculosis drugs are used side by side during the treatment. Side-by-side use of the drugs breaks the resistance of the bacteria but creates a lot of side effects for the patient. We aim to reduce the existing side effects by loading the active agents of rifampicin, isoniazid, pyrazinamide and ethambutol, which are used as antituberculosis drugs, to a biodegradable nanofib. Primarily, PCL polymer material was dissolved in DMF: THF (v / v). After preparing PCL solution in 3%, 6%, 9%, 12% and 15% concentrations, optimization studies were performed by using electrospin device at various voltages. The SEM images of the obtained PCL fibers were examined and drug loading was performed at the suitable PCL concentration. In the planned study, FTIR images of the fibers loaded with the drug will be examined and controlled drug oscillations will be provided at the stomach and intestinal pH as an in vitro trial and spectrophotometric measurements will be taken. The release of drugs loaded into nanofibers are slower due to the wide surface area of the nanofibers, which offers a more controlled drug release.

Keywords: Antituberculosis, biodegradablepolymer, electrospin, PCL, drug release.

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➢ **ORAL PRESENTATION**

Nitrik asit çözeltilerinde malahit cevherinin liç koşullarının yanıt yüzey yöntemiyle optimizasyonu

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Özet

Oksitli bir bakır cevheri olan malahitten hidrometalurjik yöntemle bakır ve bileşiklerini üretmek için cevher ilk olarak liç işlemine tabi tutulur ve bünyesindeki bakır sulu çözeltiye alınır. Daha sonra uygun yöntemler yardımıyla çözeltideki bakır metalik halde veya bileşikleri halinde elde edilebilir. Bu çalışmada, bakır bileşikleri üretmek amacıyla malahit cevherinin nitrik asit çözeltilerindeki çözünürlüğü için optimum koşullar yanıt yüzey yöntemiyle (YYY) belirlenmiştir. Malahitin çözünme verimi üzerinde etkileri olan nitrik asit derişimi, reaksiyon sıcaklığı, katı/sıvı oranı ve karıştırma hızı parametreleri bağımsız değişkenler olarak seçilmiş ve bu parametre değerlerini optimize etmek için yanıt yüzey yöntemlerinden (YYY) biri olan merkezi kompozit tasarım (MKT) uygulanmıştır. Deneysel bulgulara çoklu regresyon analizi yapılmış ve cevherdeki bakırın en yüksek miktarda çözeltiye geçtiği şartları veren model denklemi oluşturulmuştur. Nitrik asit derişimi, reaksiyon sıcaklığı, katı/sıvı oran ve karıştırma hızı için optimum değerler olarak sırasıyla 0.5 M, 50°C, 0.004 g/mL ve 600 rpm belirlenmiştir. Belirtilen optimum koşullar altında 120 dk reaksiyon süresi sonunda cevherdeki bakırın % 99'unun çözünerek çözeltiye geçtiği bulunmuştur.

Anahtar Kelimeler: Malahit, liç, nitrik asit, yanıt yüzey yöntemi, optimizasyon.

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➢ ORAL PRESENTATION

Amonyak/amonyum nitrat çözeltilerinde malahit cevherinden bakır ve çinko liçinin yanıt yüzey yöntemiyle optimizasyonu

Zümra Bakıcı Tanaydın[1*], Ahmet Baysar[2], Nizamettin Demirkıran[2]

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Özet

Endüstride en çok kullanılan katalizörlerden birisi Cu/ZnO katalizörüdür. Bu katalizörün üretiminde genellikle yüksek saflıktaki bakır ve çinko bileşikleri kullanılır. Oksitli bir bakır cevheri olan malahit, kaynağına bağlı olarak bakırdan başka alüminyum ve çinko gibi diğer metalleri de barındırabilir. Esas olarak bakır üretiminde kullanılan malahit, bünyesindeki diğer metaller için de değerlendirilebilir. Bu çalışmada, çinko içeren malahit cevheri kullanılarak Cu/ZnO katalizörünün üretilmesi hedeflenmiştir. Bunun için ilk olarak cevher liç işlemine tabi tutularak bünyesindeki bakır ve çinko katı fazdan sulu çözelti ortamına alınmıştır. Çözücü olarak amonyak/amonyum nitrat tampon çözeltileri kullanılmıştır. İstenilen Cu/Zn mol oranına sahip çözeltiler elde etmek üzere bakır ve çinko çözünürlüğü için optimum liç koşulları belirlenmiştir. Liç işleminde amonyak, amonyum nitrat ve pH bağımsız değişken olarak seçilmiş ve parametre değerlerini optimize etmek için yanıt yüzey yöntemlerinden (YYY) biri olan iki faktörlü tam faktöriyel merkezi kompozit tasarım (MKT) uygulanmıştır. Parametrelerinin etkilerini görebilmek için deneysel bulgulara çoklu regresyon analizi yapılmış ve cevherdeki bakırın en yüksek ve çinkonun ise en düşük miktarda çözeltiye geçtiği şartları veren model denklemleri elde edilmiştir. Optimum liç koşulları pH için 10.6, amonyak derişimi için 4 M ve amonyum nitrat derişimi için ise 0.18 M olarak belirlenmiştir. Bu deney şartlarında malahit cevherindeki bakır ve çinkonun sırasıyla % 97.14 ve % 63.20 oranında çözeltiye alındığı tespit edilmiştir.

Anahtar Kelimeler: Malahit, merkezi kompozit tasarımı, bakır, çinko, liç, katalizör.

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➢ **ORAL PRESENTATION**

Electro-optical and dielectric performance analysis of quantum dot doped polymer stabilized liquid crystals

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Abstract

Polymer stabilized liquid crystal, incorporation of polymers and liquid crystal, has attracted great interest due to their wide applications in the field of optoelectronics and photonics. In this study, frequency and voltage dependent electro-optical and dielectric properties of quantum dot doped polymer stabilized liquid crystals were investigated. Various physical parameters of composites have been determined such as dielectric anisotropy, splay elastic constant, response time and threshold voltage. The results show that the quantum dot contribution changes significantly electro-optical and dielectric parameters of polymer stabilized liquid crystals and can improve the properties of various photonic devices in the future.

Keywords: Electro-optical properties, quantum dot, polymer stabilized liquid crystals.

Acknowledgements: This work supported financially by Düzce University Scientific Research Project (Project No: 2019.05.02.920).

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➢ **ORAL PRESENTATION**

Growth properties of sand smelt (*Atherina boyeri* (Risso 1880)) in İznik Lake, Turkey: Different approaches

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Abstract

This study is about using Artificial Neural Networks (ANNs) and Length-Weight Relationships (LWR) for population growth forecasting of the sand smelt, *Atherina boyeri* (Risso 1880) in İznik Lake. The samples (*Atherina boyeri*) were collected from İznik Lake. During the study, 195 fish specimens were caught in 2018. The LWR were estimated from the formula $W = a L^b$, where W is total body weight (g), L is the total length (mm), and a and b are the coefficients of the functional regression between W and L (Standart length SL, Fork Length FL and Total Length TL). ANNs are computational systems that simulate biological neural networks and can be defined as a specific type of parallel processing system based on distributional or connectionist methods. The Mean squared error (MSE) and Regression coefficient (R) were used in the study as the two performance criteria by MATLAB. The pilot error histogram of the data was also examined. The length and weight (min-max) of the fish were 40 – 88 mm (SL), 42-96 (FL), 44-104 (TL) and 0.77 – 7.50 g, respectively. There were 38.46 % females, 61.54 % males. LWR and ANNs models was found for females, males and all individual. The relationship was $W = 0.0000926 L^{2.4121}$ ($R^2 = 0.974$) for females, $W = 0.00004966 L^{2.5572}$ ($R^2 = 0.961$) for males and $W = 0.00006184 L^{2.5054}$ ($R^2 = 0.966$) for all individual. The results obtained by ANNs and LWR equation are compared to those obtained by the growth rate of the fish caught from İznik Lake. ANNs can be alternative as a evaluated for growth estimation.

Keywords: Artificial Neural Networks, Length-Weight Relationships, sand smelt, İznik Lake.

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➢ **ORAL PRESENTATION**

The prolactin receptor, which is very important for reproductive performance in cattle, is regulated by microRNA-196a.

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Abstract

Ovarian development and health are very important in terms of productivity in dairy cows. However, ovarian development has a highly complex molecular structure. In addition, millions of genes can play a role in the development of ovaries. One of these genes is the prolactin receptor gene. MicroRNAs are known to be involved in many biological mechanisms and regulate gene expression post-transcriptionally. The aim of this study was to determine the interaction between miR-196a and prolactin receptor gene. For this purpose, the cow-specific prolactin receptor gene was cloned. Later on, this cloned gene (prolactin receptor gene) and microRNA-196a were transfected to cells. Lastly, the expression levels of cloned gene and microRNA-196a were determined with qRT-PCR. In the results, it was determined that the expression of prolactin receptor gene was significantly decreased in cells with overexpression of microRNA-196a ($p<0.05$). In contrast, prolactin gene expression in cells transfected with the microRNA-196a inhibitor was found to be quite high ($p<0.01$). These results indicate that microRNA-196a regulates gene expression of the prolactin receptor at the molecular level. As a result, since prolactin receptor affects reproductive performance in sheep cows and goats, it is thought that microRNA-196a may play a key role in revealing the molecular mechanisms associated with this receptor.

Keywords: Cow, reproductive system, prolactin receptor, microRNA-196a

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➢ **ORAL PRESENTATION**

A rare microfilaruria case in a dog caused by *Dirofilaria immitis*

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Abstract

Dirofilariasis is a vector-borne parasite disease of dogs and cats, with zoonotic potential, endemic in many parts of Europe, including Turkey. Prevention with controlling strategies of dirofilariasis is quite important to reduce their diffusion in animals and humans. A 10-year-old, 20 kg, male mongrel dog was brought to the Veterinary Teaching Hospital with chief clinical signs of stranguria, hematuria, and constipation. There was no history of associated fever or lymphadenitis. Clinical suspicion of carcinoma of the urinary bladder was entertained. Blood and urine samples were collected for routine analysis. The clinical hematological and biochemical analyses with thoracic x-rays were also performed. On gross examination, the urine was brownish-red. During the microscopic examination, live microfilariae were seen. Later peripheral blood smears were examined for microfilaremia. Same as microfilariae were also seen during the blood smear examinations. Finally, our diagnosis was confirmed within the positive rapid heartworm antigen test. Presence of microfilariae in the urine is a rare case condition in dogs. Therefore, the main objective of this article was to present this third case report of canine microfilaruria in the world.

Keywords: *Dirofilaria immitis*, Dog, Microfilare, Urine

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➢ **ORAL PRESENTATION**

Exposure to a glyphosate-based herbicide during prenatal and lactation period induces oxidative stress in rat offspring

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Abstract

In this study, investigated the effects of prenatal and lactational period exposure to glyphosate-based commercial herbicide (GBH) on the oxidative stress-related parameters of blood, liver, kidney, brain and testicular tissues of newborn male rats. A total of 6 pregnant rats that were used in the study were divided into two groups so that there would be 3 pregnant rats in the control group and 3 pregnant rats in the GBH group. Starting from E18 to E21 the pregnant rats in the experimental group were administered at 50 mg/kg/day GBH subcutaneously (s.c.) and the physiological saline was administered as vehicle to the control group. Subsequently, male pups received vehicle or 2 mg/kg GBH from PND1 to PND21. On PND22, all male offspring (lactational period, 6 newborn male rats from each group) were sacrificed by light ether anesthesia. While GBH decreased the levels of reduced glutathione (GSH) in blood, liver and kidney tissues, it considerably increased malondialdehyde (MDA) levels compare to control group. Moreover, GBH increased the activities of superoxide dismutase (SOD) and catalase (CAT) in blood, kidney, brain and testis tissues. Thus, it was observed that GBH exposure during prenatal and the lactation period induced oxidative stress in in rat offspring.

Keywords: Gluphosate-based herbicide, rat offspring, oxidative stress

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➢ **ORAL PRESENTATION**

Heretofore: Toxocariasis in Turkey

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Abstract

Toxocara canis is a zoonotic gastrointestinal helminth that lives in the small intestines of dogs and wild canidae. It occurs with oral ingestion of embryonated eggs, prenatally, lactogenic transmission and can be transmitted by ingestion of paratenic hosts. The infection can be seen particularly in puppies and also found in dogs or wild canids of all ages. *Toxocara canis* is diagnosed with necropsy and faecal examination in dogs and wild carnivores. It has a worldwide distribution.

Humans are infected with ingestion of embryonated eggs, contaminated soil; consumption of raw vegetables- fruits, and raw-uncooked liver of paratenic hosts (such as chicken, ducks, cattle, pig, rabbit etc.) and direct contamination with dogs' fur. Clinically; Visceral Larva Migrans, Neural Toxocariasis, Ocular Larva Migrans and Covert Toxocariasis are described. Human toxocariasis specially occurs when concomitant infection and immunodeficiency are present. It mostly remains asymptomatic. The clinical findings, laboratory tests, living conditions and habits are important for the diagnosis.

In Turkey, the prevalence studies were conducted with humans, especially children who are prone to infection and have been serologically investigated in patients with eosinophilia and/or mental illness. Besides, contamination of soil samples (parks and gardens), dogs' fur and raw fruits-vegetables were also investigated.

Distribution of *Toxocara canis* in the definitive hosts; the environmental contamination of toxocariasis; prevalence and research methodology of human toxocariasis have been retrospectively evaluated in Turkey, and it was aimed to be reviewed according to the literature. The data that are important for the establishment of infection-related epidemiology, diagnoses, prevention and control programs were presented all together with this presentation.

Keywords: *Toxocara canis*, Dogs, Visceral Larva Migrans.

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➢ **ORAL PRESENTATION**

Investigation of the effect of vitamin E and alpha lipoic acid on mitochondrial dysfunction caused by statins

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Abstract

The aim of this study was to test whether alfa lipoic acid (ALA) and vitamin E (vit E), which are prominent with their antioxidant effects, corrected mitochondrial dysfunction caused by statins and to determine whether they can be used to prevent side effects of statins and other substances causing mitochondrial dysfunction. Wistar Albino male rats (38 in total) were used in this study and were divided into 5 gorups with a control group (C) consisting of 6 rats and the remaining 32 rats divided into 4 equal groups. The control group (n=6) received only DMSO by gavage during the experimental period. The atorvastatin (A) group (n=8) only received atorvastatin (10 mg/kg, gavage) once a day for 20 days. This group was used as a positive control. The A+ALA group (n=8) received simultaneously atorvastatin (10 mg/kg, bw) and ALA (100 mg /kg, bw) by gavage once a day during the experimental period. The A+Vit E group (n=8) was administered simultaneously by gavage atorvastatin (10 mg/kg, bw) and vit E (100 mg/kg, wb) during the experimental period. The A+ALA+Vit E group (n=8) was administered simultaneously by gavage atorvastatin (10 mg/kg, bw), ALA (100 mg/kg, bw) and vit E (100 mg/kg, bw) during the experimental period. To determine mitochondrial dysfunction caused by atorvastatin, ATP and complex I levels were measured from tissues. It was determined that ALA and vit E healed statin induced changes in ATP and complex I. The curative effects of these agents were detected to be tissue dependent.

Keywords: Atorvastatin, Alpha Lipoic Acid, Vitamin E, Rat, ATP, Complex I

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➢ **ORAL PRESENTATION**

Hayvan beslemede kullanılan aromatik ve terapatik bitkilerin et kalitesi üzerine etkileri

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Özet

Hayvancılıkta uygulanan biyolojik yöntemlerin gelişimi ile birlikte yetiştiriciler hayvanlarda çeşitli üretim parametrelerini doğrudan etkileyecek farklı yem katkı maddeleri beklentisi içine girmişlerdir. Aromatik bitkiler son yıllarda potansiyel doğal kaynaklar olup özellikle gıdalarda hem koruyucu olarak hemde hayvansal ürünlerin kaltitesini arrtırmada kullanılmaktadır. Özellikle etin kalitesi hayvana uygulanan besleme stratejileriyle birlikte artırılabilir. Bu startejiler arasında etin lipit ve yağ asiti profili ile E vitamini içeriğinin değiştirilmesi sayılabilir. Ayrıca insan sağlığı üzerinde son derece önemli olan çoklu doymamış yağ asitleri (PUFA) ve konjuge linoleik asit (CLA) miktarıda rasyona yapılan müdahaleler ile artırılabilir. Tıbbi aromatik bitkiler sağlığı iyileştirici etkilerinin yanısıra hayvanların vücudundaki metabolize olup ete geçerek farklı fonksiyonel etkileriyle hayvansal gıdanın besin değerini artırabilirler. Rasyona katılan doğal antioksidanlar ile PUFA ların okside olması önlenebilir. Et kalitesi üzerinde etkili olabilecek aromatik ve terapatik bikiler arasında turunçgil özü, keçiboynuzu, zeytin. susam, üzüm çekirdeği, biberiye ve kekik sayılabilir. Örneğin rasyona ilave edilen keçiboynuzu meyvesinin etin yağ asiti profilinde olumlu etkilerini olduğu görülmüştür. Turunçgiller yapılarında bulunan biyoaktif bileşenler (polifenoller, terpenler, karotenoidler ve askorbik asit) sayesinde doğal antioksidan özelliğine sahiptirler. Rasyona ilaveleri ile birlikte etlerde lipit peroksidasyonuna karşı direnci artırırlar. Kekik esansiyel yağı, antioksidan ve antimikrobiyal etki gösteren 60'tan fazla bileşen içerir ve hindi, tavuk, domuz ve sığır ve kuzu gibi birçok hayvanda rasyona katılarak başarıyla kullanılmaktadır. Biberiye, içeriğinde bulunan karnosol, rosmanol, epirosmanol, metilkarnosat ve rosmarinik asit gibi fenolik diterpenler ile antioksidan etki gösterir. Sonuç olarak insan beslenmesinde temel protein kaynağı olarak kullanılan hayvansal gıdaların hem kalitesinin artırılmasında hem de raf ömürlerinin uzatılmasında bitkisel ekstraktlardan yararlanılabilir.

Anahtar Kelimeler: aromatik bitkiler, terapatik bitkiler, et kalitesi

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➢ **ORAL PRESENTATION**

Kedi ve köpek beslemede fonksiyonel gıdaların önemi

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Özet

Fonksiyonel gıdalar içerdikleri biyolojik aktif bileşenler ile düzenli tüketildiklerinde sağlığı olumlu yönde etkileyen gıdalardır. Fonksiyonel gıdaların pet hayvanlarında özellikle de kedi ve köpeklerde rollerini anlayabilmek için hayvanların metabolizmalarını iyi bilmek gerekmektedir. Örneğin kediler etçil olmalarına rağmen köpekler insanlar gibi omnivordurlar. Ancak her ikisinde de ortak olan kısa bir sindirim sistemine sahip olmaları, tükrükte amilaz eksikliği ve D vitamini sentezi yapamamalarıdır. Bunu dışında köpekler kedilerden farklı olarak niasin, taurin ve arginin gibi bazı esansiyel besin maddelerini sentezleyebilirler. Sağlığa katıda bulunan önemli fonksiyonel gıdalar arasında sebze ve meyveler, piknogenol, kollajen, koenzim Q10, düşük moleküler ağırlıklı hiyaluronik asit, kondratin sülfat gibi pet gıda katkıları ile probiyotik ve prebiyotikler sayılabilir. Özellikle pet gıdalarında bulunan lifler bağırsak mikrofolarasında bulun mikrobiyal popülasyonu olumlu yönde etkiler. Ayrıca gastrik boşalmada gecikme, kan kolesterol seviyesinde düşme, özellikle tahılların yapısında bulunan kolin, metiyonin, inositol ve folat gibi bileşenler de antioksidan ve antikarsinojenik etki gösterirler. Pet gıdalarına eklenebilen balık unu, propolis, kurutulmuş portakal özü ve yumurta albümini gibi bileşenler özellikle köpeklerde halitozise (ağız kokusu) sebep olan uçucu sülfür bileşenlerini azalttığına dair çalışmalar mevcuttur. Sonuç olarak sanayileşmiş ülkelerde aile birey sayısında azalmaya bağlı olarak hayvan sahipleri kedi ve köpek gibi evcil hayvanlarına daha çok önem vermeye başlamışlardır. Bu da piyasada satılan pet gıdalarına özellikle içerik bakımından yeterli olup olmadığına dair ilginin oluşmasına neden olmuştur. Dolayısıyla pet gıdalarının bileşimine giren fonksiyonel gıdalar ve yapılarındaki biyoaktif bileşenlerin hayvan sağlığı üzerindeki olumlu etkileri araştırmacıları bu konuya yöneltmiştir. Bu bildiride kedi ve köpek beslemede fonksiyonel gıdaların önemi üzerinde durulacaktır.

Anahtar Kelimeler: Fonksiyonel gıda, kedi besleme, köpek besleme, pet hayvanı

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➢ **ORAL PRESENTATION**

A strong candidate for the quality and yield characteristics of beef: *CAPN1* G316A

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Abstract

Genetic improvement has gradually become an important factor in the competitiveness of beef cattle production. Thus, evaluation of the genes and/or single nucleotide polymorphisms (SNPs) affecting quantitative traits, and their interactions with both the environmental factors and other genes play a key role in achieving successful application of selection procedure in the commercial cattle population. In this respect, genes associated with meat production traits have been identified and the effects of many SNPs have been specifically pointed out. Among them, one of the most important genes is bovine micromolar calcium-activated neutral protease 1 (*CAPN1*). This gene is located on chromosome 29 and it encodes the large subunit of the enzyme, μ-calpain, which has a crucial role in postmortem tenderization process by means of myofibrillar protein degradation. The SNP G316A of the *CAPN1* gene, which is situated in exon 9, is a cytosine/guanine (C/G) substitution that induces an amino acid alteration (glycine/alanine) in position 316. This SNP has been found to have significant effects on meat quality. Moreover, there is a considerable amount of evidence that the *CAPN1* G316A may affect birth weight, weaning weight, live weight, and carcass weight. Hence, focusing on this genomic region may provide useful information on marker-assisted selection strategies with respect to both meat yield and meat quality and may contribute to increased profitability and adequate sustainability in beef cattle management.

Keywords: cattle, meat yield and quality, single nucleotide polymorphism, marker-assisted selection, *CAPN1* gene

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➢ **ORAL PRESENTATION**

Fattening performance and carcass traits of imported simmental bulls at different initial fattening age

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Abstract

Simmental breed, which is one of the oldest and most widely spread of all cattle breeds in the world, exhibits not only high production and reproduction performance but also improved udder health and disease resistance. Hence, this versatile breed has been included into various selection schemes due to its excellent dual-purpose performance. In this respect, the objective of this study was to evaluate the effects of initial fattening age on fattening performance and carcass characteristics in Simmental bulls imported from Europe to Turkey. The study was carried out under commercial cattle farm conditions, semi-open pens with straw as bedding, in South Marmara region of Turkey. Data from 75 Simmental bulls which were fed *ad libitum* with the same diet for nine months. They were allocated into four groups according to age and live weight. In this context, the experimental groups were as follows: Group I (4 monts of age), Group II (6 months of age), Group III (8 months of age), and Group IV (10 months of age). At the end of experimental period, total weight gain, feed conversion rate, average daily weight gain, and dry matter intake were determined. After reaching the appropriate target weights, bulls were slaughtered by exsanguination and dressed according to standard commercial practices. Thus, carcass traits including hot carcass weight, chilled carcass weight, dressing percentage, and chilling loss were evaluated. Analysis of variance (ANOVA) was performed to determine the significance of differences among age groups. Results indicated that Group I had the highest total weight gain, whereas, Group IV had the highest values for chilled carcass dressing ($P<0.05$). Moreover, spring season was significantly associated with higher means of average daily weight gains ($P<0.001$). Results of this study may be useful to determine the adequate management strategies in cattle breeding and appropriate decisions on cattle importation.

Keywords: Cattle, Simmental, Initial fattening age, Fattening performance, Carcass characteristics

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➢ **ORAL PRESENTATION**

Effect of danofloxacin on 8-hydroxy-2-deoxyguanosine level

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Abstract

The primary aim of this study is to determine the effect of danofloxacin on 8-hydroxy-2-deoxyguanosine (8-OHDG), oxidative stress biomarker, in sheep. In addition, to determine the effect on heart [Troponin I, creatine kinase-MB (CK-MB) isoenzyme, lactate dehydrogenase (LDH), aspartate aminotransferase (AST)], liver [Alkaline phosphatase (ALP), alanine aminotransferase (ALT)] and kidney [Blood urea nitrogen (BUN), creatinine] damage biomarkers and hemogram parameters [White blood cell count (WBC), red blood cell count (RBC), platelet count, hemoglobin, hematocrit]. In this study, danofloxacin (6 mg/kg/day, SC) was applied to 10 sheep for 14 days. Blood samples were taken on day 0 (control), 1, 3, 5, 7, 9, 11, 13 and 15 days. Serum 8-OHDG, troponin I and CK-MB isoenzyme levels were measured with ELISA reader, while serum LDH, AST, ALT, ALP, creatinine and BUN levels were determined with autoanalyzer, and hemogram parameters were determined with hemocell counter. In this study, 8-OHDG levels did not change statistically, while temporal elevations in troponin I, CK-MB isoenzyme and AST levels were determined ($P<0.05$). While statistical fluctuations ($P<0.05$) were determined in BUN, decreases in WBC, RBC, hemoglobin and hematocrit levels ($P<0.05$) and temporary increase in platelet level ($P<0.05$) were observed. In conclusion, it can be stated that danofloxacin administration to sheep for 14 days does not cause systemic oxidative stress and does not cause seriously effect to the function of heart, liver, kidney and bone marrow.

Keywords: Danofloxacin, 8-hydroxy-2-deoxyguanosine, organ damage markers

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➢ **ORAL PRESENTATION**

The effect of repeated doses of ketamine on hematological parameters in rats

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Abstract

The aim of this study was to investigate the effect of repeated doses of ketamine on hematological parameters in rats. Ketamine is a dissociative anesthetic that general and rapid-acting phencyclidine derivative. Ketamine, which is usually used in laboratory animals in combination with xylazine, can be used alone for short-term anesthesia in rats. General anesthesia applications repeated several times a day or on different days in animal experiments are used in pharmacokinetic studies where blood or other samples are required, in surgical procedures or drug applications on different days under anesthesia, in treatment applications such as painful wound care, regular dental care. In this study, 20 adult male Wistar albino rats, weighing between 180-230 g were used. Rats were divided into two groups as 10 rats in each group. The rats in the ketamine group received intraperitoneal injection of 10% Ketamine HCl at a dose of 50 mg / kg every other day for 12 days. Control group received 0.2 ml saline intraperitoneally at the same time. At the end of the study, the blood obtained by intracardiac route was placed in hematology tubes. Hematological parameters include Total leukocyte (WBC), Erythrocyte (RBC), Hemoglobin (HGB), Hematocrit (HCT), Mean Corpuscular Volumer (MCV), Mean Corpuscular Hemoglobin Concentration (MCHC), Mean Corpuscular Hemoglobin (MCH), Erythrocyte Distribution Width (RDW), lymphocyte (LYM), monocyte (MON), neutrophil (NEU), lymphocyte%, monocyte%, neutrophil%, levels were measured with autoanalyser device. According to the results, ketamine has statistically decreased only lymphocyte count ($p < 0.05$). In conclusion, ketamine caused changes in the lymphocyte values according to the control group; however, since these changes were within the range of reference values reported for rats, it was concluded that ketamine can be used safely in laboratory animals. Investigation of the effect of anesthetic agent on blood parameters in laboratory animals is important in terms of the reliability of experimental studies.

Keywords: Ketamine, Rat, Hematological parameters

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➢ **ORAL PRESENTATION**

The effects of plant mix extract (honokiol-magnolol sanguinarine) supplementation on performance and biochemical parameters in quails diets

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Abstract

Alternative promoter researches are widely started to prominence after banning the use of antibiotics on animal feed at 2006. Phytogenic feed additives consist groups of plants including herbs, spices, extracts and the essential oils. Honokiol, sanguinarine and magnolol are plant extracts that have anti-inflammatory, antibacterial, antioxidant properties. The main objective of this study was to determine effects of dietary supplementation with these extract mixtures (Filopower) on performance and biochemical parameters in quail diets. A total of 300 1-day-old Coturnix coturnix species quails were divided into four groups containing 75 quails and treated as follows: (1) a control group with 0 g Filopower/ton of diet-C; (2) 100 g/ton Filopower/ton of diet- F1; (3) 150 g/ton Filopower/ton of diet-F2 and (4) 200 g/ton Filopower/ton of diet-F3. The diet was fed in the form of mash and water ad libitum. There are not significant effects on plasma Glutathione Peroxidase (GP_X), Interleukin-8 (IL-8), Growth Hormone (GH) and Insulin Like Growth Factor (IGF-1) levels in this study ($P<0.05$). However, 2th treatment group's (F2) plasma SOD (superoxide dismutase) level is higher than the other groups ($P<0.05$). Also there are some significant effects on live weight, live weight gain, feed intake and feed conversion rate between the control and treatment groups ($P<0.05$). In conclusion plant mix extract (honokiol- magnolol and sanguinarine) supplementation is an alternative to antibiotics which has a natural, performance-enhancing, support the immune system and anti-oxidant effect in the quail rations. Because of these properties, it was concluded that the use of the plant mix extract additive in the quail rations could have a beneficial effect.

Keywords: plant extract, antioxidant, quails, performance, superoxide dismutase

➢ **ORAL PRESENTATION**

Metilen mavisi adsorpsiyonu ile elde edilen biyokompozit malzemenin yara iyileşmesindeki rolü

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Özet

Bu çalışmada, gam arabik (GUM) ile fonksiyonlaştırılmış içi boş silika kürecikler (HSS) sentezlendi. 0,02g biyokompozit (HSEPCGUM) üzerinde metilen mavisi (MB) adsorpsiyonu ile üçlü biyokompozit malzeme elde edildi (HSEPCGUM-MB). HSEPCGUM-MB için Langmuir adsorpsiyon izotermi 35^{o}C sıcaklık için uygulandı. Adsorbanın tek tabakadaki maksimum adsorplama miktarı (Xmax) 125mg g^{-1} bulundu. Toz halde elde edilen HSEPCGUM-MB'nin epitelizasyon ve fibroblast aktiviteyi düzenleyici etkisi in vivo çalışarak yapıldı. Epidermisin hemen altında yer alan derinin dermis tabakasında HSEPCGUM-MB'nin oldukça etkili olduğu gözlemlenmiştir.

Anahtar Kelimeler: Metilen mavisi, Adsorpsiyon, Gam arabik, Fibroblast

➢ **ORAL PRESENTATION**

Fajlar ve süt endüstrisi açısından önemi

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Özet

Fajlar bakteri hücrelerine adsorbe olarak onları öldürme kabiliyeti olan virüslerdir. Yaşamlarını sürdürebilmek için bir konakçıya ihtiyaç duyan fajlar, konak hücreyi enfekte ve lize edebilecek aktiviteye sahiptir. İnsanlar, hayvanlar, bitkiler ve çevre için ise zararsızdırlar. Kanalizasyon, dışkı, toprak, su kaynakları ile insanların derileri, mukozal membranları ve sindirim sistemlerinden kolaylıkla izole edilebilmektedirler. Gıda endüstrisinde her yıl patojen kontaminasyonundan dolayı üretimin yaklaşık %25'inin zayi olduğu bildirilmektedir. Son yıllarda patojenlerin kontrolünde fajların etkinlikleri tespit edilmiş olup, Amerika Birleşik Devletleri tarafından 2006 yılında gıda koruyucusu olarak kullanımları onaylanmıştır. Fajların doğal kaynaklı olması, hedef konaklar için yüksek spesifite göstermesi, ucuzluğu, yaygınlığı, mikrobiyotaya karşı zararsızlığı, kendi kendini replike edebilmesi, antibiyotiklere dirençli bakterilere etkili olması gibi çok sayıda avantajları bulunmaktadır. Bunların yanı sıra gıdanın organoleptik özelliklerini etkilememesi de önemli bir özelliktir. Süt ve süt ürünleri bileşimleri bakımından patojen ve saprofit mikroorganizmaların gelişimleri için uygun bir ortam olduklarından üretimden tüketime kadar çeşitli kontaminasyonlar meydana gelebilmektedir. Bu durum ürünlerde kalite kaybına neden olmakta ve halk sağlığı açısından risk oluşturmaktadır. Fajların süt ve süt ürünlerinde kullanımı günümüzde patojenlerle mücadelede umut verici bir yaklaşım olarak değerlendirilmektedir. Süt ve süt ürünlerinde fajların kontrollü kullanımı patojen bakterilere karşı etkinlik gösterirken, işletmelerde doğal olarak bulunan fajlar ise çeşitli problemlere neden olabilmektedir. Starter kültürlerin aktivasyonu faj kontaminasyonu ile olumsuz yönde etkilenerek, üretim prosesinde asit oluşumunun azalması veya tamamlanamaması gibi fermantasyon bozuklukları oluşabilmektedir. Bu durum üretim süresinin uzamasına, ürün kalitesinin düşmesine, üretim kaybına ve ciddi ekonomik kayıplara yol açabilmektedir. Faj kontaminasyonlarının süt endüstrisinde %15-20'ye varan kayıplara neden olduğu bildirilmektedir. Bununla birlikte fajların başta süt endüstrisi olmak üzere gıda ve gıda işleme ortamlarında biyokontrol, biyosanitasyon ve biyokoruma amaçlı kullanımları öne çıkan alternatif yöntemlerden biri olarak değerlendirilmektedir. Çiftlikten çatala prensibine göre fajların kullanımlarının yaygınlaştırılmasını sağlamak için güvenli ve teknolojik çalışmalar gerçekleştirilmelidir.

Anahtar Kelimeler: Faj, Gıda güvenliği, Süt endüstrisi

➢ **ORAL PRESENTATION**

Silolanan ürünlerdeki mikotoksinlerin hayvanlarda verim ve sağlık üzerine etkileri

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Özet

Küfler her yerdedir ve 80'den fazla farklı küf türü mısır ve çayır silajında tanımlanmıştır. Silaj, silajın mikroaerobik ve asidik koşullarına uyum sağlayan küfler tarafından istila edilir. Yüksek sıcaklık silolanan ürünlerde aside toleranslı olan maya ve küflerin büyümesini teşvik eder. Penicillium küfleri; asidik ortama toleranslı ve oksijen ihtiyacı da düşük olduğundan silajlarda yaygın olarak gözlenir. Küfler çevresel koşullara bağlı olarak mikotoksinler üretebilirler. Silajda küflerin ve toksinlerin oluşumları, dağılım ve yayılma dereceleri oldukça değişkendir. Küflerin silajda çoğalmaları düzensiz olmakla birlikte, büyümeleri ve stabiliteleri de değişkenlik göstermektedir. Penicillium roqueforti silajı istila edebilme yeteneği ile küf istilasının bir göstergesidir. Silajı bozar ve giderek artan ısınmaya neden olur ki bu da diğer olası patojenik mikroorganizmalar için ortam hazırlar. Bozulmuş silajlarda toksin üretici küfler ve mayalar (Monascus ruber, Aspergillus fumigatus, Byssochlamys spp.) potansiyel olarak Listeria monocytogenes ve Clostridia butyricum gibi patojenik bakteriler ile birlikte bulunabilirler. P. roqueforti ve A. Fumigatus antimikrobiyal ya da bağışıklığı baskılayıcı etkileri olan sekonder (ikincil) mikotoksinleri üretirler. Toksinlerin bu düzensiz ve geçici dağılımları alınan örneklerdeki mikotoksin teşhisini zorlaştırmaktadır. Bu derlemede, silajda yaygın gözlenen küf ve mikotoksinleri tanımlanmış olup, etki mekanizmaları ile hayvanlarda korunma ve tedavi önerileri üzerinde durulmuştur.

Anahtar Kelimeler: küfler, mikotoksinler, silaj, sağlık, verim

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➢ **ORAL PRESENTATION**

A serotipi şap virusu aşı suşu adayları ile A_{22} Irak ve A Tur 04-06 aşı suşlarının plak morfolojisindeki farklılıkların genetik olarak incelenmesi

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Özet

Bu çalışmada, şap aşılarının hazırlanmasında aşı suşu adayı olarak seçilen saha suşlarının ve bazı aşı suşlarının BHK-21 hücre kültürlerine adaptasyonları sırasında ortaya çıkan farklı plak fenotiplerinin genetik düzeyde incelenmesi ve söz konusu fenotipik değişikliklerden sorumlu olabilecek mutasyonların sorgulanması amaçlanmıştır. Bu amaçla, 2007 yılında Türkiye'nin çeşitli illerinde hastalığa sebep olmuş beş adet A/IRN/2005 alttipi aşı suşu aday virusu ile A_{22} Irak ve A Tur 04-06 olmak üzere iki adet aşı suşu niteliğindeki kontrol virusunun BHK-21 hücre kültürlerine adaptasyon çalışmaları, ELISA ve plak testleri yapılarak, pasajlar arasında plak morfolojilerinde meydana gelen değişiklikler genetik düzeyde incelenmiş ve söz konusu değişikliklerden sorumlu olabilecek mutasyonlar sorgulanmıştır. Viruslara ait orijinal virus süspansiyonu, monolayer BHK-21 An_{31} hücre kültüründe altıncı pasaj, monolayer BHK-21 An_{30} hücre kültüründe beşinci pasaj ve süspanse BHK-21 An_{30} hücre kültüründeki son pasajlardan elde edilen VP1, 3A ve *cre* genlerine ait nükleotid diziler ve orijinal virus süspansiyonu ile süspanse BHK-21 An_{30} hücre kültüründeki son pasajlardan elde edilen VP4, VP2 ve VP3 genlerine ait nükleotid diziler her virus için kendi içinde karşılaştırılmıştır. Çalışılan virusların hücre kültürlerine adaptasyonları için yapılan pasajlar sonrasında plak ölçülerinde genel olarak küçülme ve heterojen plak morfolojisi oluştuğu tespit edilmiştir. Nükleotid diziler incelendiğinde; VP1 genindeki T48K, H57R, Q110K, Q110R, D199G, VP2 genindeki W129C, E131K, L134R ve VP3 genindeki D174G, T178G mutasyonlarının daha önceki çalışmacıların bildirdikleri doğrultusunda plak morfolojisi ile ilişkili olabilecekleri düşünülmüştür. VP1 genindeki H108R ve E174A, VP2 genindeki T201A ve 3A genindeki L129P mutasyonlarının plak morfolojisi ile ilişkisi ise mevcut bilgilerle ortaya konulamamıştır. Pasajlar arasında hiçbir mutasyonun görülmediği *cre* ve VP4 genlerinin bu çalışma için plak morfolojisi yönünden potansiyel gen bölgeleri olmadıkları düşünülmüştür. İlerleyen hücre pasajlarında plak fenotiplerinde görülen değişimlerin ve diziler arasındaki aminoasit farklılıklarının, şap virusunun tür benzeri doğasının sonucu olarak populasyon içinde değişken ortam şartlarına uyum sağlayan baskın varyantların özelliklerini göstermeleri sonucu şekillendiği düşünülmüştür.

Anahtar Kelimeler: Hücre kültürü, şap virusu, plak fenotipi, genetik analiz

➢ **ORAL PRESENTATION**

Antileishmania etkili bazı bitkiler

Füsun Temamoğulları

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Özet

Leishmaniasis zoonotik paraziter bir hastalıktır. Leishamaniasis ülkemizde Güneydoğu ve Akdeniz bölgelerinde görülmektedir. Bu hastalığın tedavisinde kullanılan ilaçlara karşı direnç gelişmesi ve istenmeyen etkilerinin olması antileishmania etkili çeşitli bitki özütlerinin tercihinin artmasına neden olmuştur. Tedavide bitkilerin özütü veya esansiyel yağları kullanılmaktadır. Dünyada ve ülkemizde Leishmaniasis tedavisinde çukurova fener out (*Physalis angulata L.*), kekik (Thymus vulgaris L) , sarımsak (*Allium sativum*), ve peygamber süpürgesi (*Artemisia annua*) kullanılmaktadır. Bu derlemede Leishmaniasis tedavisinde kullanılan bu bitkiler hakkında bilgi verilecektir.

Anahtar kelimeler: Çukurova fener otu, kekik, sarımsak, peygamber süpürgesi, leishmaniasis, tedavi

➢ **ORAL PRESENTATION**

Yılan sokması tedavisinde kullanılan bazı tıbbi bitkiler

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Özet

Özellikle kırsal kesimlerde yaşayan insan ve hayvanlarda akrep sokması ile karşılaşılabilmektedir. İnsanlar gerek kendileri gerekse hayvanlarının tedavileri için geleneksel olarak tıbbi bitkilerden yararlanmışlardır. Dünya'nın birçok yerinde yılan sokmasına karşı çeşitli bitkilerin meyve, yaprak veya bitkinin tamamı kullanılmaktadır. Dünyada de yılan sokması tedavisinde gavur pancarı (Arum dioscoridis), limon (Citrus limon), pelinotu (Artemisia absinthium) ve zakkum (Nerium oleander) uygulanmaktadır. Bu derlemede yılan sokması tedavisinde kullanılan bitkiler hakkında bilgi verilecektir.

Anahtar Kelimeler: Gavur pancarı, limon, pelinotu, Yılan sokması, zakkum

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➢ **ORAL PRESENTATION**

Tetanoz teşhisi konulmuş bir tayda intratekal tetanoz antitoksini uygulanması

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Özet

Tetanoz bütün evcil hayvanlarda ve insanlarda görülen enfeksiyoz bir hastalıktır. Hatalığın etkeni *Bacillaceae* ailesinden *Clostidium Tetani*'dir ve Atlarda etkene karşı pasif bağışıklık 1892 yılından beri pratikte uygulanmaktadır. Bu sebepten dolayı atlarda tetanoz olguları oldukça nadir halde görülmeye başlamış olsa dahi; aşılama programlarının tam olarak oturtulamadığı yeni gelişmekte olan ılıman ülkelerde enzootik olarak kendini göstermektedir. Tek tırnaklılar tetanoz hastalığına karşı duyarlıdırlar ve çoğunlukla bu türde ölümcül olarak seyretmektedir. Üç aylık, saf İngiliz tayı kliniğimize ayağa kalkamama şikâyeti ile getirildi. Alınan ilk anamnez doğrultusunda 1 hafta önce halsizlik ve hareket etmede isteksizlik olduğu bu sebepten dolayı 5 gün süre ile günde 1 kez kas içi uygulama yolu ile penisilin-dihidrostreptomisin kombinasyonu olan preparatın kullanıldığı öğrenildi. Klinik muayenesi sonucunda bütün ekstremitelerde ekstensiyon, kulaklar ve yüzde gerginik, üçüncü göz kapağında düşme ve hiperestezik bir mental durum gözlendi. Ayrıca vücut sıcaklığı 40,2 C° ve omfaliti olduğu tespit edildi. Tam kan sayımında lökosit 12,5x10^9/L, nötrofil 10,91x10^9/L, lenfosit 1,18x10^9/L, monosit 0,34x10^9/L, eozinofil 0,02x10^9/L, bazofil 0,05x10^9/L, eritrosit 8,82x10^{12}/L, hematokrit %35 ve platelet ise 184x10^9/L, olarak belirlendi. Yapılan klinik ve hematolojik muayene sonucunda hastaya tetanoz teşhisi konuldu. Bu vakamızda ise tetanoz antitoksini atlanto-occipital eklemden *cisterna magna'*ya verilerek merkezi sinir sistemindeki toksinlerin nötralizasyonu amaçlandı. Bu amaçla 7 adet Tetagam P (3,000 IU tetanoz antitoksini, toplamda 21,000 IU) tek doz intratekal olarak anestezi altında uygulandı. Hospitalize edilen tay sessiz ve karanlık bir bölmeye alınarak yüksek bir altlığa alındı ayrıca günlük 2 lt laktatlı ringer solüsyonu, 1 lt %5 dextroz solüsyonu, b kompleks vitaminleri (iv) ve penisilin (15,000 iu/kg i.m. q 12 saat) uygulaması ile omfalit için lokal yara tedavisi ve lokal penisilin (lezyon içi) antibiyotik uygulamaları gerçekleştirildi. İkinci günün sonunda çene kaslarının felci şekillendi ve 5. gün sonunda solunum kaybına bağlı olarak tay ex oldu. Bu vakada da kronikleşmiş bir tetanoz hastalığnın prognozunun olumsuz olduğu gözlemlenmiştir.

Anahtar Kelimeler: Tetanoz, antitoksin, intratekal

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➢ **ORAL PRESENTATION**

Evaluation of total brain volume by using computed tomography images in the van cats

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Abstract

Volumetric changes in the brain of living beings have a very important place in clinical diagnosis and treatment. In this study, it was aimed to determine the total brain volume values by using computed tomography images of adult Van Cats, growing around and Lake Van, and to determine the differences between these values in both genders. A total 20 adult Van Cats, 10 male and 10 female, were used in the study. Animals were anesthetized with ketamine-xylazine combination. Anesthetized animals were scanned by computed tomography, and images were obtained. Then, total body volumes and total brain volumes of the cats were measured from these images by using the Prowess Panther Treatment Planning System V5.01 program. Subsequently, these measured values were analyzed statistically in order to determine the differences between the genders. According to this, Weight (W), Total Body Volume (TBV), and Total Brain Volume (TBV) measurement values were found to be higher in male cats than female cats. These differences were observed to be statistically significant ($p < 0.05$). In addition, there was a statistically significant difference between the sexes in terms of the Total Volume Ratio (TVR) measuremet value ($p<0.05$). However, it was observed that these measurement value was higher in female cats than in male cats. In conclusion **,** the biometric values of total brain volume have been determined to be statistically different between male and female cats. We believe that this study, especially atrophy of the brain, is important for the evaluation of various neuroanatomical and neurodegenerative diseases in Van Cats.

Keywords: Brain Volume, Computerized Tomography, Van Cat.

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➢ **ORAL PRESENTATION**

The effect of vitamin c on apoptotic pathway in ionizing radiation-induced NRK-52E cell line

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Abstract

In this study, it was aimed to investigate the possible protective effect of Vitamin C on the ionized radiation-induced apoptotic pathway in the NRK-52E cell line. The NRK-52E renal epithelial cells were proliferated in RPMI 1640 medium that contained 10% FBS. 1% L-Glutamine (2mM) and 1% Penicillin/Streptomycin. In the previous determined studies, the proliferation-enhancing concentration of Vitamin C (100 µM) was used. In this study, Control, Ionizing Radiation, Vitamin C, Ionizing Radiation + Vitamin C, Vitamin C + Ionizing Radiation, including 5 group was created. The ionizing Radiation groups were received 8 Gy ionizing radiation. Total RNA and cDNA isolation were performed in 24 hour incubated cells and expression levels of target genes were determined by RT-PCR. According to the control gene, Caspase 3 was not expressed in all groups. It was found that Caspase 8 increased 1.5 times in the Ionizing Radiation group and about 3 times increased in the Vitamin C and the Vitamin C + Ionizing Radiation groups. In the Ionizing Radiation + Vitamin C group was found about ½ times decreased. In the Caspase 9 gene, no significant changes were detected in the Ionizing Radiation, the Ionizing Radiation + Vitamin C and the Vitamin C groups. It was detected that Bcl-2 gene was increased 3,5 times in the Ionizing Radiation group and two times in the Vitamin C + Ionizing Radiation group. In the Ionizing Radiation + Vitamin C and the Vitamin C groups were not found a change. As a result, it was determined that the applied dose of ionized radiation effected the studied apoptotic enzymes, but the increase coefficients were not too high. However, we think that the amount and duration of ionized radiation should be increased in order to better understand the protective and therapeutic role of Vitamin C in the apoptotic pathway due to ionizing radiation.

Keywords: Cell Culture, Ionizing Radiation, Vitamin C

➢ **ORAL PRESENTATION**

Hayvan beslemede antibiyotik ve anti-parazitlere alternatif olarak kullanılan bitkisel ekstrakların etkileri

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Özet

Hayvan beslemede büyümeyi teşvik için antibiyotiklerin kullanılmasının yasaklanması araştırmacıları alternatif katkı maddeleri aramaya zorlamıştır. Antibiyotiklerin üstlendiği misyonu yerine getirmek için probiyotikler, organik asitler, bitki ekstraktları ve çeşitli bitkiler kullanılmaya başlanmıştır. Antibiyotiklere alternatif bitkisel orijinli katkı maddelerinin bir kısmı antiparaziter özellik göstermektedir. Parazitler hayvancılıkta yemden yararlanma ve verimi engelleyen ciddi bir sorun olarak devam etmektedir. Bu sorunun çözümü için bitkisel orijinli katkı maddelerine ihtiyaç bulunmaktadır. Bu amaçla tibbi ve aromatik bitkiler ve bunlardan elde edilen esansiyel yağlar yoğun çalışılmış, yeme ve suya ilave edilen bitki ekstraktları ile yem tüketimi, yemden yararlanma ve karkas kalitesinde ilerlemeler sağlanmıştır. Ülkemiz florası uçucu yağları ihtiva eden bitkilerin çokluğu ve çeşitliliği yönünden önem taşımaktadır. Türkiye'nin coğrafik konumu ve iklim çeşitliliğine ilave olarak 3 önemli floristik bölgenin kesişme noktasında yer alması diğer cins ve türlerde olduğu gibi aromatik bitkilerde de çeşitliliğin artmasına sebep olmuştur. Türkiye florasına kayıtlı 10.000'e yakın türün 1/3'nü aromatik bitkilerin oluşturduğu bilinmektedir. Bu derlemede hayvan beslemede kimyasal antibiyotik ve antiparazitlere alternatif olarak bitkisel ekstrakların kullanımı ve etkileri hakkında bilgi verilecektir.

Anahtar Kelimeler: Antibiyotik, anti-parazitler, bitkisel ekstraklar, yem katkı maddeleri

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➢ **ORAL PRESENTATION**

Endokrin bozucu kimyasalların tüketime sunulan kuzu eti ve yağında gaz kromatografi kütle spektrometrisi ile tespiti ve cinsiyetin etkisi

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Özet

Vücuttaki endokrin reseptörlerine bağlanıp bunları aktive veya bloke ederek doğal hormonların sentez/parçalanmasını değiştiren endokrin bozucu kimyasallarla ilgili çalışmaların geçmişi 1950'li yıllara kadar gitmektedir. Şu anda yasaklı olan ama bir dönem yoğun olarak kullanılan organik klorlu pestisitler, PCB ve PBDE'ler stabilitelerinin yüksek olması ve yağda birikme özellikleri nedeniyle doğada uzun süre kalmaktadırlar. Biyoakümülasyon ve biyomagnifikasyon nedeniyle besin zincirine girdikten sonra miktarları sürekli artmaktadır. İnsanların bu kimyasallara maruziyetinin %90'ı bulaşık gıdalarla olmaktadır. Bu çalışmada 14 OCP (α, β, γ-hekzaklorosiklohekzan, hekzaklorobenzen, 4,4'-DDD, 4,4'-DDE, 2,4'-DDT, 4,4'-DDT, heptaklor, aldrin, dieldrin, α-endosülfan, β-endosülfan, metoksiklor), 7 PCB (PCB28, PCB30, PCB52, PCB101, PCB118, PCB138, PCB153, PCB180) ve 6 PBDE (PBDE17, PBDE47, PBDE66, PBDE100, PBDE153, PBDE183)'nin kuzu eti ve yağındaki miktarları ve cinsiyetin buna olan etkisi araştırılmıştır. Kullanılan yöntem SANCO 12571/2013 ve EUROCHEM 2014 Validasyon Kılavuzu'na göre valide edilmiştir. İstatistik analizler SPSS 15.0 kullanılarak yapılmıştır. Toplamda erkek hayvanlara ait örneklerin %75'inde, dişilerinkinin ise %33,3'ünde kalıntıya rastlanmıştır. Araştırılan örneklerin tamamında PCB tespit edilmiştir. Hekzaklorosiklohekzen ve 4,4'-DDT ile PCB52, kendi grupları içinde en sık rastlanılan kimyasallar olurken PBDE'lerden sadece PBDE17 tespit edilmiştir. Kalıntı görülme sıklığı erkeklerde daha fazla iken tespit edilen miktarların dişi hayvanlara ait örneklerde daha yüksek olduğu görülmüştür. Tespit edilen OCP miktarları Türk Gıda Kodeksi Pestisitlerin Maksimum Kalıntı Limitleri Yönetmeliği ve EU 149/2008 sayılı yönetmelikte belirtilen değerlerin, indikatör PCB'lerin miktarları EU 1259/2011 sayılı yönetmeliği ve Türk Gıda Kodeksi Bulaşanlar Yönetmeliğinde belirtilmiş olan 40 ng/g/yağ değerinin, dioksin benzeri PCB118'in miktarı 0,285 pg/g yağ değerinin, PBDE miktarları ise EPA'nın belirlemiş olduğu değerlerin altındadır.

Anahtar Kelimeler: Endokrin bozucu kimyasal, PBDE, PCB, Organik klorlu pestisitler, GC-MS, Kuzu eti.

➢ **ORAL PRESENTATION**

Kedi ve köpeklerde postpartum dönem hastalıkları

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Özet

Postpartum dönem, doğumu takiben genital organların involusyonu, endometriyumun rejenerasyonu, bakteriyel kontaminasyonun eliminasyonu ve siklik aktivitenin tekrar başlamasını kapsar. Bu dönemin sağlıklı bir şekilde geçirilmesi, fertilitenin devamlılığı için büyük öneme sahiptir. İnvolusyon sürecinin büyük bir kısmı dört-altı hafta içerisinde tamamlanır. Bu süreçte rengi yeşilden kırmızı-kahverengine değişen, kötü kokulu olmayan bir vaginal akıntı görülür. Lochia ismi verilen bu akıntı köpeklerde iki-altı hafta; kedilerde ise üç haftadan az bir süre bulunur. Postpartum dönem, yavru zarlarının atılmaması, uterusta ölü yavru kalması, güç doğum, abortus, uterus enfeksiyonları, metabolizma hastalıkları ve beslenme gibi faktörlerden etkilenir. Doğum yapan kedi ve köpeklerde yüksek ateş, iştahsızlık, halsizlik, depresyon, kusma, kötü kokulu vaginal akıntı, vaginal kanama, devam eden ıkınmalar, solunum sayısında artış, titreme, laktasyon anomalileri gibi klinik belirtiler postpartum dönem hastalıklarını işaret eder. Ayrıca yavrularda huzursuzluk, sürekli ağlama, neonatal ölümler görülebilir. Bu gibi belirtiler gösteren kedi ve köpekler ivedilikle postpartum kanama, plasental bölgelerin subinvolusyonu, retentio secundinarum, postpartum akut metritis, prolapsus uteri, eklampsia gibi postpartum dönem hastalıkları yönünden muayene edilmeli ve uygun tedavi protokolleri uygulanmalıdır. Bu derlemede kedi ve köpeklerde görülen postpartum hastalıklarının klinik belirtileri, tanı ve tedavisi hakkında bilgi verilmiş, kliniğimize gelen vakalardan örnekler sunulmuştur.

Anahtar Kelimeler: Postpartum, Kedi, Köpek, İnvolusyon.

➢ **ORAL PRESENTATION**

Koyun ve sığır yetiştirilen karma bir çiftlikten coryza gangrenosa bovum tespiti

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Özet

Coryza gangrenosa bovum (CGB) enfeksiyonu, duyarlı ruminant türlerinde; ovine herpes virus-2 veya Afrika'da antilopları enfekte edebilen alcelaphine herpesvirus-1 tarafından oluşturulan, ekonomik öneme sahip ve son konakçı olan sığırların ölümü ile sonuçlanan bir virus enfeksiyonudur.

Bu çalışma; koyun ve sığırların bir arada beslendiği bir çiftlikten gelen organ materyalinde ovine herpes virus-2 tegument gen bölgesini çoğaltabilen primerler kullanılarak yapılan semi-nested polymerase chain reaction sonrası ilgili gen ürününün tespitine dayanmaktadır.

Türler arası geçiş olasılığı olan virusların duyarlı hayvanlar için risk oluşturacağı savından hareketle, küçükbaş ve büyükbaş hayvancılık işletmelerinde ahırlar arası mesafelerin yeterli uzaklıkta olması ve görevli personelin dezenfeksiyon ve sanitasyon tedbirlerine dikkat etmesi hayati öneme sahip tedbirler arasındadır. Bu bağlamda; CGB gibi hastalıkların bulaş ihtimalleri düşürülerek; enfeksiyonların kontrol altına alınabilmesi mümkün olabilecektir.

Anahtar Kelimeler: Coryza gangrenosa bovum, koyun-sığır karma çiftlik, tanı

➢ **ORAL PRESENTATION**

Kongenital anomalili yavru doğumu görülen bir koyunculuk işletmesinde viral enfeksiyonların varlığının araştırılması

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Özet

Hayvancılık işletmelerinde döl verimliliği esas olup, sağlıklı yavru alımı ile sürdürülebilir. Bu bağlamda; yaşama gücü zayıf kongenital anomalili yavru doğumları döl verimliliği üzerinde negatif yönde etkili olgulardandır. Bu çalışmada halk elindeki bir koyunculuk işletmesinde abortlar, kongenital anomalili ve yaşama gücü zayıf yavru doğumları gözlenmiş, laboratuvar tanıya başvurulmuştur. Anomalili yavrulardan alınan kan örnekleri (n=5), Pestivirus, Mavidil, Akabane ve Ainoviruslar yönünden moleküler metotlar kullanılarak tetkik edilmiş olup, Akabane virus nükleik asiti yönünden pozitiflik tespit edilmiştir.

Akabane virus, *Bunyaviridae* ailesinden sokucu sineklerle nakledilen vektörlü bir hastalık olup, ruminant türlerini enfekte etmekte ve ülkemizdeki duyarlı ruminant sürüleri için periyodik olarak salgınlar meydana getirmektedir. Özellikle seronegatif gebe hayvanlar, transplasental olarak virusu fötusa geçirmekte ve fötusun yaşına bağlı olarak yavru ölmeden ya da aborte olmadan doğabiliyorsa, çeşitli anomali olguları ile karşılaşılmaktadır. Vektörlü hastalıklar, küçükbaş ve büyükbaş hayvancılık işletmelerinde kontrol altına alınabilmesi zor enfeksiyonlardan olup, mücadelede aşı önem arz etmektedir.

Anahtar Kelimeler: Koyun, kongenital anomali, Akabane virus, tanı

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➢ **ORAL PRESENTATION**

Ruminant beslemede kullanılan bazı mikro mineraller ile ilgili son gelişmeler

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Özet

Mikro mineraller uzun yıllardır ruminant rasyonlarında kullanılan, verim ve sağlık yönünden oldukça önemli etkin besin maddelerdir. Ruminant rasyonunda yeterli düzeyde mikro minerallerin bulunması tüm biyokimyasal işlemlerin normal şekilde devam etmesini sağlar. Karbonhidrat, lipit ve protein metabolizmasında önemli görevleri olan mikro mineraller rasyona organik veya inorganik yapıda eklenebilir. Yapılan bazı çalışmalarda rasyona eklenen organik mikro minerallerin süt üretimini, üreme performansını ve immun yanıtı arttırdığı tespit edilmiştir. Verimin artması mikro mineral gereksinimini artırmaktadır. Vücutta mikro minerallere farklı düzeylerde ihtiyaç duyulur ve bir mikro mineralin rasyonda fazla veya eksik olması metabolik hastalıklara yol açmaktadır. Bazı mikro mineraller için hayvanın ihtiyaçları antagonistleri tarafından önemli ölçüde etkilenmektedir. Örneğin kükürt (S) ve molibden (Mo), önemli bakır (Cu) antagonistleridir ve rasyondan Cu biyoyararlanımını büyük ölçüde etkileyebilir. Rasyonda biyoyararlanabilirliği yüksek olan demir (Fe) bileşiğinin bulunması durumunda Fe güçlü bir Cu ve mangan (Mn) antagonist etkisi yapmaktadır. Son araştırmalar ruminantlar için NRC'ye göre hesaplanan kobalt (Co) ve Mn ihtiyaçlarının hayvanın ihtiyaçlarının altında olabileceğini ileri sürmektedir. Sığırlarda krom (Cr) ikamesine verilen cevaplara dayanan araştırmalar yapılarak rasyona eklenecek Cr miktarları belirlenmelidir. Bu derlemede ruminant beslenmede kullanılan mikro minerallerden Cu, Mo, Fe, Mn, Cr ve B mineralleri konusunda son yapılan çalışmalar üzerinde durulacaktır.

Anahtar Kelimeler: Antogonist etki, mikro mineral, organik mikro mineral, ruminant,

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➢ **ORAL PRESENTATION**

Işınlama teknolojisinin gıda kalitesi ve duyusal özellikler üzerine etkileri

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Özet

Işınlama teknolojisi dünyada hasat sonrası ortaya çıkan gıda kayıplarının azaltılması, gıda kalitesinin yükseltilmesi, depolama süresinin uzatılması, mikrobiyolojik bozulmanın önlenmesi ve böceklenmenin önüne geçilmesi vb. amaçlarla dünyada geniş bir ticari uygulama alanı bulmuştur. Günümüzde aralarında Türkiye'nin de bulunduğu yaklaşık 70 ülkede gıda ışınlama ile ilgili yasal düzenleme ve/veya gıda ışınlama tesisi bulunmaktadır. Sadece Çin'de 700.000ton/yıl düzeyinde gıda ışınlanmaktadır. 1980 yılında WHO/FAO/IAEA ortak çalışma grubunun 10kGy ışınlama dozunun sağlık yönünden güvenilir olduğunu kabul etmesine kadar geçen dönemde yüzlerce araştırma projesi yürütülmüş, hiçbir gıda prosesi bu kadar ayrıntılı ve yoğun olarak araştırılmamıştır. Gıda ışınlama teknolojisi ısı enerjisinden yararlanılarak gerçekleştirilen pastörizasyon, kurutma, konserve ve dondurma metotları gibi fiziksel bir işlemdir. Diğer fiziksel işlemlerden farkı, kullanılan enerjinin ısı enerjisi yerine "iyonlaştırıcı enerji" olmasıdır. Işınlamanın gıda bileşenleri ve duyusal özellikler (tat, flavor, koku, renk, tekstür vb.) üzerine olan etkileri yoğun olarak araştırılmış ve araştırılmaya devam etmektedir. Ancak diğer gıda proseslerinden farklı ve/veya aynı dezavantajlara sahip olduğu hala gösterilememiştir. Uluslararası ve ulusal düzeyde, mevcut yasal düzenlemelere göre, tekniğine uygun olarak yapılan ışınlama işlemi gıdanın kalitesini etkilememekte, üstelik önemli avantajlara sahip bulunmaktadır. WHO, FAO, IAEA, CODEX ve EC gibi uluslararası kuruluşlar tarafından kabul görmüş ve uluslararası ticaret için yasal düzenlemeleri yapılmıştır. Türkiye'de de gıdaların ışınlaması ile ilgili yasal mevzuatlar mevcuttur ve ışınlanmış gıdaların tespiti ilgili kurumlar tarafından yapılmaktadır. Bu derleme bildirisinde ışınlama teknolojisinin gıda kalitesi ve duyusal özellikler üzerine etkileri konusunda sağlamış olduğu yararlar konusunda mevcut durum ve gelişmeler üzerinde durulacaktır.

Anahtar Kelimeler: Gıda ışınlama, gıda kalitesi, duyusal özellikler, gıda koruma metodu.

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➢ **ORAL PRESENTATION**

Investigation of total antioxidant and total oxidant levels in Holstein dairy cows with clinical mastitis

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Abstract

Mastitis is defined as inflammation of mammary gland in dairy cows and it is one of the most costly productions problems of dairy farms. It generally results from bacterial contamination of the teat canal and udder tissue. Its incidence varies according to management conditions. Oxidative stress increases the incidence of mastitis in dairy cows because it impairs cells' structures and causes pathologic disorders of tissues and the immune system. Oxidative stress occurs when the production of oxidant substances exceeds the defense capacity of antioxidants in the body. The aim of the present study was to investigate serum total antioxidant status (TAS) and total oxidant status (TOS) in Holstein cows with clinical mastitis on day 7±3 postpartum. The materials of this study were 14 multiparous Holstein dairy cows. Two groups were created using clinical mastitis (n:7) and healthy cows (n:7). Blood samples were collected from the coccygeal veins to evaluate serum TAS and TOS levels on day 7±3 postpartum. Serum TAS and TOS levels were found higher and lower in the healthy cows compared to the cows with clinical mastitis, 2.53 mmol/L to 2.31 mmol/L and 7.51 µmol/L to 12.59 µmol/L, respectively ($P<0.05$). In conclusion, it was thought that low antioxidant and high oxidant levels in cows with clinical mastitis caused immune system deficiencies due to oxidative stress. In addition, it is thought that prepartum antioxidant supplementations to cows may be beneficial in protecting the general health and udder health.

Keywords: Antioxidant, cow, mastitis, oxidant.

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➢ **ORAL PRESENTATION**

Oreochromis niloticus'un solungaç dokularında bazı oksidatif stres parametreleri (GSH ve TBARS) üzerine Chlorantraniliprolün akut toksisitesi

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Özet

Akuatik sistemlerde pestisitlerin neden olduğu çevresel kirlilik ciddi bir problem oluşturmaktadır. Pestisitlerin geniş bir şekilde kullanımları ve ortamda kalıcı olmaları nedeniyle bu bileşiklerin birçoğu yüzey sularında ve yeraltı sularında bulunmaları akuatik organizmalar için büyük bir risk oluşturmaktadır. Bu çalışmada, böcek ilacı olarak kullanılan Chlorantraniliprole (CHL) pestisitinin, *O. niloticus* balıklarının solungaç dokusu GSH ve TBARS düzeyleri üzerine etkilerinin belirlenmesi amaçlanmıştır. Bu amaçla *O. niloticus* balıklar 96 saat sürelerle 1.0 mg/L ve 2.0 mg/L Chlorantraniliprole etkisine bırakılmıştır. GSH ve TBARS düzeyleri spektrofotometrik yöntemlerle belirlenmiştir. Sonuç olarak solungaç dokusu GSH düzeyleri kontrol grubuyla karşılaştırıldığında 96 saat süreyle 1.0 mg/L ve 2.0 mg/L CHL etkisinde belirgin azalma olurken, TBARS düzeylerinde önemli artışlar olduğunu göstermiştir. Bu çalışmada *O. niloticus* solungaç dokusundaki GSH ve TBARS düzeyleri ile ilgili elde edilen veriler sucul ekosistemlerde pestisit kirliliğinin izlenmesinde katkı sağlayacaktır.

Anahtar Kelimeler: Chlorantraniliprole, GSH, TBARS, Solungaç, *Oreochromis niloticus*

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➢ **ORAL PRESENTATION**

Fine structure of the ileum of *Pseudochorthippus parallelus parallelus* (Zetterstedt, 1821) (Orthoptera, Acrididae)

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Abstract

Pseudochorthippus parallelus parallelus (Zetterstedt, 1821) (Orthoptera, Acrididae) is a widespread species which is located in Europe and some regions in Turkey such as Eskişehir, Bolu, Ankara, Düzce, Bursa, Kocaeli, Sakarya, Edirne, Çanakkale, Kırklareli, İstanbul and Çankırı. Although there are several researches about this widespread species, there is no study about its ileum morphology and ultrastructure. Therefore, we aimed to identify the ultrastructural and histological features of ileum in *P. parallelus parallelus* by using light microscope, scanning electron microscope (SEM), and transmission electron microscope (TEM). The adult male individuals of *P. parallelus parallelus* were collected from the terrains around Ankara-Çankırı road in June, 2017. The alimentary canals were dissected out under the stereomicroscope. After taking photographs with the stereomicroscope, the ileum specimens were fixed in 5% glutaraldehyde (pH 7.2, phosphate buffered) and prepared for the light microscope, scanning electron microscope (SEM) and transmission electron microscope (TEM) studies. The hindgut is the last part of the alimentary canal and divided 3 distinct regions as ileum, colon and rectum in *P. parallelus parallelus*. The ileum is located between the midgut and colon. In the cross sections of the ileum, the lumen is wide and the wall of the ileum is undulated in some regions. The wall of the ileum is composed of epithelial layer the innermost, the connective tissue in the middle and the thin muscle tissue the outermost. The single layered cuboidal epithelium is encircled the lumen can be observed the innermost. There is a chitinous intima at the apical side of the epithelial cells. The epithelial cells have scattered microvilli at the apical regions of the cells. There are numerous granulated endoplasmic reticula and mitochondria in the cytoplasm of the epithelial cells.

Keywords: Digestive system, alimentary canal, hindgut, electron microscope, light microscope.

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➢ **ORAL PRESENTATION**

A case study for determination of Gastropoda, Oligochaeta and Chironomidae Fauna of Lakes Eber (Afyonkarahisar) and Cernek (Samsun), Turkey

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Abstract

There are above 200 natural lakes in Turkey. Properties of Turkeys' lakes like their geographical status, stories of their historical developments, their connections with fresh waters and marine waters in world make them valuable according to biological diversity and endemism. Lakes Eber located in Afyonkarahisar and Cernek located in Samsun are listed in Turkey's important lakes in terms of ecologically. Within this study, zoobenthic samples were collected for determining Gastropoda, Oligochaeta and Chironomidae fauna of both lakes between 2012 and 2014 years, and also some environmental parameters (pH, temperature, dissolved oxygen and depth) were measured *in situ*.

According to our results, totally 11 species from Gastropoda, Oligochaeta and Chironomidae were identified in Lake Eber. Abundance of *Physella acuta* from Gastropoda increased in 2012 year. Individuals of *Radix labiata* which were determined in 2012 year were not detected in 2014 year. Similarly, while populations of *Limnodrilus hoffmeisteri*, partially *Potamothrix hammoniensis* and *Cryptochironomus defectu*s species which are typical euryök species of pollution waters increased, populations of *Polypedilum abberrans*, *Polypedilum convictum* and *Dicrotendipes tritomus* seriously decreased.

In Lake Cernek, abundance of *Physella acuta* which has high ecological tolerance increased last 2 years. Similar situation was observed in euryök Oligochaeta (*Limnodrilus hoffmeisteri*, *Tubifex tubifex* and partially *Potamothrix hammoniensis*) and Chironomidae (*Chironomus thummi*) species. In addition, samples of *Tanypus punctipennis* which is carnivore species and *Psammoryctides albicola* which has narrow ecological tolerance were detected before in the Lake but they were not detected in sampling in 2014 year.

Consequently, species diversities of Gastropoda, Oligochaeta and Chironomidae in Lakes Eber and Cernek are not very high and comprised of α-β mesosaprobic and polysaprobic species.

Keywords: Lakes Eber and Cernek, Gastropoda, Oligochaeta and Chironomidae.

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➢ **ORAL PRESENTATION**

Gastropoda, Oligochaeta and Chironomidae fauna of Lake Gala (Edirne, Turkey)

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Abstract

Lake Gala located in Edirne province is an important wetland and national park of Turkey. Zoobenthic samples were collected in 2012 and 2014 years for determination and monitoring Gastropoda, Oligochaeta and Chironomidae fauna of Lake and at the same time some environmental parameters (pH, temperature, dissolved oxygen and depth) were measured *in situ* and analysed effects of these parameters on species distribution. Totally 40 taxa which include 2 taxa from Gastropoda, 12 taxa from Oligochaeta and 26 taxa from Chironomidae were identified in Lake Gala. According to results of Gastropoda, Oligochaeta and Chironomidae fauna structure in Lake Gala in 2012 and 2014 years, it was determined that population density of *Physella acuta* from Gastropoda increased and of *Melanopsis costata* decreased. In 2014 sampling period, population densities of *Limnodrilus claparedianus, Limnodrilus hoffmeisteri, Limnodrilus profundicola, Tubifex tubifex, Potamothrix hammoniensis, Nais communis, Nais variabilis* and *Nais elinguis* which are known as typical species of polysaprobic zone from Oligochaeta increased and conversely *Nais pardalis* determined in 2012 year was not detected in 2014 year. Individuals of *Potamothrix hammoniensis* determined in both sampling periods were identified ecophenotypic differentiations between some samples. Population densities of *Cryptochironomus defectus, Camptochironomus tentans, Chironomus plumosus* and *Chironomus thummi* which are typical species of polysaprobic zone and lives in all adverse conditions from Chironomidae members increased in two-year period. In addition, population densities of *Dicrotendipes tritomus* and *Endochironomus tendens* which have ecological tolerance but not too strong as above mentioned species decreased. Fauna structure of Gastropoda, Oligochaeta and Chironomidae in Lake Gala consists of Palearctic species which are widespread in fresh waters in Europe. It is observed that Gastropoda, Oligochaeta and Chironomidae fauna in two-year sampling period were changed to dominance of α-β mesosprobic and polysaprobic species.

Keywords: Lake Gala, macrozoobentoz**,** Gastropoda, Oligochaeta and Chironomidae.

This study was supported by Eskişehir Osmangazi University Scientific Research Projects (Project number: 201319D21).

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➢ **ORAL PRESENTATION**

Sapanca Gölü'nde ağır metal kirliliğinin kadife balığı (*Tinca tinca*) dokularında biyokimyasal ve histopatolojik izlenmesi

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Özet

Bu çalışmanın amacı Sapanca Gölü'ndeki ağır metal kirliliğinin kadife (*Tinca tinca*) balığı üzerinde yarattığı toksik etkilerin biyokimyasal ve histolojik açıdan belirlenmesidir. Bu nedenle gölün Kırkpınar mevkinden 2015 yılının her ayında profesyonel balıkçı yardımıyla balık ve su örnekleri alınmıştır. Alınan su ve balık dokularında (kas, karaciğer, solungaç) ağır metal (Cu, Fe, Zn, Pb ve Cd) analizleri ICP-OES cihazı ile tespit edilmiş ve referans maddeler ile karşılaştırılmıştır. Ayrıca dokularda oksidatif stres biyoindikatörü olan katalaz enzim aktivitesi (CAT), total glutatyon (GSH) ve lipid peroksidasyonu (MDA) seviyeleri spekrofotometrik yöntemlerle ölçülmüştür. Karaciğer ve solungaç dokuda histopatolojik bulgular hematoksilen&eozin boyama yapılarak belirlenmiştir. Sonuç olarak, sudaki ağır metal konsantrasyonları Fe>Zn>Pb>Cu>Cd olarak belirlenmiş. Ancak Pb miktarının belirlenen standartlardan fazla olduğu gözlenmiştir. Balıklarda Cu, Fe, Zn ve Pb'nin dokulardaki birikimleri karaciğer>solungaç>kas şeklinde, Cd'nin birikimi solungaç>karaciğer>kas şeklinde olmuştur. Dokularda GSH seviyesi havaların ısınmasına bağlı olarak tüm dokularda azalmaya başlamış, yaz aylarında ise en düşük seviyelere ulaşmıştır. Bu çalışmada en yüksek MDA seviyesi sıcaklığın arttığı yaz aylarında tespit edilmiş olup, bu sonuç düşük çözünmüş oksijen miktarı ile birlikte önemli bir kontaminasyonun varlığını da doğrulamaktadır. CAT aktivitesinin yaz aylarında azaldığı bazı kış aylarında en yüksek seviyeye ulaştığı belirlenmiştir. Balıkların solungaç dokularında lamellerin düzensizleşmesi, füzyon, ödem, hiperplazi gibi genel tahribat bulguları gözlenmiştir. Karaciğer dokusunda sinüzoidlerde tıkanma, kupffer hücrelerinde artış, hepatositlerde karyoliz gibi nekrotik durumlar gözlenmiştir. Genel olarak su ve balık dokularında ağır metal yükünün belirlenen standartlardan çok fazla çıkmaması, buna rağmen balık dokularında saptanan biyokimyasal ve histopatolojik bulguların varlığı, gölün sadece ağır metallerin değil diğer kirlilik kaynaklarının da etkisi altında olduğunu düşündürmektedir. Bu çalışma ile enzimatik ve enzimatik olmayan antioksidanların ve histolojik analizlerin çevre kirliliğinin biyolojik izlenmesinde yararlı yöntemler olduğu gösterilmiştir.

Anahtar kelimeler: Sapanca Gölü, ağır metal, oksidatif stres, histopatoloji.

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➢ **ORAL PRESENTATION**

The effects of fluoxetine-HCl on oxidative stress parameters of *Xiphophorus hellerii*

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Astract

The aim of this study is to investigate environmental toxic effects of fluoxetine-HCl (FLX) on catalase (CAT) and superoxide dismutase (SOD) activity and malondialdehyde (MDA), total glutation (GSH), and total protein levels of liver and heart tissues in swordtail fish (*Xiphophorus hellerii*). FLX is the active compound of the antidepressant Prozac™ and acts as a selective serotonin reuptake inhibitor (SSRI) in humans. Antioxidants are compounds that control the redox-balance in biological system Even in small concentrations they prevent the oxidation of instable substrates and/or eliminate the reactive oxygen species (ROS). Our study was planned to investigate the effects of determined doses from aquatic environment of FLX, on liver and herat tissue of swordtail fish. CAT, SOD, MDA, GSH and total protein levels were detected using spectrophotometric methods. The three experiment study groups were composed as; 0,1 mg/L and 1 mg/L fluoxetine-HCl exposed to each aquarium tank and ten zebrafish were studied at 96 hours of exposure and the last group was composed as the control group. In our study, it is determined that the activity of CAT and SOD increase in experimental group after exposure. Likewise we found that the MDA levels decreases in all experimental groups after exposure FLX in fish. In conclusion, building on the framework surrounding drug metabolism in fish, it is apparent that the capacity of fish liver to metabolize FLX in vitro is variable.

Keywords: Fluoxetine-HCl, oxidative stress, fish, liver, heart.

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➢ **ORAL PRESENTATION**

Lepidocheyla Volgin akar cinsinin (Acari: Cheyletidae) Türkiye'deki ilk bulunuşu

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Özet

Lepidocheyla Volgin, Cheyletidae familyasında (Acari: Trombidiformes) yer alan cinslerden biridir. Şimdiye kadar dünyada *Lepidocheyla* cinsine ait sadece iki tür bilinmektedir: *L. gracilis* Volgin ve *L. caucasica* Volgin. Bu çalışmada *L. gracilis* türü Türkiye'den yeni bulunmuştur. Bu, aynı zamanda, Türkiye'de *Lepidocheyla* cinsinin varlığının ilk bildirimidir.

Anahtar kelimeler: Cheyletidae, *Lepidocheyla*, akar, yeni kayıt, predatör, Türkiye.

Teşekkür: Bu çalışmanın materyalini, Türkiye Bilimsel ve Teknolojik Araştırma Kurumu (TÜBİTAK) tarafından desteklenen 107T183 numaralı projeden elde edilen akar örneği oluşturmaktadır.

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➢ **ORAL PRESENTATION**

Habitat preference of *Myotis blythii* (Lesser mouse-eared Myotis) from Eastern Anatolia and Iran

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Abstract

There are about 6569 mammal species in the world. Bats are the second richest order of the mammals in terms of 18 families, 197 genera and 1411 species. Because of their ecological and economic roles in the ecosystems, bats are very sensitive to human-induced changes. The most commonly encountered bat species in Turkey belong to the families Vespertilionidae and Rhinolophidae. Individuals of both families generally form maternity or hibernation colonies in various karstic and volcanic caves, trees, abandoned mines in the country. Today, bat populations are seriously declining worldwide because of anthropogenic disturbance and destruction of their roosts. The detailed latest records of bats were given in 1998 and 2012 from Turkey and Iran, respectively. According to various authors 50 and 41 bat species are distributed in Iran and Turkey, respectively. Hitherto, many ecological, biological and karyological data on mammals have been obtained separately from each country however, studies on the comparison of the mammal species between two countries are scarcely. This study is based on the ecological preferences of *Myotis blythii* in both western Iran and Eastern Turkey. Habitat preferences of both examined populations were similar. Specimens were caught from caves, deep wells, mines and historical places in the step areas of Iran and Turkey. However, specimens were examined in May from Kars province were lactating, whereas the ones from Hamadan and Kirmanshah provinces were neither pregnant nor lactating. On the contrary, we detected only male colonies in May from the localities in Iran.

Keywords: Lesser mouse-eared bat, ecology, habitat, Turkey, Iran

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➢ **ORAL PRESENTATION**

Spatio-temporal evolution of thermal niches in Lacertidae lizards in extreme environments in the Central High Atlas of Oukaimeden

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Abstract

This work falls within the broader context of work on the evolution of thermal niches lizards Palearctic. This approach requires selecting species directly sensitive to environmental conditions (resources, climate) and then have a special indicator position in the ecosystem. To perform this, we worked on the species of Lacertidae lizards in the Central High Atlas Oukaimeden and focused to clarify the climate sensitivity and thermoregulation strategies in these sympatric species in different biogeographic affinities. We performed measurements of body temperature in the wild and in the laboratory, and we identified the temperature and humidity of characteristic micro-habits and we estimated the loss of water through evaporation rates. The statistical analysis shows no significant differences between these Lacertidae, and Atlantolacerta andreanszkyi owns the water loss rate highest evaporative. These keys information can be the basis for understanding the response mechanisms of living organisms to global changes.

Keywords: Lacertidae, thermal preference, water loss, extreme environment, Oukaimeden, Morocco.

This research was funded by the Hassan II Academy of Sciences and Technology (ICGVSA project)

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➢ **ORAL PRESENTATION**

Effect of sub-lethal imidacloprid toxicity on MDA and GSH levels in freshwater mussels

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Abstract

The use of neonicotinoid insecticides, an important class of pesticides, has increased in recent years due to its various properties such as having a large spectrum of insects, being effective even at low doses, and having high water solubility. Imidacloprid, a neonicotinoid insecticide, causes serious adverse effects in non-target organisms and is one of the most important potential risks for local freshwater ecosystems in particular. The aim of this study is to determine the effects of different imidacloprid concentrations (5, 50, 500, and 1250 µg AI L^{-1}) on some biochemical markers of oxidative stress in freshwater mussels (*Unio mancus*) for 96 h. For this aim, reduced glutathione (GSH) level and malondialdehyde (MDA) level were evaluated as biochemical markers of exposure in the gills and digestive glands of mussels. The actual imidacloprid concentrations in the test waters were determined by LC-MS/MS analysis. According to the results, the digestive gland and gill MDA levels of mussels exposed to the highest concentrations of imidacloprid were induced at approximately 60% ($p < 0.05$). The gill GSH level was induced at the highest exposure concentration by approximately 35% compared to the control group ($p < 0.05$). In addition, the measured concentrations of imidacloprid in the test waters were determined to be approximately 30% less than the nominal imidacloprid concentrations. Pesticides can affect the balance between the prooxidant and antioxidant system and the increased reactive oxygen species cause oxidative damage in lipids, proteins and nucleic acids. The increase in GSH level is related to excessive pollution and protects the organisms against reactive oxygen radicals. In conclusion the biochemical responses related to oxidative stress caused by short-term imidacloprid toxicity in both tissues of freshwater mussels can be evaluated as early warning signals.

Keywords: Freshwater mussel, Imidacloprid, Malondialdehyde, Reduced Glutathione, LC-MS/MS.

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➢ **ORAL PRESENTATION**

Titanyum dioksit nanopartiküllerinin model organizma *Galleria mellonella* L. (Lepidoptera: Pyralidae) üzerine fizyolojik etkileri

Benay Tunçsoy

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Özet

Nanoteknolojinin hızlı gelişim göstermesi sonucu çeşitli boyut ve çaplardaki nanomateryaller ticari ve endüstriyel alanlarda sıklıkla kullanılmaktadır. Tıp alanındaki deneysel çalışmalarda model organizma olarak sıklıkla kullanılan farenin yetiştirilmesinin zor ve pahalı olması, ayrıca etik ve legal sorunlara yol açması model organizma olarak omurgasızların kullanılmasına olanak sağlamıştır. *Galleria mellonella* gibi türler, üretimi basit ve pahalı olmadığından iyi bir model organizmadır. Ayrıca *G. mellonella* larvalarının ticari yönden üretime uygun olması, oda sıcaklığında üretiminin kolay ve kısa sürede yapılabilmesi, bu türü diğer omurgasız canlılardan da ayırt etmektedir.
Model organizma *G. mellonella* (L.) son evre larvalarına, titanyum dioksit (TiO_2) nanopartiküllerinin uygulanması sonucunda hemolenfteki bazı biyokimyasal parametreler ve metabolik enzim aktiviteleri üzerine etkilerinin incelendiği bu çalışmada, bu türün fizyolojik çalışmalarda alternatif tür olarak kullanılabilirliğinin belirlenmesi amaçlanmaktadır.
Bu amaç kapsamında, metal nanopartiküllerinden TiO_2' in 5, 50 ve 250 mg/L konsantrasyonlarının model organizma *G. mellonella* son evre larvalarının hemolenf dokusunda metabolik enzimlerden alanin aminotransferaz (AST), aspartat aminotransferaz (ALT), kreatin kinaz (CK), laktat dehidrogenaz (LDH) gama glutamil transferaz (GGT) aktiviteleri üzerine etkileri belirlenmiştir. Metabolik enzim aktivitelerinde TiO_2' in en yüksek konsantrasyonunda artış meydana geldiği, buna karşın diğer konsantrasyonlarda azalma olduğu tespit edilmiştir. Kreatin kinaz aktivitesinde ise, tüm konsantrasyonlarda artış meydana gelmiştir.
Sonuç olarak, biyoloji ve birçok endüstriyel alanda yaygın olarak kullanılan titanyum dioksit nanopartiküllerinin *G. mellonella* larvalarında yüksek konsantrasyonlarda toksik etkilere neden olduğu ve hücre hasarının meydana geldiği tespit edilmiştir. Ayrıca, bu çalışma metal nanopartiküllerinin canlı organizmalardaki toksik etkilerinin tespit edilmesinde farklı model organizmaların kullanılabilirliğinin belirlenmiş olması açısından da önemlidir.

Anahtar Kelimeler: *Galleria mellonella*, Metabolik enzimler, Titanyum dioksit nanopartikülleri.

Teşekkür: Bu çalışma, Adana Alparslan Türkeş Bilim ve Teknoloji Üniversitesi Bilimsel Araştırma Projeleri Koordinasyon Birimi tarafından desteklenmiştir.

➢ **ORAL PRESENTATION**

First record of *Liacarus subterraneus* (Koch, 1844) from Turkey

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Abstract

Oribatid mites are one of the richest groups of mites about 11,000 species identified to date. They usually live in soil, debris, moss, lichen, bark, rock cracks and rarely in aquatic environments. Oribatid mites play an important role in soil formation, decomposition of organic matter, and nutrient cycle in soil. It is also known that some species are important as bioindicators in intermediate worms.

Soil samples were taken in Kocaeli and placed to Berlese funnel. Oribatid mites were selected with needle and pipette. Identification of species were studied on compound light microscope. Species belonging to family Liacaridae; *Liacarus subterraneus* (Koch, 1844) were found first record for Turkey.

Keywords: Acari, Oribatida, *Liacarus*, first record, Kocaeli, Turkey.

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➢ **ORAL PRESENTATION**

A morphological study on aedeagus and spermatheca of *Cassida fausti* Spaeth & Reitter, 1926 (Coleoptera: Chrysomelidae: Cassidinae) from Turkey

Fatih Ataş*, Hüseyin Özdikmen, Neslihan Bal, Damla Amutkan Mutlu and Zekiye Suludere

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Abstract

The paper presents morphological features of aedeagus and spermatheca of *Cassida fausti* Spaeth & Reitter, 1926 that is an E-Euroepan species (Coleoptera: Chrysomelidae: Cassidinae) from Turkey for the first time. Male genitalia are not diagnostic, spermathecae are partly diagnostic within the genus *Cassida* Linnaeus, 1758. Accordingly, detailed investigations of aedeagus and spermatheca are very important to obtain new diagnostic characters in the genus *Cassida*. Photos in stereo microscope are also given in the text.

Keywords: *Cassida fausti*, aedeagus, spermatheca, morphology, Turkey

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➢ ORAL PRESENTATION

A morphological study on aedeagus and spermatheca of *Cassida rubiginosa* Müller, 1776 (Coleoptera: Chrysomelidae: Cassidinae) from Turkey

Fatih Ataş*, Hüseyin Özdikmen, Neslihan Bal, Damla Amutkan Mutlu and Zekiye Suludere

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Abstract

The paper presents morphological features of aedeagus and spermatheca of *Cassida rubiginosa* Müller, 1776 that is an Holarctic species (Coleoptera: Chrysomelidae: Cassidinae) from Turkey for the first time. Male genitalia are not diagnostic, spermathecae are partly diagnostic within the genus *Cassida* Linnaeus, 1758. Accordingly, detailed investigations of aedeagus and spermatheca are very important to obtain new diagnostic characters in the genus *Cassida*. Photos in stereo microscope are also given in the text.

Keywords: *Cassida rubiginosa*, aedeagus, spermatheca, morphology, Turkey

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➢ **ORAL PRESENTATION**

A SEM study on aedeagus and spermatheca of *Cassida pannonica* Suffrian, 1844 (Coleoptera: Chrysomelidae: Cassidinae) from Turkey

Neslihan Bal*, Hüseyin Özdikmen, Fatih Ataş, Damla Amutkan Mutlu and Zekiye Suludere

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Abstract

The paper presents ultrastructures observed by SEM of aedeagus and spermatheca of *Cassida pannonica* Suffrian, 1844 that is a Sibero-European species (Coleoptera: Chrysomelidae: Cassidinae) from Turkey for the first time. Male genitalia are not diagnostic, spermathecae are partly diagnostic within the genus *Cassida* Linnaeus, 1758. Accordingly, ultrastructural investigations of aedeagus and spermatheca are very important to obtain new diagnostic characters in the genus *Cassida*. Photos in SEM as weel as photos in stereo microscope are also given in the text.

Keywords: *Cassida pannonica*, SEM, ultrastructures, aedeagus, spermatheca, Turkey.

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➢ ORAL PRESENTATION

A SEM study on aedeagus and spermatheca of *Cassida vibex* Linnaeus, 1767 (Coleoptera: Chrysomelidae: Cassidinae) from Turkey

Neslihan Bal*, Hüseyin Özdikmen, Fatih Ataş, Damla Amutkan Mutlu and Zekiye Suludere

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Abstract

The paper presents ultrastructures observed by SEM of aedeagus and spermatheca of *Cassida vibex* Linnaeus, 1767 that is an Asiatic-European species (Coleoptera: Chrysomelidae: Cassidinae) from Turkey for the first time. Male genitalia are not diagnostic, spermathecae are partly diagnostic within the genus *Cassida* Linnaeus, 1758. Accordingly, ultrastructural investigations of aedeagus and spermatheca are very important to obtain new diagnostic characters in the genus *Cassida*. Photos in SEM as weel as photos in stereo microscope are also given in the text.

Keywords: *Cassida vibex*, SEM, ultrastructures, aedeagus, spermatheca, Turkey.

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➢ **ORAL PRESENTATION**

Complex flow rheology analysis using magnetic resonance ımaging (MRI)

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Abstract

Magnetic resonance imaging (MRI) can be used as a viscometer, based on analysis of a measured velocity profile of fluid flowing in a tube coupled with a simultaneous measurement of the pressure drop driving the flow. This type of measurement is well suited for rheological characterization of non-Newtonian fluids. In this study, the application and theory of MRI rheometry on the measurement of complex fluid such as CMC (Carboxylmethyl cellulose), and Carbopol solutions flow, which there is no linear relationship between stress and shear rate in simple shear flow, was investigated in detail.

Keywords: rheology, MRI, non-Newtonian fluids

➢ **ORAL PRESENTATION**

Dynamic viscoelastic properties of complex polymeric networks

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Abstract

To increase and regulate viscosity, to be gelling and lubricate, cellulose derived pectin, methylcellulose, carbomer, carbopol, polyvinyl alcohol, collagen, elastin, keratin, jelatin preparats or their mixed forms are utilized in lotions, creams, shampoo products especially in cosmetic fields. The structural and textural changes of viscoelastic mixtures in terms of dynamic mechanical characteristics analysis such as creep and recovery tests, small amplitude oscillation tests (SAOS), stress relaxation tests are important in the process ranging from product research and development to consumer in the industrial process chain. For the scope of the study, the effects of different multi-viscoelastic mixtures, mixing ratio, concentration, temperature, solvent environment and time on the dynamic mechanical properties are aimed to be investigate experimentally and theoretically.

Keywords: Viscoelasticity, rheology, SAOS, stress relaxation.

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➢ **ORAL PRESENTATION**

Lazer destekli ultrasonik yöntem ile fenol degredasyonunun incelenmesi

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Özet

Fenolik bileşikler yağ rafinesi, petrokimya, ilaç, kömürün koklaştırılması, reçine üretimi, plastik, boya, kağıt hamuru, kağıt ve odun ürünleri gibi endüstrilerin atıklarında bulunmaktadır. Bu bileşenlerin işlem görmeden tahliye edilmesi insanlar, hayvanlar ve sucul sistemler üzerinde ciddi sağlık risklerine sebep olabilirler. İnsan derisi üzerinde tahriş yaratan fenol hem kronik hem de akut derecede tehlikeye sahiptir. Fenolün hayvanlardaki kronik maruziyeti gastrointestinal, merkezi sinir sistemi, karaciğer, böbrek ve kardiyovasküler dokuda tahrişe yol açar. Bu nedenle fenol içeren atık suların arıtımı önemli bir çevresel sorundur. Atık sulardaki fenol degredasyonu üzerinde çalışılan bu projede Ultrasonik-Lazer prosesin kullanımı ile bu suların arıtılması amaçlanmıştır. Ultrasonik proses, yeşil kimyanın içerdiği prensiplerin lehine işleyen çevre dostu bir prosestir. Diğer fenol degradasyonu için ultrasonik yöntemlerin kullanıldığı çalışmalardan farklı olarak, bu çalışmada kullanılan lazerin fenolün degradasyonuna olan katkısı ortaya konmuştur. Çalışma kapsamında oksidant olarak potasyum persülfat olarak belirlenmiştir. Bunun yanında deneysel parametreler olarak belirlenen sıcaklık (313 K, 333 K, 353 K), oksidant derişimi (0,75 mmol, 0,45 mmol, 0,15 mmol) ve süre (40 dk, 60 dk, 80 dk) parametrelerinin fenolün giderimi üzerine etkileri de ortaya konmuştur. Fenolün giderimi Toplam Organik Karbon (TOK) metodu ile tespit edilmiş ve sonucu etkileyen herbir parametrinin TOK üzerindeki etkileri, kullanılan Cevap Yüzey Metodu (CYM) yardımıyla açıkça ortaya konmuştur. Cevap Yüzey Metodu deney sürecinin oluşturulması ve en uygun halde getirilmesi için kullanılan, değişken parametrelerin uyumunu çözümleyen istatistiğe dayalı bir modelleme tekniğidir. Elde edilen sonuçlar CYM metodu yardımıyla değerlendirildiğinde; 353 K sıcaklığında TOK gideriminin en yüksek düzeyde olduğu, oksidant konsantrasyonu ve zaman, zaman ve sıcaklık, zaman ve oksidant konsantrasyonu parametrelerinin doğru orantılı olduğu görülmektedir.

Anahtar Kelimeler: Ultrasonik, Lazer, Fenol

➢ **ORAL PRESENTATION**

Stimuli-responsive polymer particles for drug delivery

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Abstract

Stimuli-responsive microgel particles have gained potential use as drug delivery vehicles for biological applications. In this work, stimuli-responsive microgel particles, in the process of surfactant-free emulsion copolymerization of temperature-responsive N,N-diethylacrylamide and pH- and temperature-responsive 2-(dimethylamino) ethyl methacrylate, have been prepared and characterized. The structural characterization of the obtained particles was evaluated by FTIR (Fourier Transform Infrared Spectrophotometer), particle size and zeta potential measurements were performed using dynamic light scattering, and the cytotoxicity was determined using a standard MTT (Methylthiazole diphenyl tetrazolium) assay. According to the assay results, the particles did not showed cytotoxic effect against L929 cell line. The microgel was loaded with 5-Fluorouracil, and pH-dependent release behavior of the drug from the microgels was investigated. The results indicated that the microgel particles have promising potential as an injectable drug carrier for pharmaceutical applications.

Keywords: N,N-diethylacrylamide, microgel, drug release, MTT assay

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➢ **ORAL PRESENTATION**

Synthesis and single-crystal X-ray diffraction studies on (3-(chloromethyl)-3-(3-methyl-3-phenylcyclobutyl)oxiran-2-yl)(3-methyl-3-phenylcyclobutyl)methanone

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Abstract

The title compound, (3-(chloromethyl)-3-(3-methyl-3-phenylcyclobutyl)oxiran-2-yl)(3-methyl-3-phenylcyclobutyl)methanone ($C_{26}H_{29}ClO_2$), was synthesized and its crystal structure was brought to light by single-crystal X-ray diffraction method. The crystal belongs to the monoclinic system with the following lattice parameters: a= 16.060 (4) Å, b= 6.3929 (11) Å, c= 22.156 (4) Å and α=γ=90, β=93.104 (10)^0 its unit cell volume is 2271.5 (8) Å^3. The intra- and inter-molecular hydrogen bondings were determined by PLATON software (Multipurpose Crystallographic Tool). Calc(Full) analyze reveal that the molecules are linked by intra/inter-molecular C—H•••O and weak C—H•••π hydrogen-bonding interactions.

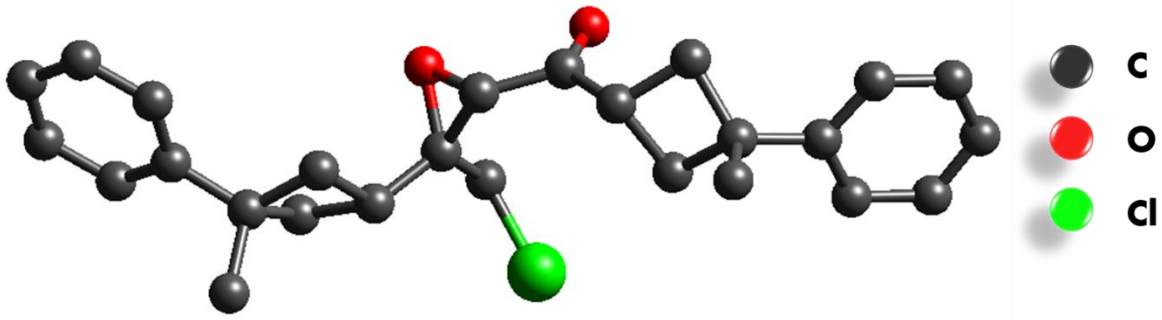

Figure 1 The molecular structure of the title compound.

Keywords: single-crystal**,** X-ray diffraction, cyclobutane

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➢ **ORAL PRESENTATION**

Comparison of two techniques for corrosion protection ability of schiff base of 3-aminorhodanine and cinnemaldehyde: Self-assembled monolayer films and inhibitor applications

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Abstract

Copper is widely used in many industrial applications, especially in electronics industry due to its superior performance. Unfortunately, their some properties such as conductivity, decorative appearance, thermal conductivity and physical endurance are weakened after corrosion in chloride containing solutions. There are some protection methods for protecting copper against corrosion. In this study, the most commonly applied corrosion inhibitor application and self-assembled monolayer film (SAM) application, which is a popular method in recent years, were compared experimentally. Schiff base of 3-aminorhodanine (AMRh) and cinnemaldehyde (CA) were used for this purpose. AMRh-CA-SAM films were prepared in aqueous medium. The corrosion inhibition performances of SAM coated copper in NaCl and uncoated copper in AMRh inhibitor containing NaCl solutions were compared with many electrochemical techniques. Very good protection abilities in short exposure times were obtained when both methods were applied. The SAM application provided better protection ability with respect to the inhibitor application.

Keywords: Self-assembled monolayer films, copper, corrosion, 3-aminorhodanine, cinnemaldehyde, Schiff base.

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➢ **ORAL PRESENTATION**

Stability and surface properties of self-assembled monolayer films of schiff base of 3-aminorhodanine and cinnemaldehyde on copper

Derya Özdemir[1], Abdullah Salcı[1], Ramazan Solmaz[2]

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Abstract

Organic film modified metals have many applications such as corrosion protection, decorative appearance, analytical or biosensors. Nowadays, the use of self-assembled monolayer films (SAM) has been attracted as a new and alternative method for protection of metals against corrosion. These films have superior properties with respect to polymers or dye such as spontaneous formation, dense, compact, tight and well-ordered this films etc. The surface properties of these films can also be changed by synthesis of certain adsorbents. These films form very protective films over the metals and behave as physical barrier against the corrosive ions. On the other hand, electrochemical and physical properties of the films fabricated over the metals were vital for their practical applications, *i.e.* corrosion protection, electrocatalysis and sensor applications. In this study, the SAM film of Schiff base of 3-aminorhodanine (AMRh) and cinnemaldehyde (CA) were prepared on copper from methanol as solvent. The electrochemical stability of the film modified copper was tested in 3.5% NaCl solution with the help of electrochemical techniques. Their thermal stability was evaluated using thermogravimetric analysis. Surface properties were examined with contact angle measurements. The data obtained clearly indicated that AMRh-CA-SAM films have good electrochemical and thermal stability. The surface has hydrophobic properties.

Keywords: Self-assembled monolayer films, electrochemical stability, surface properties, 3-aminorhodanine, cinnemaldehyde, Schiff base.

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➢ **ORAL PRESENTATION**

Postpartum depresyon ve omega-3 yağ asitleri arasındaki ilişki

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Özet

Gebelik sırasında ve postpartum dönemde görülen major depresif bozukluk maternal ve neonatal morbidite ile ilişkilidir. Gebelik esnasında görülen depresyon, postpartum depresyonu (PPD) tetikleyebildiğinden mutlaka tedavi edilmesi ya da önlenmesi gerekmektedir. Gebelik döneminde antidepresanlar kullanılırsa, bu ilaçlara maruz kalan bebeklerde nörodavranışsal bozukluklar görülmektedir. Bu yüzden PPD'nin önlenmesi için bazı besinlerin etkileri araştırılmaktadır.

Depresyonun önlenmesi veya etkilerinin hafifletilmesinde önemli etkileri olan besinler, omega-3 çoklu doymamış yağ asitlerini içeren balık yağı ve deniz ürünleridir. İnsan vücudunda doymuş ve tekli doymamış yağ asitleri (omega-9) yapılmasına rağmen çoklu doymamış yağ asitleri (omega-3 ve omega-6) yapılamamaktadır. Çoklu doymamış yağ asitleri önemli hormonların öncüsüdürler, bu yüzden yeterli miktarlarda dışarıdan alınmaları gerekmektedir. Omega-6 yağ asitleri (linoleik asit) bitkisel sıvı yağlarda, omega-3 yağ asitleri (α-linolenik asit) ise balık, keten tohumu, ceviz, soya, badem, kolza yağında bulunmaktadır. Yapılan çalışmalarda omega-3 yağ asitlerinin PPD gelişmesinin önlenmesinde büyük rol oynadığı gösterilmiştir. Bu derlemede, omega-3 yağ asitleri ile PPD gelişme riskleri arasındaki ilişki anlatılacaktır.

Anahtar Kelimeler: Postpartum depresyon, Çoklu doymamış yağ asitleri, EPA, DHA

➢ **ORAL PRESENTATION**

Alternative approaches: Antimicrobial activity of Gold-*Olea europaea* leaf nanoparticles

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Abstract

Metal nanoparticles(MNPs) possessed diverse biomedical applications including antibacterial, anticancer. Biological synthesis of metal nanoparticles (MNPs) has known to possess suitable alternatives than the existing chemical methods. Green synthesis of MNPs by using bio-extracts has become an emerging field due to their safe, eco-friendly and non-toxic nature that are suitable for synergistic biological activities. Different methods chemical , and green have been employed to synthesis of MNPs. Among these methods, green synthesis method is a novel approach to produce the functional nanoscale materials for a wide range of applications in advanced nanotechnology. The antibacterial activity and antifungal properties of the gold nanoparticles with pre-characterized were investigated. As a result, the nanoparticles showed a strong antimicrobial activity. These nanoparticles however opened up new perspective in research and may provide promising alternative approaches for nano-drug development in the next generation of effective anticancer drugs.

Keyword: MNPs, nano materials, green synthesis, *Olea europaea*

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➢ **ORAL PRESENTATION**

Gold nanoparticle synthesis and characterization using *Olea europaea* leaf

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Abstract

In the recent area, nanotechnology concedes numerous methodologies to develop nanomaterials of predefined size and shapes for various applications. Besides, biological methods adopt green chemistry principles that evade harsh reaction conditions and employ eco-friendly technologies noble metals nanoparticles have demonstrate interesting prospects towards biomedical applications, are envisaged to be more promising. In this study, the *Olea europaea* leave extract was used for the synthesis of gold nanoparticles (AuNPs) in an aqueous medium. In addition, the resulting Structure of AuNPs UV-spectroscopy, thermogravimetric analysis TGA-DTA, X-ray diffractive XRD, Fourier Transform - Infrared spectroscopy (FT-IR), scanning Electron Microscopy SEM and EDX analyzes were characterized. The fact that gold nanoparticles synthesized in the study is less than 100 nm keeps their use as a nanomaterial strong. The crystallinity state and purity of AuNPs specimen was demonstrated by X-ray diffraction examination. Studying the infrared spectroscopy (FT-IR) revealed the presence of biomolecules on the surface of particles that are responsible for the reduction and stabilization process.Spherical shaped AuNPs were obtained with the average particle size of 25 nm. In short, this novel synthesis route provides an eco-friendly and low cost option, as compared to currently available expensive chemical and/or physical methods.

Keyword: Olea europaea, FTIR, XRD, SEM and green synthesis.

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➢ **ORAL PRESENTATION**

Obezite ve mikrobiyota ilişkisi

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Özet

İnsan bağırsağı çok sayıda bakteri türü içermektedir. Erken yaşamdaki bağırsak mikrobiyotası oldukça dinamiktir ve maternal bağırsak mikrobiyotası, doğum şekli ve emzirme gibi birçok faktör tarafından şekillendirilmektedir. Yetişkin beslenme tarzına geçilmesiyle mikrobiyotadaki bakteri türleri çeşitlenmektedir. Yapılan çalışmalar, obezite ve metabolik sendrom gibi metabolizmayı etkileyen hastalıkların bu bakterilerin sayısından, dağılımından ve çeşitliliğinden etkilendiğini göstermektedir. Diyet bileşimi, prebiyotikler ve probiyotikler, bariatrik cerrahi ve fekal transplantasyon yoluyla yapılan müdahaleler ile yeniden düzenlemeler hem mikrobiyotayı, hem de obezite prevalansını değiştirmektedir. Bu derlemede, bahsedilen müdahalelerin obezite üzerindeki etkileri incelenmektedir.

Anahtar Kelimeler: Obezite, mikrobiyota, prebiyotik, probiyotik, fekal transplantasyon

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➢ **ORAL PRESENTATION**

Antioxidant-oxidant condition and *in vitro* antibacterial capacity of walnut (*Juglans regia* L.) inner leaf; Another possible ethnomedicinal part of walnut

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Abstract
Walnut (*Juglans regia L.*) is unique for its extensive biological activities and pharmaceutical properties. Many studies have been done to determine the physical and chemical properties of walnut, but in the literature there are very few studies examining the woody inner leaf of it. In this study, it is aimed to determine the antioxidant and antibacterial properties of walnut's inner leaf (curtain), a kind of waste. Walnut inner leaf extract was obtained by using an ethanol solvent with soksilet device. Total antioxidant-oxidant capacity (TAC-TOC) values were measured using Rel Assay Diagnostics (RL010 / RL009; Gaziantep- Turkey) brand kit. TAC and TOC value is given as 'Trolox equivalent' and 'H_2O_2 equivalent' respectively; TAC value was determined as 3,889 µmol Trolox equivalent/L and TOC values were assigned as 16,642 µmol H_2O_2 equivalents/L. In this study, walnut inner leaf extract was also evaluated for potential antibacterial activity against medically important bacterial strains. The antibacterial activity was determined by using agar-well diffusion method. The antibacterial activity of extract (25 µl) was tested against two Gram-positive (*Staphylococcus aureus*, *Bacillus subtilis*) and one Gram-negative (*Escherichia coli*) bacteria. Zone of inhibition of extract was compared with that of different standards like Tetracycline (30 mg), Gentamicin (10 mcg), Ciprofloxacin (5 mcg) and Chloramphenicol (30 mg) for antibacterial activity. Based on our findings (12-16 mm), the extract of the *Juglans regia L.* inner leaf, showed remarkable antimicrobial activity against the selected test micro-organisms. In this study, the extract of walnuts' woody inner leaf was determined to have antimicrobial and antioxidant properties.

Keywords: *Juglans regia L.*, Total antioxidant capacity, Total oxidant status, Antibacterial capacity

➢ **ORAL PRESENTATION**

Yetişkin bireylerin içecek tüketim alışkanlıkları ile kolonik geçiş zamanları arasındaki ilişkinin değerlendirilmesi

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Özet

Kolonik geçiş zamanının hızlı olması kalın bağırsakta emilim fonksiyonunu bozarak, mikrobiyotayı değiştirerek ve distal kolonu asitleştirerek diyareye yol açabilmektedir. Yavaş geçiş zamanı ise, safra asidi metabolizmasını ve östrojen metabolizmasını değiştirmekte ve konstipasyon, irritabl bağırsak sendromu, kolon kanseri ve safra kesesi taşı riskini artırmaktadır. Literatür incelendiğinde kolonik geçiş süresi ile sıvı tüketimi arasındaki ilişkiyi inceleyen çalışma sayısının yetersiz olduğu görülmüştür. Bu araştırma, yetişkin bireylerin içecek tüketim alışkanlıkları ile kolonik geçiş zamanları arasındaki ilişkiyi değerlendirmek amacıyla planlanmıştır. Araştırmaya 18-65 yaş aralığında 1339 birey katılmıştır. Bireylerin içecek tüketim alışkanlıkları "Sıvı Tüketim Sıklığı Formu", kolonik geçiş zamanı "Bristol Dışkı Ölçeği" ile değerlendirilmiştir. Araştırmaya katılan bireylerin yaş ortalaması 37.5±11.19 yıl'dır. Bireylerin %29.4'ünün yavaş, %55.2'sinin normal, %15.4'ünün hızlı kolonik geçiş zamanına sahip olduğu saptanmıştır. Günlük toplam sıvı tüketiminin medyan değeri kolonik geçiş zamanı yavaş olanlarda 2074.4 mL, normal olanlarda 2409.9 mL, hızlı olanlarda 2471.6 mL' dir ($p<0.05$) ve toplam sıvı tüketimi (mL/gün) ile kolonik geçiş zamanı arasında pozitif yönlü korelasyon görülmüştür ($r=.173$; $p<0.01$). Kolonik geçiş zamanı yavaş olanlar ile hızlı olanların günlük su, ayran, hazır meyve suyu, siyah çay, bitki çayı, soda, enerji içeceği ve alkollü içecek tüketim miktarlarının anlamlı şekilde farklı olduğu bulunmuştur ($p<0.05$). Kolonik geçiş zamanı yavaş olanlar ile normal olanlar kıyaslandığında bunlara ek olarak süt ve kefir tüketimlerinin de anlamlı şekilde farklılık gösterdiği görülmüştür. Kolonik geçiş zamanı normal olanlar ile hızlı olanların ise enerji içeceği dışındaki içecek tüketim miktarları benzerdir. Kolonik geçiş zamanı ile içecek tüketim miktarları (mL/gün) arasındaki korelasyonlar incelendiğinde su, ayran, siyah çay, kahve ve soda tüketimi ile pozitif yönlü ($p<0.05$); süt, kefir, hazır meyve suyu, bitki çayı ve enerji içeceği tüketimi ile negatif yönlü bir korelasyon bulunmuştur ($p<0.05$). Bu sonuçlar sıvı tüketiminin kolonik geçiş zamanı ile yakından ilişkili olduğunu; ancak her içecek çeşidinin kolonik geçiş zamanı üzerindeki etkisinin aynı olmadığını göstermektedir.

Anahtar Kelimeler: Kolonik Geçiş, Konstipasyon, Sıvı tüketimi, Diyare

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➢ **ORAL PRESENTATION**

General characteristics of white cheese

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Abstract

In all north and east Mediterranean Sea and the Balkans, a variety of white cheese is made with just as much variety of processes and depending on the appeals and the surrounding circumstances when it comes to production, removing water, condensing, and aging of the cheese.
The entire cycle comprises the use of milk, starters, enzymes, required know-how, chemistry and micro-flora bacteria. In this cycle, there are modifications both in terms of chemistry and biochemistry once cheese is maturing in the mixture.
In the present review, we examine the various features of WBC (white brine cheese). Considering their chemical changes, impact of rennet and initiators or starters, homogeneity, and microbiology while aging.
The present review of the WBC production and its practice is hoped to shed light on the process for producers to improve and achieve their expected yield quality, while also inspiring future work related to various stages to achieve the intended properties of WBC.

Keywords: Turkish white cheese, lipolysis, proteolysis, dairy products, lactic acid bacteria

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➢ **ORAL PRESENTATION**

Kronik hastalık riskinin belirlenmesinde antropometrik ölçümlerin değerlendirilmesi

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Özet

Günümüzde artan prevalansıyla dikkat çeken obezite; kardiyovasküler hastalıklar, diyabet, sindirim sistemi hastalıkları gibi birçok kronik hastalıkla ilişkilendirilmektedir. Kronik hastalık riski özellikle abdominal obezitedeki artışla ilişkilendirilmektedir. Bu araştırmada obezite ve abdominal obezite değerlendirilerek kızlarda kronik hastalık riskinin değerlendirilmesi amaçlanmıştır. Çalışmaya 18-25 yıl yaş aralığına sahip 192 kız birey dahil edilmiştir. Bireylerin vücut ağırlığı, boy uzunluğu, bel ve kalça çevresi usulüne uygun olarak araştırmacılar tarafından alınmıştır. Bel-kalça, bel-boy oranı ve beden kütle indeksi hesaplanmış ve sınıflandırılmıştır. Hastalık riski değerlendirilmesinde kadınlarda bel çevresinin 80 cm'in üzerinde olması artan risk, 88 cm'in üzerinde olması ise ciddi risk olarak değerlendirilmektedir. Bel-kalça oranının ise 0.85 ve üzerinde olması, bel-boy oranının 0,5 ve üzerinde olması risk olarak tanımlanmaktadır. Araştırmaya katılan bireylerin BKİ ortalaması 20,9±2,30 kg/m^2 iken bel çevresi ortalaması 72,5±6,34 cm'dir. Bel-kalça oranı ortalaması 0,7±0,06 ve bel-boy oranı ortalaması 0,4±0,04 olarak belirlenmiştir. Bireylerin %85.9'nun BKİ sınıflamasına göre normal vücut ağırlığına sahip olduğu görülmektedir. Bel çevresine göre %90,6'sı , bel-kalça oranına göre ise %87,0'si risk olmayan sınıfta yer almaktadır. Bel-boy oranı risk sınıflamasına göre ise bireylerin %89,1'i risk olmayan sınıfta yer almaktadır. Çalışmaya katılan bireylerden normal vücut ağırlığında olanların oranının yüksek olması değerlendirilen tüm antropometrik ölçümlere göre kronik hastalık riskinin de düşük olmasına neden olmuştur. Hastalık riskinin azalmasında obezitenin önemi oldukça yüksektir bu çalışma da bu durumu desteklemektedir.

Tablo 1. Bireylerin antropometrik ölçümlerine göre kronik hastalık risk değerlendirmesi

BKİ (kg/m^2)	S	%
≤18.5 (zayıf	21	10,9
18.5-24.9 (normal)	165	85,9
25.0-29.9 (hafif şişman)	4	2,1
≥30 (obez)	2	1.0
Bel çevresi (cm)		
≤80 (risk yok)	174	90,6
80-88(risk)	16	8,3
>88 (yüksek risk)	2	1,0
Bel-kalça oranı		
<0.85 (risk yok)	167	87,0
≥0.85 (risk)	25	13,0
Bel-boy oranı		
<0.5 (risk yok)	171	89,1
≥0.5 (risk)	21	10,9

Anahtar kelimeler: Kronik hastalık riski, antropometrik ölçümler, BKİ, bel çevresi

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➢ **ORAL PRESENTATION**

Sürdürülebilir beslenmenin besin ögesi alımlarına göre değerlendirilmesi

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Özet

Sürdürülebilir beslenmenin temelinde bireysel ve toplumsal sağlığın korunması yer almaktadır. Bireylerin sağlığını etkileyen etmenlerden biri beslenmedir. Yeterli ve dengeli beslenmede enerji, makro ve mikro besin ögelerinin yeterli düzeyde alımının yanı sıra posanın artışı, yağ, doymuş yağ, kolesterol alımının azaltılması gibi ilkeler bulunmaktadır. Bu çalışmada üniversitede okuyan öğrencilerin cinsiyete göre besin tüketimlerinin kıyaslanması amaçlanmıştır. Çalışmaya yaşları 18-24 yıl arası değişen üniversite öğrencileri dahil edilmiştir (n:300). Katılımcılardan 24 saatlik hatırlatma yöntemiyle besin tüketim kaydı alınmıştır. Besin tüketim kayıtlar BEBİS programıyla değerlendirilmiştir. Erkek bireylerin ortalama enerji, karbonhidrat ve posa alımlarının daha yüksek olduğu görülmektedir ($p>0,05$). Protein alımlarının yanı sıra hem hayvansal ($p<0,05$) hem de bitkisel ($p>0,05$) kaynaklı protein alımı da erkeklerde yüksektir. Ayrıca hayvansal protein alımı erkeklerde bitkisel protein alımına göre daha yüksek iken, kızlarda ise bu durum tam tersidir. Yağ, doymuş yağ, kolesterol alımı da erkeklerde daha yüksektir ancak sadece kolesterol alımında istatistiksel açıdan farklılık bulunmaktadır ($p<0,05$). Karbonhidrat, protein ve yağdan gelen enerji yüzdeleri değerlendirildiğinde her iki cinsiyette de karbonhidrat yüzdesinin (%55-60) ve protein yüzdesinin (%15-20) olması gerekenden daha düşük olduğu belirlenmiştir. Ancak yağdan gelen yüzdenin olması gerekenden (%25-30) yüksek olması dikkat çekicidir. Sonuç olarak bireylerin yağ alımlarını ve hayvansal kaynaklı protein alımlarını azaltması gerektiği düşünülmektedir. Bu durum hem sürdürülebilir beslenmenin hem de yeterli ve dengeli beslenme ilkelerine uygundur. Yeterli dengeli beslenme ilkelerine uygun olarak hayatın sürdürülmesi hem bireysel hem de toplumsal sağlık açısından önemli olduğu unutulmamalıdır.

Tablo1. Cinsiyete göre bireylerin enerji ve bazı besin ögesi alımlarının kıyaslanması

	Erkek (n=92) (x̄±SS)	Kız (n=208) (x̄±SS)	*P*
Enerji (kkal)	1900.3± 65.1	1768.8± 59.6	0.087
CHO (g)	228.7± 90.4	218.3± 88.2	0.351
CHO %	50.3±7.5	49.3±8.1	0.303
Protein (g)	62.1± 25.9	54.4± 23.7	0.012*
Protein %	13.5± 3.3	12.7± 2.9	0.036*
Hayvansal protein(g)	32.5±20.7	25.9±18.4	0.007*
Bitkisel protein(g)	30.9± 14.8	28.6± 12.8	0.455
Yağ (g)	78.0± 30.5	72.0± 25.6	0.078
Yağ %	37.0±7.7	36.8±7.0	0.839
Doymuş yağ(g)	23.9± 10.9	21.6±9.0	0.057
Kolesterol (mg)	249.3± 198.4	195.3± 185.6	0.024*
Omega-3(g)	1.2±0.8	1.1±0.6	0.167
Omega-6(g)	22.3± 12.2	20.8± 11.5	0.280
Posa (g)	19.7±9.6	18.1±7.8	0.134

Anahtar kelimeler: besin ögesi alımı, sürdürülebilir beslenme, yeterli ve dengeli beslenme

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➢ **ORAL PRESENTATION**

Tarçının (*Cinnamomum sp.)* probiyotik yoğurdun mikrobiyolojik, kimyasal ve duyusal özellikleri üzerine etkisinin araştırılması

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Özet

Yoğurt, beslenmemizde önemli bir yere sahip olmakla birlikte sağlığın korunması, geliştirilmesi ve terapötik rolü olmakla birlikte yoğurdun profilaktik kullanımı sınırlıdır. Probiyotik yoğurtta bulunan bakterilerden ise vücudun yararlanma olanağı daha fazladır. Probiyotik mikroorganizmalar bağırsaklara ulaşana kadar canlı kalarak bağırsak florasında koloni oluşturur ve vücuda biyoaktif fayda sağlar. Probiyotik gıdada en az 1.0 x 10^6 kob/g canlı probiyotik mikroorganizma bulunması gerekmektedir.

Tarçın (*Cinnamomum*), Defnegiller (*Lauraceae*) familyasına ait bir ağaçtan elde edilmektedir. Yapılan çalışmalarda, tarçının antioksidan, insektisit, antidiyabetik, antiinflamatuar, anti-tromboz ve analjezik etkilerinin olduğu bildirilmiştir. Diğer yandan, tarçın katılmış yoğurt veya probiyotik yoğurtta tarçının yoğurt ve probiyotik bakteriler üzerine etkisine dair bir çalışma bulunmamaktadır.

Bu çalışma ile probiyotik yoğurda farklı düzeylerde katılan tarçının bu yoğurtların mikrobiyolojik, kimyasal ve duyusal özellikleri üzerine etkilerini saptamak amaçlanmıştır. Bu amaçla yoğurt ve probiyotik yoğurt kültürleri kullanılarak probiyotik yoğurt üretilmiştir. Yoğurtlar Kontrol, Tarçın 1, Tarçın 2 ve Tarçın 3 grupları olmak üzere dört gruba ayrılmıştır. Gruplara sırasıyla % 0, % 0,3, % 1 ve % 2,5 oranlarında toz haline getirilmiş tarçın ilave edilmiştir. Çalışmada kullanılan tarçının içerik analizi GC-MS metodu ile yapılmıştır. Probiyotik yoğurda tarçın ilavesinin *Streptococcus thermophilus, Lactobacillus acidophilus* ve *Bifidobacterium animalis ssp. lactis* üzerine antibakteriyel etki gösterirken *Lactobacillus delbrueckii subsp. bulgaricus* üzerine ise tarçının düzeyine bağlı olarak bakteriyel gelişimi desteklediği bulunmuştur. Yoğurtlara katılan tarçın oranına bağlı olarak yoğurtların pH değerleri ve yağsız kuru madde oranları değişiklik göstermiştir. Yoğurtların duyusal özellikleri karşılaştırıldığında kontrol grubunun puanı tarçın gruplarının puanlarından yüksek bulunmuştur. Diğer yandan, Tarçın (% 1) grubu duyusal analiz puanlaması kontrol grubuna en yakın puanı almıştır. Bu sonuçlar, probiyotik yoğurda farklı oranlarda katılan tarçının besinin mikrobiyal, kimyasal ve duyusal özellikleri üzerinde sınırlı düzeyde olumlu etkisinin olduğunu göstermiştir.

Anahtar kelimeler: Tarçın, probiyotik yoğurt, probiyotik bakteriler, yoğurt bakterileri

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➢ **ORAL PRESENTATION**

Karanfilin (*Syzygium aromaticum*) probiyotik yoğurdun mikrobiyolojik, kimyasal ve duyusal özellikleri üzerine etkisinin araştırılması

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Özet

Yoğurt besin değeri yüksek, laktik asit fermentasyonu sonucunda elde edilen ve canlı laktik asit bakterileri içeren fermente bir süt ürünüdür. Probiyotik yoğurtta bulunan bakterilerden ise vücudun yararlanma olanağı daha fazladır. Probiyotik mikroorganizmalar bağırsaklara ulaşana kadar canlı kalarak bağırsak florasında koloni oluşturur ve vücuda biyoaktif fayda sağlar. Probiyotik gıdada en az 1.0 x 10^6 kob/g canlı probiyotik mikroorganizma bulunması gerekmektedir

Karanfil bitkisi (Syzygium aromaticum), eski çağlardan bu yana tamamlayıcı tıpta birçok hastalıkların tedavisinde kullanıldığı gibi dünya mutfaklarında da yaygın olarak kullanılan bir baharattır. Ayrıca, karanfilin antibakteriyel, antiviral, antioksidan, antidiyabetik ve antiinflamatuar etkileri çeşitli çalışmalarda bildirilmiştir. Ancak, karanfil katılmış yoğurt veya probiyotik yoğurtta karanfilin yoğurt ve probiyotik bakteriler üzerine etkisine dair bir çalışma bulunmamaktadır.

Bu çalışmada, probiyotik yoğurda katılan farklı konsantrasyonlardaki karanfilin, yoğurdun bazı mikrobiyolojik, kimyasal ve duyusal özellikleri üzerine etkisi araştırıldı. Çalışmada ticari oalarak elde edilen yoğurt ve probiyotik kültürler kullanılarak probiyotik yoğurtlar üretildi. Gruplandırma kontrol, karanfil 1, karanfil 2 ve karanfil 3 olmak üzere 4 grup şeklinde yapıldı ve gruplara sırasıyla %0, %0.1, %0.3 ve %1 toz haline getirilmiş karanfil ilave edildi. Çalışmada kullanılan karanfilin gaz kromatografik analizi yapıldı. Probiyotik yoğurda karanfil ilavesinin *Streptococcus thermophilus* ve *Lactobacillus acidophilus* üzerinde antibakteriyel etki gösterdiği, *Lactobacillus delbrueckii* subsp. *bulgaricus* ve *Bifidobacterium animalis* ssp. *lactis* üzerinde ise karanfilin konsantrasyonuna bağlı olarak bakteriyel gelişimi destekleyici etkide bulunduğu tespit edilmiştir ($P<0.05$). Ayrıca, karanfil konsantrasyonuna bağlı olarak yoğurtların pH, yağsız kuru madde ve yağ miktarları da etkilenmiştir. Yoğurtların görünüşü, kıvamı, kokusu ve tadı gibi duyusal özellikleri puanlandırıldığında karanfil (%0.1 ve %0.3) katkılı probiyotik yoğurtların puanları kontrol grubuna benzer çıkmıştır. Bu sonuçlar, probiyotik yoğurda katılan karanfilin, ürünün mikrobiyolojik ve kimyasal kalitesini artırdığını, duyusal özellikler üzerine ise sınırlı düzeyde olumlu etkisinin olduğunu göstermiştir.

Anahtar kelimeler: Karanfil, yoğurt, probiyotik bakteriler, yoğurt bakterileri

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➢ **ORAL PRESENTATION**

Effects of extraction methods and some parameters on the phenolic composition and antioxidant activities of *Mammillaria prolifera*

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Abstract

The scientific name of the strawberry cactus from the family Cactaceae is *Mammillaria prolifera* (Mill.) Haw. Mammillaria genus plant is known as strawberry cactus, Texas nipple cactus, west Indian nipple cactus. Its origin is Texas, Mexico, Cuba, and Hispaniola. It is a cactus with creamy-yellow colored flowers and red colored fruits, that carry short spines and can extend up to 12 cm. This plant is a species that produces a large number of young bud in a short time.

There are limited number of reports belongs to cacti and there is no published article in the literature to determine the bioactivity properties of Mammillaria prolifera species. Extraction methods and solvents are an important step in obtaining bioactive components from plant materials. Therefore, it is necessary to examine in detail the effects of extraction methods and some parameters on the biological activities of plants.

In this study, the phenolic contents and antioxidant activity properties of *Mammillaria prolifera* extracts prepared by different extraction methods and parameters (extraction time-temperature-solvent) were investigated. Firstly, extracts of M. proliferia in different solvent mixtures were obtained by using an ultrasonic bath method or a shaker bath, at different temperatures and times. The total phenolic contents (TPC) and antioxidant activities (DPPH, FRAP) of these obtained extracts (36samples) were investigated. Besides, gallic acid, protocatechualdehyde, ferulic acid, and p-OH benzoic acid were determined in the samples by HPLC-DAD method using 14 standard phenolic acids.

As a result, it was observed that extracts prepared in ultrasonic baths showed stronger antioxidant activity than other extracts. In both methods, these values were the lowest in water-prepared extracts. Also, TPC, DPPH scavenging and FRAP values of the samples prepared at 25°C increased linearly with extraction time, while in the aqueous samples prepared at 60°C these values decreased when the extraction time exceeded 30 minutes.

Keywords: *Mammillaria prolifera*, antioxidant activity, phenolic compounds, extraction optimization, HPLC-DAD.

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➢ **ORAL PRESENTATION**

Adiponektin, leptin ve diyet antioksidan kapasitesinin kolorektal kanser patogenezindeki rolü

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Özet

Kolorektal kanser, dünya çapında en yaygın görülen üçüncü kanser türüdür. Genetik yatkınlığın hastalık gelişiminde payı olmakla birlikte kolorektal kanser daha çok sporadik olarak meydana gelmektedir. Özellikle günümüzde obezite prevelansında artış ile birlikte adipoz dokudan salınan adipokinlerin oranında değişimin meydana gelmesi çeşitli yolaklar ile düzenlenen karsinogeneze neden olabilmekte veya beslenme ile ilişkili çeşitli risk faktörleri kolorektal kanser gelişiminde önemli rol oynayabilmektedir. Bu çalışmada farklı beden kütle indeksi (BKİ)'nde olan kolorektal kanserli bireylerde leptin adiponektin ve 8-Hidroksi-2'-deoksiguanosin (8-OHdG) düzeyleri ile diyet antioksidan kapasitesinin değerlendirilmesi amaçlanmıştır. Çalışma Ankara Numune Eğitim ve Araştırma Hastanesi Tıbbi Onkoloji Polikliniği'ne başvuran, yaşları 39-65 yıl arasında değişen kolorektal kanser tanılı 40 erkek birey ve aynı sayıda sağlıklı erkek birey içeren kontrol grubu ile yürütülmüştür. Vaka ve kontrol grubundaki bireyler BKİ'ne göre normal (BKİ 20-24 kg/m^2) veya fazla kilolu/obez (BKİ ≥25 kg/m^2) olarak alt gruplara ayrılmıştır. Bireylerin diyetlerinin toplam antioksidan kapasiteleri besin tüketim sıklığı ve üç günlük besin tüketim kayıtlarından hesaplanmıştır. Çalışma sonunda BKİ'ne göre normal olarak sınıflandırılmış vaka grubunda, kontrol grubuna göre adiponektin seviyesi anlamlı olarak daha düşük ($p<0,05$); leptin seviyesi anlamlı olarak daha yüksek bulunmuştur ($p<0,05$). Beden kütle indeksi ≥25 kg/m^2 olan vaka grubundaki bireylerde ise kontrol grubundaki bireylere göre serum leptin ve 8-OHdG düzeyleri anlamlı olarak daha yüksek bulunmuştur ($p<0,05$). Kontrol grubunda vaka grubuna göre besin tüketim sıklığından veya besin tüketim kaydından elde edilen diyet toplam antioksidan kapasitesi daha yüksek olmakla birlikte iki grup arasındaki fark anlamlı bulunmamıştır ($p>0,05$). Vaka grubunda leptin ve 8-OHdG arasında anlamlı pozitif ilişki bulunmuştur ($r=0,423$; $p=0,007$). Ancak adiponektin ve leptin düzeyi ile diyet antioksidan kapasite arasındaki ilişki incelendiğinde anlamlı bir sonuca ulaşılamamıştır ($p>0,05$). Sonuç olarak adiponektin ve özellikle leptin kolorektal kanser patogenezinde rol oynayan önemli bir faktör olabilir ancak diyet antioksidan kapasitesinin incelenen adipokinler üzerinde etkisi anlamlı bulunamamıştır.

Anahtar Kelimeler: Kolorektal kanser, Adiponektin, Leptin, Diyet antioksidan kapasite, 8-Hidroksi-2'-deoksiguanosin

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➢ **ORAL PRESENTATION**

Beden kütle indeksi ile konstipasyon gelişim riski arasındaki ilişkinin değerlendirilmesi

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Özet

Konstipasyon metabolik, genetik ve çevresel faktörlerin etkileşimiyle ortaya çıkan multifaktöriyel bir etiyolojiye sahiptir. Bu faktörlerden biri olduğu düşünülen beden kütle indeksi (BKİ) ve konstipasyon riski arasındaki ilişki de önemli bir araştırma konusudur. Bu çalışmanın amacı, BKİ ile konstipasyon arasındaki ilişkiyi değerlendirmektir. Bu çalışma, yaşları 18-65 yıl arasında değişen 1445 birey üzerinde yürütülmüştür. Tüm katılımcıların boy uzunluğu (cm), vücut ağırlığı (kg), bel çevresi (cm) ve boyun çevresi (cm) yöntemine uygun bir şekilde ölçülerek kaydedilmiştir. Ayrıca katılımcıların konstipasyon riskinin ve ciddiyetinin belirlenmesi amaçlı Türkçe geçerlilik güvenilirliği olan "Konstipasyon Risk Belirleme Skalası" kullanılmıştır. Dünya sağlık örgütünün BKİ sınıflandırmasına göre çalışmaya katılan bireylerin %3,3' ünün zayıf, %37,7' sinin normal, %34,7'sinin fazla kilolu ve %24,3'ünün obez olduğu tespit edilmiştir. Çalışmada, zayıf, normal ve fazla kilolu bireylerin obez bireylere göre konstipasyon gelişim riskinin daha yüksek olduğu saptanmıştır ($p<0,05$). Ayrıca, katılımcıların BKİ ($r=0,098$; $p=0,000$), bel çevresi (cm) ($r=0,838$; $p=0,000$) ve boyun çevresi (cm) ($r=0,597$; $p=0,000$) ile konstipasyon gelişim riski arasında pozitif yönlü anlamlı bir ilişki tespit edilmiştir. Bu çalışmanın verilerine göre artan BKİ, bel ve boyun çevresinin konstipasyon gelişim riskini artırabileceği düşünülebilir. Ancak kesin sonuçlara varabilmek için örneklem sayısının artırıldığı yeni çalışmalara ihtiyaç vardır.

Anahtar Kelimeler: Konstipasyon, Obezite, Beden kütle indeksi

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➢ **ORAL PRESENTATION**

Türk mutfak kültüründe fermente besinler

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Özet

Fermantasyon bilinen en eski ve ekonomik besin saklama yöntemlerinden biridir. Fermente gıdalar ve içecekler, bazı bakteri, maya ve mantarlar gibi mikroorganizmaların aktivasyonu ve onların enzimleri aracılığı ile üretilir. Türk geleneksel besin saklama yöntemleri içerisinde de fermantasyon çok yaygın olarak kullanılmakta olup, kullanımının çok eskiye dayandığı belirtilmektedir. Türk geleneksel mutfak kültüründe kullanılan süt ürünleri bazlı geleneksel fermente ürünlere yoğurt, ayran, kurut, kefir ve kımız örnek olarak verilebilir. Yoğurt yapımı esnasında Streptococcus thermophilus ve Lactobacillus bulgaricus adı verilen süt asidi bakterileri sütte bulunan laktozu parçalayarak glukoz ve galaktoza hidrolize eder. Bu her iki bileşen de fermantasyon sonucu laktik aside dönüşür. Oluşan laktik asit sütü pıhtılaştırarak yoğurt meydana gelir. Kurut ise yoğurt ve ayranın kurutulmuş şeklidir. Kefir, kefir daneleri tarafından oluşturulan, Lactobacillus acidophilus, Bifidobacterium bifidum gibi doğal probiyotikler ile birçok laktik asit bakterisi ve maya içeren fermente bir süt ürünüdür. Kımız ise kısrak sütünden yapılan ve Orta Asya'da tüketilen hafif alkollü fermente bir süt içeceğidir. Tahıl ürünleri bazlı geleneksel fermente ürünlere ise boza ve tarhana örnek olarak verilebilir. Tarhana yüksek besin değeri ve uzun raf ömrü ile Orta Doğu ve Türkiye'deki birçok insanın diyetinde önemli bir yer tutmaktadır. Sebze ve meyve ürünleri bazlı geleneksel fermente ürünlere ise turşu ve şalgam örnek olarak verilebilir. Türkiye'de fermente sebze-meyvelerin genel adı "Turşu" olarak adlandırılmaktadır. Türk mutfak kültüründe birçok fermente et ürünü olmasına rağmen en fazla tüketilen fermente et ürünleri sucuk ve pastırmadır. Türk mutfak kültüründe besin saklama yöntemi olarak sıklıkla tercih edilen fermantasyon yöntemi ile bir çok besinin raf ömrü uzatılabilmektedir.

Anahtar Kelimeler: Besin saklama, Fermantasyon, Beslenme

➢ **ORAL PRESENTATION**

Maternal folik asit suplemantasyonunun gebe ratlarda bozulmuş glukoz toleransına etkisinin değerlendirilmesi

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Özet

Maternal dönemde folik asit suplemantasyonunun gebe ratlarda bozulmuş glukoz toleransına etkisinin değerlendirilmesi amacıyla planlanmıştır. Çalışmada daha önce çiftleşmemiş 8-10 haftalık 12 wistar dişi rat çiftleştirilmiştir. Gebe kalan ratlar randomize bir şekilde kontrol (n:6) ve deney grubu (n:6) olmak üzere 2 gruba ayrılmıştır. Ratlara folik asit içerikleri farklı olacak şekilde 2 ayrı beslenme protokolü uygulanmıştır. Gebelik boyunca kontrol grubuna insan gebelerde 400 mcg/gün değerine eşdeğer olan ve Amerikan Beslenme Enstitüsü'nün Kemirgen Diyetleri kapsamında gebelik süresince ratlara yönelik belirlenmiş olan AIN-93G formülasyonlu diyetteki folik asit miktarı referans alınarak 2 mg/kg folik asit içeren standart yem, deney grubu için insan gebelerde upper level (1000 mcg/gün) alım düzeyine denk gelen normal rat gereksinmesinin 2.5 katı olan 5 mg/kg folik asit içeren yemle gebelik boyunca ad libitum beslenmeleri sağlanmış ve su verilmiştir. Gebelik dönemi boyunca annelerin hafta içi her gün aynı saatte yem tüketimi ve vücut ağırlıkları 0,1 grama duyarlı mutfak terazisiyle ölçülmüştür. Gebeliğin 16. Gününde ratlara 16 saatlik açlık sonrasında gavaj yoluyla 2 g glukoz/kg vücut ağırlığı verilerek, oral glukoz tolerans testi (OGTT) uygulanmıştır ve 0, 15, 30, 60, 90, ve 120. dakikalarda kuyruk venden kan alınarak glukometre aracılığıyla kan glukoz düzeylerine bakılmıştır. Gebelik süresince günlük ortalama besin tüketim miktarı kontrol grubunda 19,2±1,11 g iken deney grubunda 17,6±0.42 g olarak bulunmuştur ($p<0.05$). Deney grubunun folik asit alımları dışında enerji, makro ve mikro besin ögesi alımlarının kontrol grubuna göre anlamlı düzeyde düşük olduğu saptanmıştır ($p<0.05$). Deney grubunun başlangıç, 15., 30., 60., 90. ve 120. dakikadaki kan glukoz değerleri kontrol grubundan daha yüksek olduğu saptanmıştır ($p>0.05$). Annelerin gebelik döneminde maruz kaldığı folik asit miktarı arttıkça glikoz intoleransı riski arttırmaktadır. Bu durum gebelerde gestasyonel diyabeti ve gebelik sonrasında ise tip 2 DM gelişme riskini arttırabileceği düşünülmektedir.

Anahtar Kelimeler: gebe, folik asit, glukoz intoleransı

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➢ **ORAL PRESENTATION**

Baharat kullanımında besin güvenliğine yönelik satın alma ve muhafaza yöntemlerinin değerlendirilmesi

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Özet

Bu araştırma 18-64 yaş arası yetişkin bireylerin baharatları satın alma ve muhafaza yöntemlerinin değerlendirilmesi amacıyla planlanmış ve yürütülmüştür. Araştırma 18-64 yaş arası 244'ü erkek 781'i kadın olmak üzere toplam 1125 yetişkin birey üzerinde yapılmıştır. Bireylerin baharatları satın alma ile muhafaza yöntemlerinin belirlenebilmesi amacıyla yüz yüze görüşme tekniği ile bir anket formu uygulanmıştır. Bireylerin %98.3'ü evde kullanmak için baharat satın almaktadır. Bireyler baharatları sırasıyla en sık marketlerden(%60.2), baharatçılardan(%19.2), aktar dükkânlarından (%13.3), bakkallardan (%4.7) ve pazarlardan (%2.6) satın almaktadır. Baharatları satın alırken en çok tercih ettikleri ambalaj tipi ise sırasıyla; naylon ambalaj (%58.7), cam kavanoz (%25.2), kâğıt ambalaj (%13.5) ve plastik kavanoz (%2.6)'dur. Bireylerin %42.2'si baharatların tamamı tükenene kadar ve %23.7'si son kullanma tarihi bitene kadar kullandıklarını belirtmiştir. Yüzde 12.3'ü baharatları ortalama 1 ay, %11.0'i 3-6 ay ve %10.8'i ise 2 ay kullanmaktadır. Baharatların muhafaza yöntemleri ise sırasıyla; cam kavanozda(%52.3), baharatlıkta (%29.6), kendi ambalajında (%16.3) ve poşettedir (%1.8).Erkek bireylerin %44.9'u baharatları cam kavanozda, %28.3'ü baharatlıkta, %23.8'i kendi ambalajında, %3.3'ü poşette saklamaktadır. Kadın bireylerin baharatları muhafaza yöntemleri ise sırasıyla cam kavanoz (%55.5), baharatlık (%30.1), kendi ambalajı (%13.2) ve poşettir (%1.2). Bireylerin cinsiyetlerine göre baharatları muhafaza etme yöntemleri arasındaki fark istatistiksel olarak önemlidir (χ^2:26.015,$p<0.05$).Baharatları muhafaza etme yöntemlerinin bireylerin eğitim düzeylerine göre de farklılık gösterdiği bulunmuştur (χ^2:35.777, $p<0.05$). Bu araştırmanın sonucunda yetişkin bireylerin baharat kullanımın yaygın olduğu ve muhafaza yöntemlerinin cinsiyete ve eğitim düzeyine göre farklılık gösterdiği bulunmuştur. Sürdürülebilir beslenme kavramının bir parçası, güvenilir, sağlıklı besin kullanımıdır. Baharatlar, uygun koşullarda üretilmediği ve muhafaza edilmediğinde ciddi sağlık riskleri oluşturma potansiyeline sahiptir. Bu çalışma ülkemizde sıklıkla kullanılan baharatları, satın alıma, kullanımı ve muhafazası hususunda tüketicinin bilinçlendirilmesine ihtiyaç olduğunu göstermektedir.

Anahtar Kelimeler: Baharatlar, Muhafaza Koşulları, Besin Güvenliği

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➢ **ORAL PRESENTATION**

Cross-linked lipase aggregate with only polyethylenimine

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Abstract

Using polyethyleneimine (PEI) as a sole aggregation agent, PEI-enzyme complexation was investigated with various lipases. The approach relied on rapid development of PEI-lipase aggregates in solution and followed by glutaraldehyde cross-linking, thus resulting in cross-linked PEI-lipase aggregates. PEI to enzyme mass ratio of a 1/20-40 range, alkaline pH and the absence of impurities produced higher coupling yields and activities. The pH affected the precipitatibility and/or relative activity of the aggregates. The aggregates attained higher stabilities especially at high pHs and enhanced thermostability with at least a 20-fold at ambient temperatures. By using *p*-nitrophenyl propionate as a soluble substrate, app. *V*max for the immobilized lipase increased by two-fold with only 25% increment in app. *K*m compared with the soluble lipase. Complexation with PEI may have produced favorable interface assisting for conformational change for the lipase activation. Thus, cross-linked PEI-lipase aggregates with ease of recovery and stability can be simple and inexpensive alternative for carrier-free immobilized lipases.

Keywords: Polyethyleneimine, Lipase, Glutaraldehyde, Cross-linked PEI-lipase aggregate

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➢ **ORAL PRESENTATION**

Two-dimensional (2D) hexagonal boron nitride nanosheets with molecularly ımprinted polymer for electrochemical determination of citrinin

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Abstract

A new molecular imprinted sensor approach based on two-dimensional (2D) hexagonal boron nitride (2D-hBN) nanosheets was presented for citrinin (CIT) detection. All nanomaterials' formation and properties were highlighted with scanning electron microscope (SEM), x-ray diffraction (XRD) method, cyclic voltammetry (CV) and electrochemical impedance spectroscopy (EIS). CIT imprinted voltammetric sensor was improved in presence of 80.0 mM phenol containing 20.0 mM CIT by CV. 1.0×10^{-13} - 1.0×10^{-8} M and 3.0×10^{-14} M were founded as the linearity range and the detection limit (LOD). Finally, CIT imprinted glassy carbon electrode (GCE) was used for food sample analysis.

Keywords*:* Two-dimensional (2D) Hexagonal Boron Nitride; Core-shell Nanoparticles; Fuel Cell

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➢ **ORAL PRESENTATION**

Determination of cypermethrin by square wave voltammetry through modified polymer ınclusion membrane with reduced graphene oxide

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Abstract

In this study, polymeric membrane was modified with reduced graphene oxide and used for the effective determination of cypermethrin (CYP) using prepared molecular imprinted electrochemical sensor. The use of reduced graphene oxide in the membrane filtration process as an additive material presents great opportunities and possibilities for membrane technology. The purpose of this study was to improve the structural and mechanical features of polymeric membrane by adding reduced graphene oxide, which already possesses high mechanical and chemical properties for the separation process.

Keywords*:* Cypermethrin, electrochemical sensor, polymer inclusion membrane, reduced graphene oxide, square wave voltammetry (SWV)

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➢ **ORAL PRESENTATION**

In vitro flurbiprofen release from chitosan coated- and uncoated-sodium carboxymethyl cellulose/polyvinyl alcohol microspheres crosslinked with ferric ions

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Abstract

New drug delivery systems based on polymeric microspheres and nanospheres have attracted much attention due to their excellent properties and succesful controlled release characteristics. In the present work, a non-steroidal anti-inflammatory drug flurbiprofen (FBP) was encapsulated into microspheres of sodium carboxymethyl cellulose (NaCMC) and polyvinyl alcohol (PVA) crosslinked with Fe^{3+} ions. The NaCMC/PVA (w/w) microspheres including flurbiprofen were successfully prepared by water-in-oil (W/O) emulsion crosslinking technique. In the next stage, the NaCMC/PVA microspheres were coated with chitosan to enhance their mechanical properties and reduce the burst effect of flurbiprofen (FBP) from the controlled release polymer matrice. The chitosan coated microspheres of NaCMC/PVA loaded with different drug/polymer ratios of FBP were prepared by changing the experimental variables such as concentration of cross-linker, cross-linking time, NaCMC/PVA (w/w) ratio, and enteric coating. The influence of this preparation conditions was discussed for particle size, entrapment efficiency, and controlled release of FBP from the microspheres in pH 1.2 HCl and 7.4 buffer media at 37 ^{o}C. X-Ray diffraction (XRD), differential scanning calorimetry (DSC), Fourier transform infrared spectroscopy (FT-IR) and scanning electron microscopy (SEM) were used to characterize the structural features of the microspheres. The SEM images supported the coating by showing the smooth surfaces for the drug loaded coated microspheres. Also, the microsphere diameters increased with the effect of coating. The chitosan coated and uncoated NaCMC/PVA microspheres displayed different degrees of swelling in water. The microspheres exhibited entrapment efficiency from 21.96 to 40.22% and particle size in the range 3.8-9 μm. The release results indicated that the uncoated microspheres displayed a faster release and more burst effect than chitosan coated microspheres at the end of 6 h. The release of the FBP from the coated microspheres mostly followed Case II transport.

Keywords: Drug delivery systems, Coating, Carboxymethyl cellulose, Polyvinyl alcohol, Flurbiprofen.

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➢ **ORAL PRESENTATION**

Preparation, characterization and release studies of flurbiprofen loaded microspheres based on water-soluble polymers

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Abstract

Non-steroidal anti-inflammatory drugs, which use frequently in the treatment of arthritic disorders, have many side effects at gastrointestinal level when taken orally. The main objective of this work was to design a microsphere system suitable for controlled release of flurbiprofen (FBP), a non-steroidal anti-inflammatory drug. In the present work, polymeric microspheres of sodium alginate (NaAlg), polyvinyl alcohol (PVA), and methyl cellulose (MC) were prepared by crosslinking method using glutaraldehyde (GA) as a crosslinker in the hydrochloric acid catalyst (HCl). The prepared NaAlg/PVA/MC (w/w/w) microspheres were evaluated by considering the differential scanning calorimetry (DSC), Fourier transform infrared spectroscopy (FT-IR), optic microscope images, drug entrapment efficiency, particle size, swelling capacity, and in-vitro release studies. In-vitro FBP release was carried out at two different pH values (1.2 and 7.4) for 6h. The drug loaded microspheres showed from 12.5 to 18.03% entrapment efficiency, which was found to increase with decrease in NaAlg amount. Optical microscope images revealed that the microspheres with NaAlg/PVA/MC ratio 4/1/1 were more spherical than the microspheres with NaAlg/PVA/MC ratio 2/1/1. In-vitro drug release of the microspheres increased with the increase in NaAlg/PVA/MC (w/w) ratio while it decreased with increasing extent of cross-linking. The swelling measurements of the microspheres were founded higher at high pH (7.4) value than that of low pH (1.2) value.

Keywords: Controlled release, Water soluble polymers, Flurbiprofen.

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➢ **ORAL PRESENTATION**

Determining the effect of supplementation of growth medium with spent carob pod pulp for concurrent production of *Trametes versicolor* laccase and glucans

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Abstract

Trametes versicolor is a white rot fungus and is one of the most important species in this group in terms of its high enzyme production capacity as well as its capability of synthesising specific bioactive compounds such as β-glucan complexes present in mycelial mass. Laccase enzyme has diverse applications in food industry processing operations such as juice clarification, sedimentation and clarification in beer, wine stabilization, textural modifications in bakery products as well as reclamation of food wastewaters. Recent attention has been drawn to fungal glucans with regard to their prophylactic properties, especially those produced from *T. versicolor*. The aim of this study was to investigate the potential of supplementation of defined medium with 3, 6 and 10% of spent carob pulp (CP), a waste product obtained after carob syrup processing, to increase concurrent production of laccase and mycelial beta-glucan in *T. versicolor* fermentations. Extracellular laccase activity was determined throughout fermentation using two strains of *T. versicolor* (CCBAS614 and CCBAS1399) under shake flask conditions. Total glucan, β-glucan, α-glucan, dietary fiber, ash, protein and dry mass assays were also performed at the end of the fermentation period. Laccase production without CP supplementation was in the range of 0..3-1.2 U/mL for both strains and significant increases were observed when sterilized milled dry CP was added into the growth medium. Highest laccase activity was recorded with 10% CP supplementation on day 6 for strain CCBAS614 and on day 4 for CCBAS 1399 with mean values 27.9 and 14.0 U/mL, respectively. Total glucan yields were shown to have increased with CP supplementation (more than 4 fold for CCBAS1399). For both strains, diet fiber was more concentrated in the natural miscelles harvested from fermentations without CP however total yields of diet fiber as well as protein and mineral matter was increased with increasing supplementation of CP.

Keywords: *Trametes versicolor*, Laccase, Glucan, Fungal fermentation, Carob pulp

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➢ **ORAL PRESENTATION**

Utilization of commercial yogurts as a starter culture in the production of yogurt and their reusability properties

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Abstract

In Turkey, the habit of making their own yogurt in people's homes is quite common. Some of these people stated that when they used commercial yogurt as inoculum during the yogurt making, they could not achieve the product with desired properties. This research aims to investigate the possibility of usage the commercial yogurts as an inoculum in the yogurt manufacturing. For this purpose, four different yogurts were produced by using four different commercial yogurts as a first inoculum separately. The yogurt production was repeated four times by using the last yogurts obtained as an inoculum. The effect of 4-generation yogurt production on some quality characteristics of yogurt was investigated. Technological quality parameters such as pH, titratable acidity, serum separation, viscosity, and *Lb. delbrueckii subsp. bulgaricus* and *S. salivarius subsp. thermophilus* counts were analyzed. It was observed that the technological parameters examined in four yogurt generations did not show a significant change. In this context, it was concluded that the use of commercial yogurts as the first inoculum did not adversely affect the subsequent fermentation process when the necessary hygienic conditions were maintained.

Keywords: Yogurt making, commercial yogurts, fermentation, technological characteristics

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➢ **ORAL PRESENTATION**

Hünnap ağacı (*Zizyphus zizyphus*) yaprak ve meyve ekstraktlarının antimikrobiyal özellikleri

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Özet

Son yıllarda doğal antioksidan ve antimikrobiyal maddelere olan ilgi artmıştır. Bunun en önemli sebebi gıda endüstrisinde kullanılan katkı maddeleridir. Gıda ürünlerinde meydana gelen bozulmaları önlemek amacıyla katkı maddeleri kullanılmaktadır. Ancak yapılan araştırmalar sonucunda gıda ürünlerinde kullanılan bazı katkıların insan sağlığı üzerine olumsuz etki gösterebileceği belirlenmiştir. Bu durum insanları doğal antioksidan ve antimikrobiyal madde kullanımına yönlendirmiştir. Bu çalışma kapsamında iki farklı çözücü (su ve metanol) kullanılarak elde edilen *Zizyphus* türünün ham meyve, olgun meyve ve yapraklarından elde edilen ekstraktların antimikrobiyal olarak *Aspergillus parasiticus (DMS 5771), Zygosaccharomyces rouxii ATCC 28253* ve *Escherichia coli ATCC 25922* suşu üzerine etkileri araştırılmıştır. Antimikrobiyal etkileri değerlendirildiğinde en yüksek etkiyi ham meyveden elde edilen ekstrakt göstermiştir. Bu ekstraktın küf üzerine 14,12 mm'lik zon çapı, maya üzerine 10,33 mm'lik zon çapı ve bakteri üzerine 13,76 mm'lik zon çapı oluşturacak şekilde antimikrobiyal etki gösterdiği belirlenmiştir. Çalışma sonuçları hünnap ağacı ürünlerinin doğal antimikrobiyal madde olarak kullanılabilme potansiyeline sahip olduğunu göstermektedir.

Anahtar Kelimeler: Hünnap, Ekstrakt, Antimikrobiyal

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➢ **ORAL PRESENTATION**

Investigating the effect of thawing method on textural properties of chicken and turkey meat

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Abstract

The factors affecting meat quality are complex and multi-factorial. Consumer behavior for repurchase could be easily affected by tenderness, juiciness and flavor of cooked meat. The overall cooked meat properties can be defined with the term palatability and one of the most important factors related with palatability is texture. There is a strong relationship between meat texture and cooking method. However, the practices used before cooking such as cooling, freezing and thawing are also important for final texture of the meat pieces. In this study, frozen chicken and turkey meat samples were thawed in different conditions namely; (i) at room temperature, (ii) at +4°C, (iii) in microwave oven, (iv) under tap water and (v) in 30°C water bath. All samples were cooked using a standard cooking procedure and analyzed for firmness and toughness using texture analyzer. The highest firmness score of chicken meat was recorded as 3686 g for the sample thawed at +4°C while that of turkey meat was 5254 g for the sample thawed at room temperature. Additionally, the highest toughness score was recorded as 41469 g.sec for the turkey meat samples thawed at room temperature while that of chicken meat was 27796 g.sec for the samples thawed at +4°C. The results showed that the thawing method could significantly affect the final textural score of chicken and turkey meat.

Keywords: Chicken meat, Turkey meat, Thawing, Texture.

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➢ **ORAL PRESENTATION**

Optimization of encapsulation parameters by experimental design method in aljinat-kitosan membrane capsules

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Abstract

Recent developments in food and nutrition science show that the foods meet the needs of Daily nutrient intake, regulate various bodily functions and prevent/ treat certain diseases effectively. These caused an increasing interest in functional components of foods.

Studies have shown that carotenoids, phenolic compounds and vitamins have many useful features in terms of human health. Because of these physiological effects, purified carotenoids, which are offered to consumers as concentrate, dust, capsule or preparation form, are used not only as colorants and functional additives but also as regulators for various body functions with prevention and treatment of some diseases.

In the study, pumpkin, which is a good carotenoid source, was dried and carotenoid extract was obtained, the extract was encapsulated and the capsules were characterized.

The extracts from the dried and powdered pumpkin used to determine the extraction yield, color, antiradical capacity and total amount of extractable carotenoids. At a later stage, the carotenoid extract obtained under optimal extraction conditions was encapsulated to be more stable. Ionic gelation encapsulation process method was used. Carotenoids dissolved in the oil phase were encapsulated by dropping the gelling agent into the sodium alginate and calcium chloride solution. Dripping was performed using a syringe pump and a vibrating dispensing unit.

The aim is to obtain micro capsules that have higher stabilization, perfectly spherical shape, good coating quality by assaying various parameters for the encapsulation process. Encapsulation conditions in the study were optimized using three factor-three level response surface method.

These parameters are the water phase / oil phase ratio, the alginate gel concentration and the emulsion flow rate from syringe pump. Afterwards, effects of these parameters on size, shape and stability of microcapsules were analyzed. Encapsulation conditions optimized using response surface methodology.

Capsules were freeze-dried. Optical microscopy and scanning electron microscopy images and FTIR spectrums were reviewed the images are processed to calculate size distributions..

As a consequence, encapsulated carotenoid extract which is resistant to food processes; stable during shelf life; heat, light and oxygen stable, will be produced from pumpkin pulp waste used as animal feed. The obtained project outputs will be used to as a functional food additive and as a natural colorant.

Keywords: Encapsulation, carotenoids, responce surface method, pumpkin

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➢ **ORAL PRESENTATION**

Batı Karadeniz Bölgesinde yetiştirilen fındıkların yağ asitleri kompozisyonunun araştırılması

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Özet

Bu çalışmada Türkiye' de ticari olarak üretimi yapılan yuvarlak fındıkların (*Corylus avellana L.*) yağ asitleri kompozisyonunun Batı Karadeniz Bölgesinde hasat sezonuna göre değişimi araştırıldı. Araştırma için 2015 yılında 15, 2016 yılında 12 olmak üzere toplam 27 adet numune örnekleme metoduyla toplandı, analizler gaz kromatografisi kullanılarak (GC) gerçekleştirildi ve istatistiksel hesaplamalar paket program kullanılarak yapıldı. Fındık yağının baskın yağ asidinin oleik asit (C18:1, % 82,93) olduğu tespit edildi. Oleik asidi miktar açısından sırasıyla; linoleik asit (C18:2, %8,39), palmitik asit (C16:0, %5,37) ve stearik asit (C18:0, %2,44) takip etmektedir. Fındık yağının majör yağ asidi grubu olan tekli doymamış yağ asitleri toplamının (MUFA) 2015 yılında %83.52, 2016 yılında ise %83.07 olduğu ve aradaki farkın istatistiki açıdan anlamlı olmadığı tespit edildi. Bulgulara göre Batı Karadeniz Bölgesinde fındık meyvesinin yağ asitlerinden sadece palmitoleik asit ve stearik asitin hasat sezonu farklılığından önemli düzeyde etkilendiği belirlendi.

Anahtar Kelimeler: Fındık (*Corylus avellana L.*), Batı Karadeniz Bölgesi, Yağ asitleri kompozisyonu, İstatistiksel analiz, Palmitoleik asit, Stearik asit.

➢ **ORAL PRESENTATION**

Su ve süt kefirlerinin polifenol içeriklerinin ve antioksidan kapasitelerinin araştırılması

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Özet

Geleneksel, fermente bir içecek olan kefir, günümüzde sütten endüstriyel olarak üretimi gerçekleştirilen ve piyasada birçok farklı çeşidine rastlayabildiğimiz bir üründür. Su kefiri ise bilinen kefirden farklı olarak süt ile değil su, şeker ve az miktarda meyve kullanılarak elde edilen fonksiyonel bir içecektir. Ayrıca su ve süt kefirleri farklı kültürlerden mayalar ile fermente edilir. Bu çalışmanın amacı süt kefiri mayası kullanılarak inek sütünden elde edilen kefir ile su kefiri mayasından su, şeker ve kuru meyve ile üretilen su kefirinin fenolik içeriklerinin ve antioksidan aktivitelerinin belirlenmesidir. Bu amaç doğrultusunda örneklerin toplam fenolik madde miktarları, toplam flavonoid miktarı, DPPH radikalini inhibe etme yetenekleri ve demir (III) indirgeme antioksidan kapasiteleri ortaya konulmuştur. Analizler üç tekrarlı olarak gerçekleştirilmiş ve elde edilen sonuçlar, aralarında anlamlı bir farklılığın olup olmadığının kanıtlanması için istatistiksel analize tabi tutulmuştur. Toplam fenolik madde miktarları sırasıyla su ve süt kefiri için 38.66 mg GAE/L ve 70.15 mg GAE/L olarak tespit edilmiştir (p<0.05). Toplam flavonoid miktarları analiz edildiğinde, süt kefirinin 36.61 mg (+)-CE/L ile su kefirinden (11.55 mg (+)-CE/L) daha yüksek flavonoid içeriğe sahip olduğu görülmüştür (p<0.05). Antioksidan aktivitenin belirlenmesi adına gerçekleştirilen analizlerin sonuçları değerlendirildiğinde ise %57.31 DPPH inhibisyon değeri ile yine süt kefirinin öne çıktığı tespit edilmiştir; su kefiri için bu değer %43.05 olarak belirlenmiştir (p<0.05). FRAP değerleri, aralarında istatistiksel açıdan anlamlı bir fark olmakla birlikte sırasıyla su kefiri için 1.19 mmol $FeSO_4$/L ve süt kefiri için 2.21 $FeSO_4$/L'dır (p<0.05). Analize tabi tutulan kefirlerin toplam fenolik ve toplam flavonoid miktarları ile DPPH ve FRAP yöntemleriyle belirlenen antioksidan aktivite değerleri göz önüne alındığında, süt kefirinin tüm analizlerde istatistiksel olarak anlamlı bir farkla su kefirinden daha yüksek fenolik içeriğe ve antioksidan aktiviteye sahip olduğu tespit edilmiştir. Bu çalışmanın; ülkemizde son zamanlarda tüketilmeye başlanan su kefirinin polifenolik içeriği ve antioksidan etkisiyle ilgili merak edilen sorulara ışık tutacağı ve tüketiciler tarafından tanınırlığına katkı sağlayacağı düşünülmektedir.

Anahtar Kelimeler: su kefiri, süt kefiri, fenolik bileşikler, antioksidan maddeler

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➢ **ORAL PRESENTATION**

Functional effects of cereal-like products on health

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Abstract

In recent years, consumers have tended to consume both good quality and healthy nutrients, because of cancer, diabetes and cardiovascular diseases increased due to changing nutritional habits. When the whole of these health risks are considered, functional foods, which have become a new trend, have gained importance in terms of healthy nutrition. Functional foods components include dietary fibers, peptides, alcohols, vitamins, minerals, unsaturated fatty acids and antioxidants. Fruits, vegetables and cereals among the functional foods have a great importance, especially cereals and cereals-like products used in foods such as bread, flour, pasta, biscuits, cakes, puddings and soups, which are produced too much in the food sector, and that caused the investigation of the composition of these foods and their health benefits. Buckwheat, quinoa and amaranth take part in pseudo-cereal group, and they are consumed extensively by people who diet because they contain high levels of dietary fiber, essential amino acids and vitamins compared to cereals. These gluten free products are also used for celiac patients who are gluten-sensitive in special diets. Buckwheat prevents high blood pressure, hypertension and diabetes. It has shown that quinoa inhibits the formation of cancer cells thanks to its bioactive compounds. It was observed that amaranth has cholesterol-lowering effect. Besides the benefits of these cereals there are some negative features too. Because quinoa contains oxalic acid, they can cause renal calculus by preventing the absorption of calcium and zinc. Buckwheat has immunoglobulin-E which is one of the most important allergens, and if it is consumed over 1.26 KuA/L, allergic reactions can occur. In this study, the studies on the nutrient, mineral matter and antioxidant content of buckwheat, quinoa and amaranth are evaluated as functional food and the importance of cereal-like products in terms of health is emphasized.

Keywords: Functional foods, cereals, buckwheat, quinoa, amaranth.

➢ **ORAL PRESENTATION**

Zeytinyağının raf ömrü üzerine farklı ambalaj materyallerinin etkileri

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Özet

Zeytinyağı muhafazasında zeytinyağının kalitesini etkileyen faktörler genel olarak; ısı, ışık ve oksijendir. Çalışmamızda Gemlik ve Memecik çeşitlerinden erken hasat döneminde elde edilmiş naturel sızma zeytinyağında ışığın ve ambalaj materyalinin raf ömrü üzerine olan etkisini görmek amacıyla açık ve koyu renk cam, açık ve koyu renk polietilen ve metal ambalaj olmak üzere 5 farklı ambalaj materyali kullanılmıştır. Bornova Zeytincilik Araştırma Enstitüsünden temin edilen zeytinyağları Gıda ve Yem Kontrol Merkez Araştırma Enstitüsü Bitkisel Ürünler Bölümü Yağ Laboratuvarında, 25±3°C' de muhafaza edilmiştir.1 yıl boyunca 2 aylık periyotlarda, ransimat analizi yapılarak raf ömrü üzerine ambalaj materyalinin etkisi ve çeşitler arasındaki farklılıklar incelenmiştir. Ransimat analizi Metrohm 892 Professional Rancimat cihazı ile yapılmıştır. Elde edilen sonuçlar Jump istatistiki analiz programında değerlendirilmiştir.

Anahtar Kelimeler: Zeytinyağı, oksidatif stabilite, raf ömrü, ransimat

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➢ **ORAL PRESENTATION**

Non dairy probiotic products

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Abstract

A century ago, Elie Metchnikoff postulated that lactic acid bacteria (LAB) offered health benefits capable of promoting longevity. The term "probiotics" was first introduced in 1965 by Lilly and Stillwell; in contrast to antibiotics, probiotics were defined as microbially derived factors that stimulate the growth of other organisms. Probiotics are live microorganisms, generally bacteria but also yeast. Probiotics are readily available to consumers and are commonly found as food probiotics (e.g., yogurts, cheeses, milk-based beverages, fermented fish, meats, and vegetables, among others) and as food supplement probiotics (e.g., tablets, capsules, pills, powders, liquid concentrates in vials, and soft gels, among others). Nowadays, there is an increasing consumer demand for non-dairy based probiotics products. Lactose intolerance, cholesterol content, allergic milk proteins and vegetarianisms are limiting factors in growth of dairy products. A large number of lactic acid fermented traditional products based on non-dairy sources are available and consumed throughout the world. As fermentation process involves mixed cultures such as yeast, LAB and fungi, traditional feremted foods are a plentiful source of microorganism and some of them show probiotic characteristics. A number of food products including beverages products, meat products, cereals products, vegetables and fruits products and bread products have been utilised as delivery vehicles for probiotics. The object of this study is to summarize of non-dairy probiotic foods.

Keywords: Probiotic, non-dairy food, fermentation

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➢ **ORAL PRESENTATION**

Investigating the effect of monovalent and divalent ions on different food hydrocolloids by low field ^{1}H nuclear magnetic resonance relaxometry

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Abstract

Hydrocolloids are hydrophilic substances having an affinity with water. Each hydrocolloid has distinct characteristics due to its monomeric structure. Most of them are soluble in water and there are also many types that can form viscous solutions or even gels by inducing different crosslinking methods. Xanthan gum (XG), pectin (PC) and gum tragacanth (GT) are polysaccharides that are known due to their distinct behaviors in water. XG is a big branched anionic molecule and generally used as a thickening agent in food industry. GT is also an anionic polysaccharide and a physical mixture of two main fractions. Water soluble fraction contributes to the liquid character of GT. PC which is mostly a galacturonic acid polymer contains hydroxyl and carboxylate groups contributing to its hydrophilicity. Depending on the number of the methyl esterified carboxylic groups, PC can be defined as high (HM) or low esterified (LM) PC. Degree of esterification is important for the determination of colloidal properties of PC. Presence and type of ions in water affect the behaviors of hydrocolloids in terms of their intermolecular interactions with water. Hydrocolloids are usually used as thickeners and stabilisers in food systems and are found with mineral salts in different formulations. Electrostatic interactions within the hydrocolloids are affected by the ionic strength. In this study, solutions containing XG, LM PC (methoxyl content < 7% and degree of esterification < 50%) and GT by 0.5% (w/v) were prepared in distilled water, with calcium chloride ($CaCl_2$) and sodium chloride (NaCl) solutions that were prepared at the same ionic strength for five different concentrations. Then, these solutions were analyzed by transverse relaxation time (T_2) of Nuclear Magnetic Resonance Relaxometry (NMR) experiments. T_2 is also known as spin-spin relaxation time and gives information on mobility of protons within the observed system. Results showed that T_2 values of hydrocolloids varied in different media and the changes in T_2 with respect to different concentrations gave hints about the interaction mechanism of the hydrocolloid with polysaccharides. Type of the hydrocolloids and ions used as well as the ionic strength in the solutions were significant on the T_2 results.

Keywords: Xanthan gum, low methoxyl pectin, gum tragacanth, T_2, NMR, ionic strength.

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➢ **ORAL PRESENTATION**

Keçi sütüne uygulanan farklı ısıl işlemlerin peynir özelliklerine etkileri

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Özet

İnek sütünün bazı tüketicilerde alerjiye yol açması ve sindiriminin bazı durumlarda zor olması sebebiyle Paleo, düşük karbonhidrat veya ketosis diyeti gibi özel diyetler yapan kişilerin keçi sütü ve ürünlerine olan ilgisi son yıllarda önemli artış göstermiştir. Birçok kaynakta anne sütüne oldukça yakın besleyicilik özelliklerine sahip olduğu vurgulanan keçi sütünün bebek gıdalarında da kullanımı artmıştır. Diğer taraftan geleneksel bir ürün olan keçi peynirinin hem gastronomik açıdan hem de sağlık açısından daha fazla talep görmeye başladığı anlaşılmaktadır. Çiğ sütün sebep olabileceği mikrobiyolojik risklerin dikkate alınmadığı durumlarda, keçi peyniri geleneksel olarak çiğ sütün hayvandan sağıldıktan sonra doğrudan peynir mayası ile mayalanması şeklinde üretilmektedir. Bu üretim metodunun taşıdığı riskler hakkında farkındalık arttıkça, pastörizasyon sıcaklığına kadar ısıl işlem uygulama veya kaynatma sonrasında mayalamanın da uygulanmaya başlandığı görülmektedir. Ancak tüketici algısında çiğ sütten üretilen peynirin yapısal ve duyusal özellikler açısından daha iyi olduğu şeklinde bir inanış olduğu bilinmektedir. Bu çalışmada, Kırklareli ilinden temin edilen çiğ süt (i) sadece 40°C'ye ısıtılarak, (ii) 63°C'de pastörize edilerek, (iii) 72°C'de pastörize edilerek ve (iv) kaynatılarak peynire işlenmiştir. Elde edilen peynirler elektron mikroskobunda incelenmiş, ayrıca tekstür, kuru madde ve kül analizleri yapılmıştır. Elektron mikroskobu görüntüleri incelendiğinde, sadece ısıtma uygulanan peynir örneklerinde peynir yapısını oluşturan partiküller arası boşlukların daha fazla olduğu, pastörizasyon sıcaklığı arttıkça yapının daha homojen hale gelmeye başladığı anlaşılmaktadır. Diğer taraftan kaynatma işleminin protein denatürasyonunu aşırı miktarda arttırması dolayısıyla yapının yine boşluklu bir hale geldiği görülmüştür. Tekstürel açıdan incelendiğinde ise sadece 40°C'ye ısıtılma işlemi uygulanan peynir örneğinin daha yüksek sertlik ve çiğnenebilirlik değerlerine ulaştığı görülmüş; bununla birlikte bu değerlerdeki farkın istatistiki açıdan önemli olmadığı (P>0,05) belirlenmiştir. Kuru madde içerikleri açısından en yüksek değer kaynatılmış sütten üretilen peynirlerde bulunmuştur. Sonuç olarak, yapısal olarak önemli bir fark gözlenmemesi yanında mikrobiyolojik riskler göz önüne alındığında peynire işlenecek sütün pastörize edilerek kullanılmasının daha doğru bir yol olacağı açıktır.

Anahtar Kelimeler: Keçi peyniri, Pastörizasyon, Kaynatma, Çiğ süt

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➢ **ORAL PRESENTATION**

Ready-to-eat foods as a source of *Listeria monocytogenes*

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Abstract

Listeria monocytogenes is widely distrubuted in the environment and frequently isolated from foods. This bacterium is the causative agent of listeriosis, a foodborne disease with a high fatality rate. The comsumption of contaminated food products is the main route of transmission, which can be mainly observed for ready-to-eat (RTE) foods such as cooked meats, desserts, sandwiches, cheese from both raw or pasteurized milk, and fish products. *L. monocytogenes* is ubiquitous nature and many strains are able to survive a broad spectrum of harsh conditions such as acidic environment, low temperature, and high salt concentrations. RTE foods provide a suitable medium for *L. monocytogenes* growth due to their long shelf life (one or more weeks), and low-temperature storage until consumption. Furthermore, since RTE foods are consumed without further cooking, contaminating *L. monocytogenes* remain viable. In addition, cross-contamination may be another reason for the presence of *L. monocytogenes* in RTE foods. All these features make *L. monocytogenes* a foodborne pathogen extremely dangerous for humans. There are several regulations concerning the acceptable microbiological level of *L. monocytogenes* in RTE foods. In the United States, it is 0 CFU/g of *L. monocytogenes* per 25 g of the food sample. However, according to the European Commission Regulations (EC) No. 2073/2005 and No. 1441/2007, the number of *L. monocytogenes* should be less than 100 CFU/g in RTE products at the time of consumption. In Turkey, the Turkish Food Codex has stipulated that *L. monocytogenes* must not be detected at all in the RTE foods**.** Occurence of *L. monocytogenes* in RTE foods have been investigated in several countries. Therefore, we aimed to summarize of prevalence of *L. monocytogenes* isolated from RTE foods.

Keywords: Prevalence, *Listeria monocytogenes*, Ready-to-eat foods

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➢ **ORAL PRESENTATION**

Prevalence of *Staphylococcus aureus* isolated from cheeses in Ankara

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Abstract

Cheese is the most popular type of food by all socioeconomic classes in Turkey due to its nutritional value, convenience and good taste. The traditional method for cheese production affords many opportunities for microbial contamination. Therefore, it can be considered as a good medium for the growth of different types of spoilage and pathogenic microorganisms. One of them is *Staphylococcus aureus*. The aim of the present study was to allow qualitative checking of hygienic conditions of the examined cheese samples for the prevalence of *S. aureus* in Ankara. A total of 60 random locally manufactured cheese samples were collected from different markets, and bazars including homemade chesees, and white cheeses under aseptic conditions. The samples were collected in dry, clean, and sterile glass containers, and sent immediately in an ice box to the laboratory. In brief, 10 grams of samples were diluted in 225 mL in sterile Ringer's solution, and homogenized in a laboratory blender. Then, 100 µL of each samples were surface plated on Baird Parker agar. Presumptive *S. aureus* colonies were identified by standard microbiological tests which included Gram-staining; catalase and oxidation testing. In this study, 8 samples were contaminated with *S. aureus*. In conclusion, lower prevalence of *S. aureus* in cheese samples (13.33%, 8/60) in Ankara was recorded.

Keywords: Prevalence, *Staphylococcus aureus*, Cheese

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➢ **ORAL PRESENTATION**

Primarily evaluation of lactococcal phage prevalence from cheese facility located in Çanakkale

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Abstract

Bacterial viruses, discovered twice by Twort in 1915 and by Herelle in 1917, were called as 'bacteriophages (phage)' which means 'eaters of bacteria.' Bacteriophages are the most abundant and diverse biological entities present in the earth's biosphere. In the dairy industry, phages of lactic acid bacteria (LAB) have received increasing attention over the past three decades. The dairy facilities constitute an ideal environment for the propagation of phages. Infections of lactococcal strains by phages may cause fermentation issues of varying severity which impacts on the quality of fermented dairy products.

The present study aimed to survey of lytic lactococcal phages from cheese facility which was located in Çanakkale, to isolate, and to determine the phage-host ranges. For these purposes, milk and whey samples were collected from the cheese facility monthly. Isolation and enumeration of phages from milk and whey samples were performed by using the double agar overlay method. The purified phage isolates were stored in M17 broth containing 20% glycerol at -20^{o}C. The phage-host ranges of purified lysate were characterised against 30 *Lactococcus lactis* ssp. *lactis* strains.

During three months, a total of 45 samples were collected (30 milk, 15 whey) to assess lactococcal phage prevalence. Out of 45 samples, the prevalence of lactococcal phages was determined in 20 samples (44.4%). Although, 75% of the phage isolates (15 isolates) were from milk samples; 25% of them (5 isolates) were from whey samples. After reaching the proper phage titer for each isolated phage (10^8-10^9 pfu/mL) using the homolog host, the phage-host range was determined. Only two *L. lactis* ssp. *lactis* strains were determined as sensitive, twenty-eight were resistance to all tested phages.

Despite the implementation of various strategies to control lactococcal phages in dairy facilities (sanitation, culture rotations, and factory/equipment design), their presence and persistence remain a serious biotechnological problem.

Keywords: Cheese facility, *Lactococcus lactis* ssp. *lactis*, lactococcal phages

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➢ **ORAL PRESENTATION**

Doğal antioksidan kaynağı olarak hurma ve karayemiş çekirdeklerinin değerlendirilmesi

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Özet

Canlılar yaşamsal olaylarının devamı için sürekli olarak oksijene ihtiyaç duyarlar. Oksijenin kullanımı sırasında organizma içerisinde eşlenmemiş elektron içeren atom ve moleküller oluşur. Serbest radikaller olarak adlandırılan bu atom ve moleküller hayati öneme sahip hücre yapılarından elektron çalarak kararlı hale geçer ve oksidatif strese sebep olarak hücrenin hayati öneme sahip yapılarına zarar verir. Oksidatif stres canlılarda çeşitli hastalıklara sebep olur. İnsanlarda alzaymır, parkinson, romatoid artirit, diyabet gibi rahatsızlıklara yol açtığı gibi yaşlanmayı da hızlandırır. Antioksidanlar serbest radikallere elektron sağlayarak kararlı bir hal almalarını sağlayan ve bu zararları en alt düzeylere indirebilen moleküllerdir. Yapılan çalışmalar antioksidanca zengin gıdalar ile beslenmenin kaliteli ve uzun bir yaşama katkı sağladığını ortaya koymaktadır. Bu sebeple elde edilmesi ve ulaşılması kolay olan doğal antioksidanlar üzerine yapılan birçok çalışma vardır. Bu çalışma Rize ve çevresinde yetişen hurma ve karayemiş çekirdeklerinden elde edilen ekstraktların antioksidan kapasitesini belirleme amacıyla yapılmıştır. Hurma (*Diospyros kaki*) ve karayemiş (*Prunus laurocerаus*)'ten elde edilen çekirdekler 60°C'de kurutularak toz haline getirildikten sonra ethanol (40°C), sıcak su (75°C) ve ılık su (40°C) ile ekstraktsiyon işlemine tabi tutulup %2,5 ve %5 oranlarında ekstraktları elde edilmiş ve DPPH yöntemi kullanılarak antioksidan kapasiteleri belirlenmiştir. Elde edilen sonuçlara göre en yüksek antioksidan kapasitesi %2,5 ve %5 konsantrasyonlarında hurma çekirdeği ethanol ekstraktında, en düşük ise %2,5 konsantrasyonunda karayemiş çekirdeği ethanol ekstraktında, %5 konsantrasyonda ise hurma çekirdeği ılık su ekstraktında bulunmuştur.

Anahtar Kelimeler: Antioksidan, ROS, bitkisel ekstrakt, DPPH

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➢ **ORAL PRESENTATION**

Consumers' perceptions of probiotic products: The case of Çanakkale

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Abstract

Increasing functional food demand with the rise in nutritional health benefits has been trigger off the market growth. Probiotics are the beneficial bacteria which are widely used to treat the digestive issue, neurological disorders, and mental illness. The world probiotic market, which has grown rapidly day by day, was worth $36 billion in 2013. The expected to garner $57.4 billion during the forecast period 2016-2022. Nowadays, in addition to scientific evidence to their beneficial effects, probiotics are being intensively promoted to consumers as a mean to increase or maintain health, fuelled by media coverage.

The main purpose of this study is to determine consumers', who lives in Çanakkale, attitudes, and behaviours towards the probiotics products. For this aim, a survey with 31 questions was obtained to randomly selected individuals with using face to face questionnaires technique. Data were analysed using descriptive statistics.

Data were collected from 500 consumers (256 women and 244 men) in different socioeconomic groups. According to the survey, 55.4% of consumers were university graduates, and the age of consumers was ranged between 17-24 (39.8%) and between 25-40 (32.8%). Respectively, 78.4% and 61.4% of consumers did not have any knowledge about that probiotic products include beneficial microorganisms and that they should be alive. Although, %73.2 of consumers thought the necessity of consumption of probiotics for support the health, only 15% of consumers indicated that the daily consumption of probiotic products. On the other hand, 68.4% of consumers stated that they spent money on beneficial foods to support their health, but 24,6 of consumers did not spend any money on probiotic products.

According to survey results focused on the case of Çanakkale, there is increasing awareness for probiotic products in Turkey, but there is still a considerable lack of knowledge about probiotic microorganisms and their health effects.

Keywords: Probiotic products, beneficial microorganisms, health benefits, consumers' perceptions

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➢ **ORAL PRESENTATION**

The effects of gastric digestion and refrigerated storage on beef marinated with different food materials

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Abstract

Marination is a process that enhances the tenderness and aroma characteristics of meat using different acidic materials, sauces, spices etc. In this study, the effects of different marinades on beef during 4˚C storage were examined. Besides, textural and Nuclear Magnetic Resonance relaxation times of the marinated beef samples were measured before and after *in vitro* gastric digestion. Marinades were prepared using lemon, vinegar, milk, yoghurt and oil. Thyme oil was also added to the marinades at a level of 5%. The total phenolic content and antioxidant capacity of all the marinades were found to be similar ($p>0.05$). Colour values (L*, a* and b*) of the beef samples were measured after marination and they were compared to each other. During storage, significant differences were found in the pH values of the meat samples ($p<0.05$). The pH values of the treatments including lemon, vinegar and yoghurt were lower than the other samples at the end of storage ($p<0.05$). TBARS values of all the treatments were found to be similar at the last day of storage time ($p>0.05$), although there were significant differences on day 0 ($p<0.05$). Whilst the hardness of all the marinated meat samples was similar to control before digestion ($p>0.05$), control had the highest mean value after digestion. Spin-spin relaxation times (T_2) were measured by CPMG experiments. Relaxation curves showed a multiexponential behaviour and type of the marinade was found to effect the relaxation times which was also related with the changes observed on the physical properties.

Keywords: Marination, Beef, Oxidation, Antioxidant, NMR relaxometry

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➢ ORAL PRESENTATION

The effect of brine in different salt and $CaCl_2$ concentrations on the sensorial and textural properties of braided cheese

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Abstract

The most common problems in cheeses stored in brine are softening and melting on the surface. Addition of $CaCl_2$ or salt or their mixture to brine are the methods that are using to prevent these problems. The aim of the study was to determine the optimum combination of $CaCl_2$ and salt concentration for brine to prevent melting and softening of the braided cheese stored in brine. For that purpose, the study was carried out in two stages. First of all, six different $CaCl_2$ concentrations (0, 0.5, 0.6, 0.7, 0.8 and 1.0%) were added to brine and the most suitable concentration of $CaCl_2$ was determined. Then, at the most appropriate $CaCl_2$ concentration six different brines were prepared with salt at the concentrations of 5, 7, 9, 11, 13, and 15 Baume. The combination which gives the best results in terms of sensory, chemical and textural properties was investigated during storage at 4ºC for 30 days. In the first stage of the study, the moisture of the cheeses decreased with increasing $CaCl_2$ concentrations in the brine ($p<0.05$). There were no differences among the groups regarding pH and salt concentrations ($p>0.05$). The solubility of the samples decreased, and the hardness values increased with the increase of $CaCl_2$ concentration. 0.8% $CaCl_2$, received the highest overall acceptability score (7/9), was determined as the most suitable concentration. In the second stage of the study, different salt concentrations were added to the brine containing 0.8% $CaCl_2$. There were no differences between the groups regarding moisture and pH values ($p>0.05$), however, the salt content of the cheeses increased with increasing salt concentrations ($p<0.05$). Regarding sensorial evaluation, the highest scores were observed in the group with the salt concentration of 15 Baume. Overall, the combination of 0.8% $CaCl_2$ and salt concentration of 15 Baume was suggested as the most appropriate formulation for braided cheeses packaged in brine.

Keywords: $CaCl_2$, salt, storage, brine, braided cheese

➢ **ORAL PRESENTATION**

3D yazıcılar ve gıda uygulamaları

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Özet

3 boyutlu (3D) yazıcı teknolojisi, materyallerin katman katman birleştirilmesiyle katı formdaki kompleks yapıların oluşturulduğu, son yıllarda oldukça ilgi görmeye başlayan bir üretim teknolojisidir. 3D yazıcılar ilk olarak, seramik, metal, polimer gibi maddeler kullanılarak 3 boyutlu kompleks yapıların tek aşamada oluşturulması için icat edilmiştir. Gıda sektöründe ise amaç üretim sürecini tek basamağa indirmek değildir. 3D yazıcı teknolojisinin gıda sektörüne adapte edilmesindeki asıl amaç kompleks geometride, belli tekstürde ve belirli bir amaca uygun besinsel içerikte, istenilen tat, koku ve renkte 3 boyutlu yapıların oluşturulmasıdır. 3D gıda yazıcıları ile ilgili çalışmalar incelendiğinde, ilk yıllarda, daha çok yeni 3D gıda yazıcı sistemlerinin geliştirilmesi ve gıdaların 3D yazıcılarda işlenebilmesi için uygun formülasyonların belirlenmesine odaklanıldığı görülmektedir. Son yıllarda, belirli bir ihtiyaca uygun içerik ve yapıda gıda üretmek için 3D yazıcılar kullanılan veya alternatif hammaddeler ve tekniklerden yararlanılarak yeni gıdalar üretilirken 3D yazıcılardan yararlanılan spesifik çalışmalar da ortaya çıkmaya başlamıştır.

Anahtar Kelimeler: 3D yazıcılar, gıda uygulamaları, 3D gıda yapıları, bireyselleştirilmiş tasarım

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➢ **ORAL PRESENTATION**

Hematological and antioxidant effect of *Arctium lappa* leaves extract on female rats treated with Chorambucil

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Abstract

The aim of the present study is to evaluate the influence of *Arctium lappa* leaves extract on some hematological and antioxidant against the effect of Chorambucil in female rats. Twenty four female rats were distributed into four groups: The first group (G1) was treated with distilled water only. The second group (G2) was handled with Chlorambucil at daily dose (0.62 mg/kg). The third group (G3) was handled with Chlorambucil at daily dose (0.62 mg/kg) and alcoholic extract of *Arctium lappa* (600 mg/kg), the fourth group (G4) was handled with only *Arctium lappa* (600 mg/kg). The levels of Glutathione peroxides, Superoxide dismutase, Hb, RBCs and WBCs count in G2 revealed a significant decrease as compared with G3, G4 and G1. The Glutathione peroxides, Superoxide dismutase Hb, RBCs and WBCs count in G3 showed no significant difference when compared with G1. The animals in G4 showed a significant increase in antioxidant enzymes, Hb and RBCs count as compared with all other treated groups. Histopathological section of rat liver in G2 showed severs inflammatory cells infilitration between hepatic cells. Histopathological section of rat liver in G3 showed kupffer cells proliferation. While Section in the liver of rat treated in G4 showed kupffer cells proliferation, histopathological section in the bone tissue of rat in G2 showed inflammatory cells infiltration. Histopathological section in the bone tissue of rat G3 showed very mild inflammatory cells. The bone tissue of rat G4 showed no inflammatory cells reaction in the region of the joint. From this study we can conclude that the *Arctium lappa* leaves extract have the ability to minimize the side effect of therapeutic dose of Chorambucil on liver enzymes and blood pictures in female rats.

Keywords: *Arctium lappa*, antioxidant effect, chorambucil.

- **POSTER PRESENTATION**

2. ABSTRACTS
2.2. POSTER PRESENTATIONS

2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

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➢ **POSTER PRESENTATION**

Olive leaves polyphenols, "hydroxytyrosol and oleuropein" inhibit pma and fmlf-ınduced oxidative stress ın human neutrophil

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Abstract

Hydroxytyrosol (Hy) and oleuropein (Ole) are polyphenol agents known major biological active components found in olive leaves. They many benefits for health and exhibit interesting pharmacological effects on cells. Their anti-inflammatory effects has been largely described and are often attributed to their well known reactive oxygen species (ROS) scavenging effects. In our work, we show by using pures molecules that olives leaves extract can protect efficiently from oxidative stress and reduce the inflammation. Fresh neutrophils were isolated from venous blood. Cells toxicity was evaluated by the trypan blue exclusion test. ROS production were evaluated with chemiluminescence assay and neutrophil degranulation with spectrophotometer. Western blot to evaluate degranulation and MAP Kinase pathway. In this study, we compare the effect of olives leaves extract, Hy and Ole on ROS production by human neutrophil. In addition to their ROS scavenging effect, hydroxytyrosol and oleuropein inhibited significantly the bacterial peptide N-formyl-methionyl-leucyl-phenylalanine (fMLF)-induced degranulation as measured by myeloperoxidase (MPO) release. Hy and Ole impaired fMLF-induced AKT, p38MAPKinase and ERK1/2phosphorylation in human neutrophils. Our data show that olive leaves extract, Hy and Ole exert their anti inflammatory effect by inhibition of neutrophil degranulation, they probably act on MAP kinase pthway.

Keys words: Hydroxytyrosol**,** Oleuropein**,** Neutrophils**,** ROS**,** Degranulation**,** Chemotaxis.

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➢ **POSTER PRESENTATION**

Effectiveness of the essential oıl of peppermint (*Mentha piperit*a) on phytopathogenic fungi

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Abstract

The use of plant extracts is proven recently as an alternative method in the biocontrol of several fungal diseases. The present work is focused on the evaluation of the antifungal activity of the essential oil of peppermint on some phytopathogenic fungi, it represents a contribution in the search for means of biological control against the diseases of the green plants. The extraction of the essential oil of the mint was carried out by hydrodistillation of which 0.84% of the vegetable essence is obtained. The essential oil was separated by gas chromatography coupled with mass spectrometry (GC / MS) which gave 23 components, representing 99,99% of the oil. The major compounds identified were: Carvone (51.04%), Limonene (36.37%) and β-Pinene (1.66%), which comprise 89.07% of the oil. The evaluation of the antifungal activity was made by the method of radial growth on solid medium (PDA; Potatoes Dextrose Agar). The essential oil effect was tested on mycelial growth of four isolated fungal species from tomato leaves, pepper and wheat leaves. These are three species belonging to the genus Fusarium (*Fusarium moniliforme*, *Fusarium solani*, *Fusarium oxysporum*) and a species belonging to the genus *Stemphylium solani* which cause considerable losses of production in several plant varieties. According to the results, all tested isolates were sensitive to the studied plant essence with minimum inhibitory concentrations (MIC) ranging from 2.15 to 6.44 µg/ml. These results are interesting to the use of essential oils in plant protection applications such as a biological control method based on natural substances.

Keywords: Peppermint; Essential oil ; GC-MS; Antifungal activity; Phytopathogenic fungi.

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➢ **POSTER PRESENTATION**

The floristic procession linked to a Malvaceae *Lavatera maritima* in the Béni-Saf station

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Abstract

The present work concerns a self-ecological study of *Lavatera maritima* (malvaceae) in the region of Béni-Saf , for this study we rely on floristic criteria.
This study is devoted to a phytoecological analysis of the Beni-saf region, which is characterized by a significant floristic diversity.
Our attention, focused on lavatera lavatera maritima of the malvaceae family, the floristic study allowed us to enrich our knowledge on the existing biodiversity.
The floristic study made it possible to highlight the main families as well as the most dominant biological, morphological and biogeographic type. The calculation of the Disturbance Index is proportional to the dominance of the therophytic species in our station.

Keywords:. Malvaceae, *Lavatera maritima*, biogeographic, Béni-Saf, morphological.

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➢ **POSTER PRESENTATION**

Synthesis of new derivatives of 2*H*-1,3-benzoxazin-2-ones and 2*H*-1,4-benzoxazin-3-ones with new method

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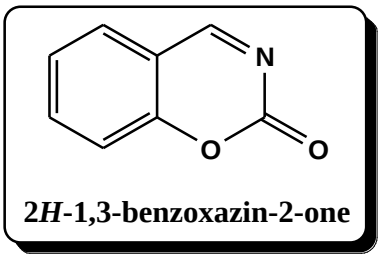
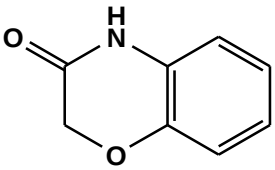
Abstract

Functional groups containing nitrogen are widely used in both synthetic biomolecules and natural products with remarkable biological activities[1] such as analgesic activity[2] and anticancer activity[3]. Benzoxazinones are an important class of heterocyclic compounds used in organic synthesis for the construction of natural and synthetic compounds and are used as skeletons for the design of biologically active compounds[4]. They have many biological activities including anti-inflammatory[5], antibacterial[6], antidiabetic[7], anti-tuberculosis[8]. the aim of this work is to synthesize new derivatives of 2*H*-1,3-benzoxazin-2-ones and 2*H*-1,4-benzoxazin-3-ones with the Schiff base much easier to implement than the methods described in the literature, easily reproducible, using in simple and inexpensive products.



2*H*-1,3-benzoxazin-2-one



2*H*-1,4-benzoxazin-3-one

Keywords: 2*H*-1,3-benzoxazin-2-ones - 2*H*-1,4-benzoxazin-3-ones - Shiff base.

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➢ **POSTER PRESENTATION**

Research of an active ingredient with antibacterial activity based on essential oil of artemisia herba alba

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Abstract

In the constant effort to find solutions against bacterial bioresistance to preserve infectious diseases in order to relieve pain, humans have sought new bioactive molecules continue to offer new alternatives to modern medicine and they generally present the advantage of being less toxic than their counterparts of synthetic origin. In this context, our studies have been conducted on the exploitation of the natural properties of essential oils (EO) as an active ingredient by the development of their antibacterial activity. The plant material used in this study is the leaves and flowers of *Artemisia herba alba* Asso. dried for a week, protected from light and at room temperature. EO was obtained by hydrodistillation using a Clevenger type apparatus. The yield of EO is of the order of 0.57%. The antibacterial activity of the oil was tested against 12 gram positive and negative gram bacterial strains using the agar plate diffusion method, the zone of inhibition determination and the direct contact method for the minimum concentration. inhibitor (MIC). The antibacterial test results showed a high potential for activity against the tested strains with a zone of inhibitions ranging between 9 ± 0.000 - 37.333 ± 1.528 mm and MICs between 0.042 and 0.169 mg.ml-1. We conclude that the results obtained show that our plant has antibacterial activity against certain bacterial strains pathogenic for humans. This experience clearly demonstrates that the essential oils of A. herba alba Asso can be an important source of several active ingredients including biological activities necessary to face various pathologies that suffers our citizens.

Keywords: active ingredient, antibacterial activity, essantial oil and *Artemisia herba alba* Asso,

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➢ **POSTER PRESENTATION**

Pedological study of *lavatera maritima* (malvaceae) in the Rachgoune station

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Abstract

Soil science is the science of soil that is concerned with the study of the origin, constituents, properties and classification of soils. Soils are special environments that allow plant life, but each species living with its requirements of organic substances, mineral substances, water ... etc. And occupies only a limited part of a specific type of soil.

Our resort "Rachgoun" is characterized by:

- An electrical conductivity is equal to 0.52 mS / cm;
- MUNSELL stain indicates 7.5YR 4/2;
- P H is weakly basic;
- Organic matter is average with a content of 02.18%;
- A high content of limestone.

Keywords:. Malvaceae, *Lavatera maritima*,Soil ,Rachgoune.

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➢ **POSTER PRESENTATION**

Assessing the antiumer and anti-inflammatory potenials of *Calotropis procera latex*.

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Abstract

Medicinal plants have been used in healthcare since time immemorial. The ideals of medicinal plants are highlighted due to the usefulness of the common-factor approach as a method of engaging other health promoters in propagating. However, conscious efforts need to be made to properly identify, recognize and position medicinal plants in the design and implementation of these strategies. One of these plants is *Calotropis procera* which is a species of tree in the family Apocynaceae. *Calotropis procera* is widespread in tropical Africa, including the Indian Ocean islands and the northern parts of South Africa. The latex is toxic and can cause rash, blisters and serious inflammations in sensitive persons and it may lead to blindness. Ingesting larger doses of latex produce toxic symptoms like burning in the throat, irritation of the stomach, nausea, vomiting, diarrhoea, tremors, vertigo and convulsions. This study aimed to evaluate burns healing effects and inhibitory concentration IC_{50} of *Calotropis procera latex* on cervical cancer cell line, SiHa. Cytotoxicity analysis was performed by MTT assay in addition to determine the burns healing effect of the latex by determining the day requiring to heal the burn skin of albino male mice. The results of burns healing effects declared that the burns required 12 days to heal in comparison with positive (sliver sulfadiazine) and negative control which required 16 and 18 days for healing respectively. Also, the results revealed that the IC_{50} of latex was 146.8 % in comparison of ambiguous percentage of normal cell line WRL68.

Key words: *Calotropis procera*, latex, SiHA cell line, burns healing, anticancer.

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➢ **POSTER PRESENTATION**

Quantum chemical description of the formation of tripeptides

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Abstract

For the quantitative description of the peptide bond formation between the AlaSer and ThrGlu dipeptides and the third amino acid the orders of the C-O and N-H bonds (PCO and PNH), the charges on the carbon, nitrogen and oxygen atoms of the carboxy, amine and hydroxy groups are used. The activation energy (ΔE#) of tripeptide formation and the parameter of the propensity of amino acids to formation a peptide bond (Kp) were calculated. It is shown that with an increase in the activation energy (ΔE#), the (Kp) decreases. The calculations were carried out by means of modern quantum-chemical method - Density Functional Theory (DFT).

Keywords: Tripeptides, DFT calculations, Propensity parameter, Activation Energy.

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➢ **POSTER PRESENTATION**

Kinetics, equilibrium, and thermodynamic studies on adsorption of malachite green by activated loofa sponge

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Abstract

The preparation of activated carbon from loofa sponge with H_3PO_4 activation (ACL) and its ability to remove textile dye (malachite green), from aqueous solutions were reported in this study. The adsorbent was characterized with Fourier transform infrared spectrophotometer (FT-IR). The influence of various experimental factors such as contact time, initial dye concentration, adsorbent dosage, temperature and pH of dye solution was investigated in a batch-adsorption. Result showed that the adsorption of malachite green was favorable at acidic pH. The adsorption uptake was found to increase with increase in initial dye concentration, and contact time. The pseudo-first-order and pseudo-second-order kinetic models were applied to test the experi-mental data. The pseudo-second order exhibited the best fit for the kinetic studies, which indicates that adsorption of malachite green is limited by chemisorption process. The equilibrium data were evaluated using Langmuir and Freundlich isotherms. The Langmuir rmodel best describes the uptake of malachite green dye, which implies that the adsorption of textiles dye in this study onto loofa sponge activated carbon. Thermody-namic parameters such as Gibbs free energy, enthalpy and entropy were determined. It was found that malachite green dye adsorption was spontaneous and endothermic

Keywords: Adsorption, activated carbon, loofa sponge, malachite green.

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➢ **POSTER PRESENTATION**

Study of the biological activity of essential oils of bitter orange *Citrus aurantium* L.

Salah Eddine Bencheikh[1,3*],Segni Ladjel[1,4], Mohamed Bilal Goudjil[1,4] , Naima Boukraa [1,4], Souad Zighmi[2, 4] and Zineb Mahcene[5]

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Abstract

This study is part of the development of Algerian medicinal plants known for their therapeutic virtues; we selected in the study the plant *Citrus aurantium L* that is rich of active ingredient used by the local population in different therapies.
The subject work process contains of the extraction of essential oils, the identification of the chemical composition whose objective is to study the biological activities including the antimicrobial one and the antioxidant activity of the essential oils of the medicinal plant *Citrus aurantium L*, on the other hand to shed light on these activities.
We extracted the essential oils from the leaves and the fruits of the plant by the hydro-distillation technique.
The two essential oils extracted by hydro-distillation were analyzed by gas chromatography coupled to mass spectrometry. GC / MS screening process identified 59 constituents of leaf essential oils with 23.92% *Linalool* and 62 constituents of fruit essential oils with 64.69% *L-Limonene*
The antibacterial activity was measured against twelve bacterial strains among which *staphylococcus aureus* is referenced as the most sensitive with 28.66 mm as a diameter of inhibition for the essential oils of the leaves and the *bacillus* which is 3.66 of mm diameter for the essential oils fruits.
The antioxidant activity of the essential oil was evaluated using *2,2-diphenyl-1 picrylhydrazyl (DPPH)* test and iron antioxidant potency *(FRAP)* results are: IC50 of 1.85 ± 0.7207 *µg / ml* and EC50= 6.55 ± 0.5628 *µg / ml* for leaf essential oils, and IC50 of 67.01 ± 0.2345 *µg / ml* and EC50 = 10.01 ± 0.*6519 µg / ml* for essential oils of fruits.
Further to the achieved results, we can conclude that the essential oil of the plant *Citrus aurantium L* has a very powerful antioxidant and antimicrobial effect on the pathogenic strains and gives a new alternative in biological control by essential oils.

Keywords: Essential oils; *Citrus aurantium* L.; GC / MS; Antibacterial activity; Antioxidant activity.

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➢ **POSTER PRESENTATION**

Larvicidal effect of *Physalis acutifolia* on *Culiseta longiareolata* (Diptera ; Culicidae)

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Abstract

Plant extract of *Physalis acutifolia* was tested against 4th instar larvae of the mosquito *Culiseta longiareolata* L. The obtained results indicated a sensitivity of *Culiseta longiareolata* larvae for the plant species aroused. This sensitivity is even higher when exposure of the larvae to insecticides is extended in time. Generates the greatest mortality rate 96% for 29,78 g /l after 96 h of exposure. For LC50 *Physalis acutifolia* values, acted at low concentrations with an LC50 of 15,56g /l after 96 h of exposure. Preliminary toxicity tests on *Culiseta longiareolata* have confirmed its toxicity for these vectors.

Keywords: *Physalis acutifolia*, Mortality; LC50; 4th instars; *Culiseta longiareolata*

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➢ **POSTER PRESENTATION**

Biological activity of extract *Astragalus armatus* on cardiovascular diseases induced by hyperhomocysteinemia in mice

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Abstract

Our research aims to determine the protective effect of the extract *Astragalus armatus* on Hyperhomocysteinemia induced in mice, which has risk factor on the heart disease, Homocysteine can cause widespread hazards to human body if its level is increased in plasma, defined by hyperhomocysteinemia (HHcy) (1) ,(HHcy) is associated with cardiovascular disease, atherosclerosis and reactive oxygen (2). We want to find out whether the Hyperhomocysteinemia leads to the histopathological changes in the Heart , and the extent to which it is reduced by the extract, Many studies have confirmed the reduction of plasma Hcy level by several phenolic antioxidant compounds and plant extract like coffee , catechin, red wine phenolic and chlorogenic acid (3 ,4).
The plasma HHCY concentrations were elevated after the following oral administration of L-methionine in high dose to mice, Also we have observed that there was alterations in the heart presented by lysis and necrosis in the structure of muscular fibers. The treatment with *Astragalus.a* extract is effective in decreasing plasma Homocysteine level and prevented the endothelial alteration, and the heart damage. This research is another step towards preventing the danger of HHcy, which has reduced the risk factor of heart diseases.

Keywords: Hyperhomocysteinemia, *Astragalus armatus* , Cardiovascular diseases .

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➢ **POSTER PRESENTATION**

Study of the physicochemical properties of chemically modified alginic acid in the environmental and pharmaceutical field.

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Abstract

Alginic acid is an acidic polysaccharide carrying a carboxyl group bound to C5 carbon [1]. As a result, alginic acid has high hydrophilicity, pH-dependent viscoelasticity and gelation ability with multivalent metals [2-4]. In addition, it has physiological functions such as biocompatibility and biodegradability [5-7].

We have thus used these functional groups as a reaction point in order to chemically modify this biopolymer by esterification with a hydroxyl group.

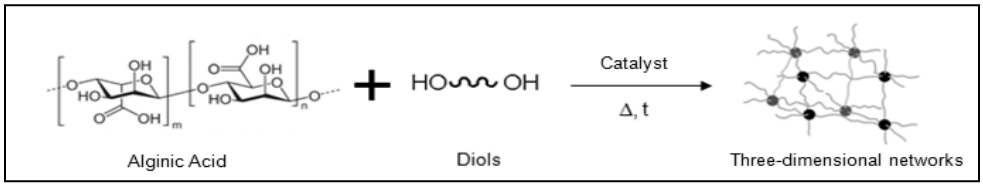

Figure 1: Development of a new material based on a biopolymer.

The materials obtained were characterized by solid state Fourier Transform Infrared (FTIR) spectroscopy, by Differential Scanning Calorimetry (DSC) analysis, by thermogravimetric analysis (ATG) and thermogravimetric differential (DTG). The objective of the development of these materials has been to study their applications, on the one hand, in the environmental field because of their biodegradability, and on the other hand, in the pharmaceutical field for their biocompatibility. We have obtained very promising results.

Keywords: Biopolymer, alginic acid, chemical modification, esterification.

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➢ **POSTER PRESENTATION**

Co-treatment of cancers with nutritherapy

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Abstract

Nutritherapy is a discipline that uses foods, nutrients and many molecules with pharmacological effects such as drugs.Cancers are degenerative diseases that the main risk factor is the age, so it's just only one aspect of aging among others such as hearing loss, cataracts, Parkinson's disease ... etc. If one wants to have a chance to retransform a cancerous cell, mutated in a normal cell, it's necessary to favor DNA repair systems, what a succession of discoveries makes it possible to do with vitamins and polyphenols. Several polyphenols like those of pomegranate, turmeric (and its accomplice, ginger), extra-virgin olive oil, green tea, have anti-carcinogenic effects. The Alliaceae (Garlic, Onion...), that are already famous as preventive agents and Crucifers (broccoli, cauliflower ...) are anti-cancer foods. Diet can do a lot, but not everything, dietary supplements can provide, without calories, titrated amounts of active ingredients. The use of omega 3 and vitamins D, k, and C in co-treatment of cancers is quite widespread. Dietary supplements must be deprived from iron, copper, manganese, amino acids such as: glutamine, N-acetyl-cysteine, methionine and tyrosine. But it must first be understood that dietary supplements don't replace good eating habits and lifestyle as minimizing the intake of fast sugars, salt, saturated fat, omega six, trans and iron, animal proteins, industrial products, additives, plastic food packaging

Keywords: Nutritherapy, Cancers, Polyphenols, Alliaceae, Vitamins, Dietary suppluments.

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➢ **POSTER PRESENTATION**

Study Of Some Detergents Effects Against The Fungi Isolated From Dog's Shed In Baghdad

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Abstract

Pet dogs have been considered to be involved in the contamination of indoor air by serving as a source of providing molds at houses. In this study was executed on 38 samples that collected from dogs sheds and cages soil floor from dog market in Al-Adamia- and sok Al-kazeal in Baghdad; the isolated fungi were 97 isolate. The mold isolated were 73 isolates (75.25%) while the yeast isolated were 24 isolates (24.74%). The subsequent fungi species were isolated: *Aspergillus* spp. 28 isolate (28.86%), *Microsporum flavum* 16 isolate (16.49%) and another species in Table (2). *Aspergillus* was divided to 3 species. In the current study 6 detergents was used to determination inhibitory effect on *Aspergillus fumigatus* and *Microsporum flavum*. Dettol showed the highest inhibitory growth effect on both *Aspergillus fumigatus and Microsporum flavum* with inhibition zone 42 mm and 18mm in diameter respectively followed by Al Emlaaq with inhibition zone 25mm on *Aspergillus fumigatus* and 19mm on *Microsporum flavum.* Ultra Doux shampoo and One Step Gel floor cleaner they were not have any effective on growth of both *Aspergillus fumigatus and Microsporum flavum.*

Key word: Fungi in dogs, dogs shed, *Aspergillus fumigatus*, *Aspergillus fumigatus,* detergents, Dettol.

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➢ **POSTER PRESENTATION**

Evaluation of pregnant women's exposure to endocrine disturbing chemicals used in sunscreens.

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Abstract

Concerns are growing about human exposure to endocrine disturbing chemicals (EDCs). This exposure rises a real public health problem as it has a harmful impact on the human health especially for pregnant women and babies.
Ultraviolet filters (UVF), butylated hydroxytoluen and paraben are extremley widespread EDCs that are incorporated in cosmetics and sunscreens which are usually used to reduce the pregnancy mask. The aim of this study is to evaluate pregnant women exposure to the endocrine disturbing chemicals (EDCs) used in sunscreens.
We conducted a transversal descriptive study using a survey for pregnant and breastfeeding women through the Algerian territory. The survey was conducted from December 2018 to February 2019.
400 women were concerned by the survey in which the age average was 30,7± 4,48. Some women used sunscreens containing UVF such as 2-ethylhexyl-4-methoxycinnamate, homosalate and benzophenone at percentage of 53%, 9% and 2.5%, respectively. Other EDCs with an antioxydant effect are found in these sunscreens composition, so 34,7% of women were exposed to butylhydroxy toluene and 6,75% to parabene.
In Algeria, cosmetics use generally and sunscreens particularly remain a sensitive topic to discuss regarding the lack of knowledge of the large public in terms of toxic effects of EDCs, hence the imperative necessity to introduce a wide and effective prevention is required.

Key words: endocrine disturbing chemicals (EDCs), pregnant women, UV filters, sunscreens.

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➢ **POSTER PRESENTATION**

Synthesis, molecular structure investigation and hirshfeld surface analysis of a thiazolidinone derivative compound

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Abstract

Thiazoles are important class of heterocyclic compounds. This heterocyclic system is responsible for a broad spectrum of biological activities. There are numerous studies of simple thiazoles reporting their biological activity**.** Due to their properties, thiazole derivatives are interesting candidates for obtaining new materials. Thiazoles compounds have been also studied for their nonlinear optical properties. Prompted by these investigations and in continuation of our research on the development of organic heterocyclic compounds, we report in this work the synthesis and crystal structure of the compound (2Z,5Z)-5-(4-nitrobenzylidene)-3-(2-methoxyphenyl)-2-[(2-methoxyphenyl) imino] thiazolidin-4-one.
The structure of syntheses compound has been determinate by (^{1}H, ^{13}C) NMR, FT-IR and X-ray single crystal diffraction. Single yellow crystals of our compound were obtained through the slow evaporation of ethanol solvent. The X-ray diffraction study from our single crystal was measured at low temperature (173K) using graphite monochromated Mo -*K*α radiation source (λ= 0.71073 A°). This compound crystallizes in the Monoclinic system P21/c with Z= 4.
The experimental X-ray data have been employed for determination Z/E structure configuration and compared with density functional theory (DFT) methods using 6-31G (d,p) basis set. Hirshfeld surface analysis is employed to measure the distribution of close contact interactions.

Keywords: Thiazolidinone; FT-IR; X-ray; (^{1}H, ^{13}C) NMR, DFT.

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➢ **POSTER PRESENTATION**

Biological activities of essential oil and hydrosol extract of *Centaurea acaulis* L.

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Abstract
Objectives: This study aimed to chemically characterize the essential oils of *Centaurea acaulis* and to evaluate their antioxidant and antimicrobial activities.
Methods: Essential oils were obtained by a Clevenger-type apparatus and analyzed by using Gas Chromatography (GC) and Gas Chromatography Mass Spectroscopy (GC/MS). Antioxidant activity was evaluated by free radical-scavenging capacity, β-carotene bleaching and FRAP methods. The antimicrobial activities were tested to four phytopathogenic stains.
Results: Altogether, forty-two compounds were identified in the essential oils of aerial part with sixteen compounds in roots parts, representing 0.16% and 0.07% of the total oil composition respectively. Their main constituents are in roots parts sesquiterpenes oxygenes (33%), sesquiterpeniques hydrocarbones with 3 derivatives (10.5 %), aerial part show existence of sesquiterpenes oxygenes (66.2-68.4%) and diterpenes oxygenes (5.3-6.4 %) with high ratio of (E)-phytol (5.2-6.3%). The best antioxidant activity was exhibited by aerial part essential oil at low concentrations (IC50 of 73.01 µg/mL and 114.20 µg/mL for DPPH essay and (IC50 44.32 µg/mL; 40.60 µg/mL for β-carotene bleaching). However, a high result of ferric reducing antioxidant power for essential oil tested was observed. Antibacterial tests showed antibacterial activity of roots part against only gram-positive bacteria with inhibition diameter of 10 and 12 against *Staphylococcus aureus* and *Bacillus cereus* respectively.
Conclusion: The essential oil can be used as a potential source of sustainable eco-friendly botanical to a variety of food commodities.
Keywords: Centaurea acaulis, essential oils composition, antioxidant activities, antibacterial activity, antifungal activity.

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➢ **POSTER PRESENTATION**

Improvement of chemical properties of cow's milk in Morocco.

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Abstract

A study was conducted in order to examine the main factors of chemical variation in mixed fresh cow's milk collected from Moroccan farms. Indeed, the quality of mixted milk was controlled through a survey over one year. In this context, several fresh milk parameters were studied such as: density variation, fats and proteins content and defatted dry extract. The results showed that the studied chemical properties were improved significantly over one year. Hence, the protein content increased 3.06% more than the fat content 4.01% comparing to the last nine decades. This evolution is mainly related to climate change, lactation as well as cow's diet. Overall, these findings may help in further investigations to control chemical properties by taking into account the mentioned factors.

Keywords: Fat; Protein; Defatted dry extract; Density; Raw milk.

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➢ **POSTER PRESENTATION**

Inventory of Pesticides and their impact on the environment by calculating the frequency of treatment indicator in the Gharb plain (Morocco)

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Abstract

The Gharb area (upstream of the Merja Zerga lagoon, in Morocco, known as the Ramsar Wetland since 1980) is a very important area of agricultural activity, which could expose it to the risk of contamination and pollution of air, water and soil, as well as endanger the ecological system of the area.

In addition, the inventory and analysis of the results of the surveys carried out on 100 well-targeted farms, covering an area of 555 ha and completed by a survey of 71 pesticide resellers, allowed part of, revealing the strong use of pesticides in quantity (13.6 kg / ha), and on the other hand, to note that high value-added cultivation techniques do not exert a strong phytosanitary pressure on the environment.

In addition, the data collected helped us evaluate by indicator calculation (FTI) the pressure of pesticides on the environment while analyzing the farming practices specific to each crop. Thus, the results of the survey show that banana is the crop that undergoes the most phytosanitary treatment registering an IFT of 38, in terms of the total consumption of pesticides identified; orange trees have taken the lion's share compared to other crops practiced in the study area.

Keywords: Agricultural practices, pesticides, phytosanitary pressure, frequency of treatment indicator (FTI), water, soil, environment.

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➢ **POSTER PRESENTATION**

Green synthesis of novel *α*-aminophosphonates from α-amino acids esters under ultrasounds irradiations

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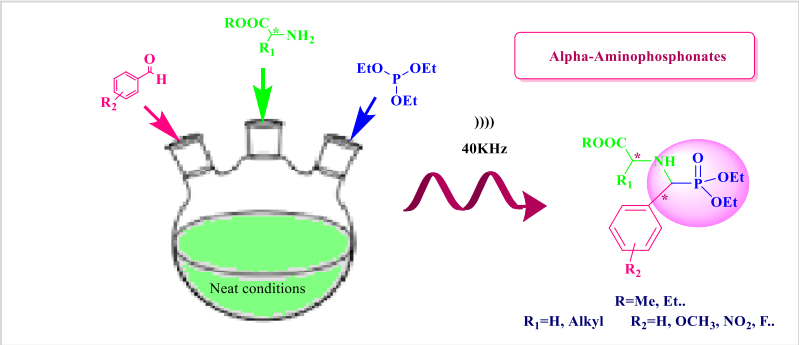
Abstract

In the recent years, the α-aminophosphonates have received considerable attention in organic and medicinal chemistry [1] because of their structural resemblance with α-amino acids.[2] They are used as antitumor agents, antivirals, anti-inflammatory and antibiotics.

Ultrasound assisted synthesis of organic compounds is a well-established method[3] and has been authenticated as a substitute energy source for organic transformations ordinarily accomplished through heating, they offers a many advantages comparing to conventional methods, such as the acceleration a reaction, high yields, short reaction time and reaction pathway specificity.

In continuation of our interest toward developingnovel biologically important organophosphorus compounds, we prepare a novel α-aminophosphonates using amino acids esters as amine partners under ultrasounds irradiations at room temperature. The synthesized compounds were characterized by IR, ^{1}HNMR, ^{13}C NMR, ^{31}P NMR and MS.



Graphical abstract

Keywords: α-Aminophosphonates, One-pot reaction, Amino acids esters, ultrasounds, solvent free-conditions, room temperature.

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➢ **POSTER PRESENTATION**

The effect of thymoquinone and *ceratonia siliqua* L. on the some levels of cytokines in experimental model of asthma

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Abstract

Asthma is a complex disease of the airway characterized by reversible airway narrowing and obstruction, chronic airway inflammation, airway hyperresponsiveness and tissue remodeling. The purpose of this study was to determine the effect of Thymoquinone and *Ceratonia siliqua* L**.**(Carob) on airway pathologic changes in a rat model of asthma. Twenty-four adult male Wistar rats were divided into 4 groups: control, asthmatic, asthmatic treated with 10mg/kg TQ and 10mg/kg Carob and asthmatic treated with 1mg/gk dexamethasone . To induce the experimental asthma, rats in groups 2, 3, and 4 received an intraperitoneal injection (i.p) of ovalbumin (OVA)(1mg/ml)and alum(1mg/ml) in 0 and 14 days then aerosolized OVA(5mg/ml) in 21, 22, 23 days. After 24h of the last dosage of aerosolized OVA, rats in groups 3 and 4 received a mix of TQ and Carob dosage by gavage and an i.p injection of dexamethasone respectively once a day for 5 days. After 24 h of the last day of treatment, all groups were sacrificed, blood samples were collected for serological analysis. According to results, the serum IL-13 levels decreased in co administration of TQ + Carob group when compared to both control and experimental asthma group ($p < 0.05$). The serum IL-13 levels increased in Dexamethasone group when compared to co administration of TQ + Carob group ($p < 0.05$). This finding indicated that co administration of TQ and Carob is more succesfully than dexamethasone application in terms of serum IL-13 levels or decreasing inflammation. Co administration of TQ + Carob will contribute to treatment of asthma and preventation of asthma attack.

Keywords: Asthma, Thymoquinone, Ceratonia siliqua, Inflammation, IL-13, Sensitization.

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➢ **POSTER PRESENTATION**

Genetic variability of de different parameters of the pistachio of the Atlas of Tiaret (Algeria)

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Abstract

The pistachio tree of the Atlas is a tree endowed with a great ecological plasticity which adapts to the most arid climatic conditions; it is used in the reforestation of the zones of pre-desert Mediterranean climate, in the afforestation, like rootstock for the true pistachio tree, for fixing the soil. It is known to be a panacea; it has several socio-economic properties. Unfortunately, it is threatened by extinction and it is very important to protect, enhance and rehabilitate this species.

Our work consists in a research of the existence of the genetic variability of the Betoum, the study is made on the morphological, micro-morphological parameters of four stands of the pistachio of the Atlas at the level of the wilaya of Tiaret.

The results show that this species has a high polymorphism of the morphological, qualitative and quantitative parameters of the leaves and reproductive organs. This variation is found in the male and female individuals of the selected stands. This allowed us to discover a first case of monoïcie in the Rechaiga forest.

The study of stomatal density presents variability within individuals of the same population and at the level of the populations of the zones studied.

Keywords: *Pistacia atlantica* Desf., genetic variability, leaves, flowers and stomata.

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➢ **POSTER PRESENTATION**

Flora of Zverneci bay in Albania

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Abstract

Albania has a long coastal line but the most important areas are those of different bays such as Zverneci Bay. These surpasses are called salt marshes and based on biodiversity values they have high numbers of habitats found there. The plants diversity found in these habitats are unique. This paper presents results of a vegetation survey of Zverneci bay, a specific Albanian costal habitat. Zverneci Bay, due to the geographic position, geology and hydrology, specific clime, offers very rich vegetation. This is reflected in the consider number of taxa. In this study, there 9 association were analyzed, belonged to 6 orders and 4 classes. The communities studied belong to four classes *Cakiletea maritimae*, *Ammophiletea* etc. The following associations were distinguished: Cakilo-Xanthietum strumarii , Species composition is presented in 4 synoptic tables.
Plants associations are classified based on principles of Zurich–Montpellier school (Braun-Blanquet, 1964), that made the base of classification in Europe sites.

Keywords: Zverneci Bay, habitat, taxa, associations, coastal vegetation.

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➢ **POSTER PRESENTATION**

Microbiological quality of two types of grilled meat sold in biskra

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Abstract

Charcoal grilled meat sold in the street is one of the most popular dishes sold in the Third World, but can cause foodborne illness among consumers. The purpose of this study is (1) to know the microbiological quality of 8 samples of two types of grilled meat (skewered mutton and chicken) taken at random and the measurement of pH (2) to study the antibiotic resistance profile of the selected strains. The results showed normal pH values ranging from 6.24 to 7.14. With regard to microbiological analysis, 62.5% of grilled meat was satisfactory with a total absence of salmonella from faecal coliforms, it is noted that white meat is much less contaminated than red, and 37.5% of unsatisfactory grilled meat with, and 37.5% unsatisfactory grilled meat, the detection of a high level of *Staphylococcus aureus* and faecal Coliforms with the presence of fungal flora. which exceeds the standards required by the Algerian Official Journal, the two strains of *Staphylococcus aureus* selected show resistance to penicillin and sensitivity to other antibiotics. these results suggest an anomaly of the measures of hygiene and a danger for the consumer.

Keywords: grilled meat, coliforms, microbiological quality.

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➢ **POSTER PRESENTATION**

Simple and efficient synthesis of novel *N*-acylsulfamoyl-oxazolidin-2-one containing α-aminophosphonates

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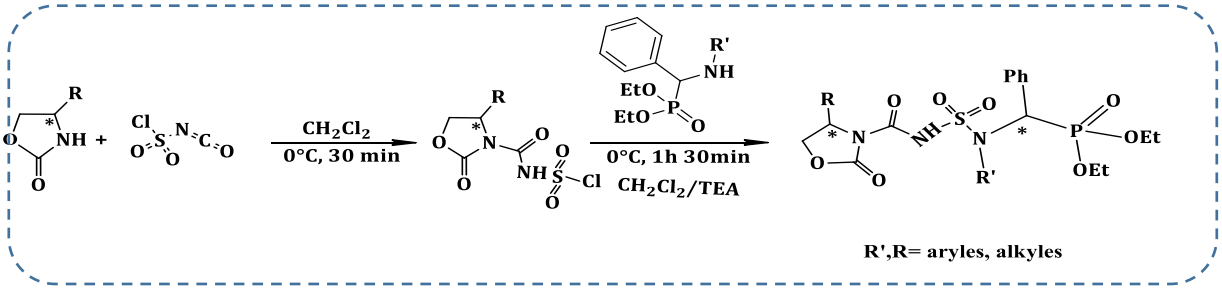
Abstract

In the recent years, have seen many advances in the development of new and effective biomolecules for the treatment of various diseases. Firstly, the α-aminophosphonates have received considerable attention in organic and medicinal chemistry because of their structural resemblance with α-amino acids. [1] They are used as antitumor agents, [2] antiviral [3] and antibiotics [4]. As a result, a number of procedures have been developed for their synthesis. Secondly, the chemistry of Oxazolidin-2-ones containing sulfonamides moiety have attracted obvious attention due to their significant biological properties and their role as pharmacophores. [5]
A convenient method for the synthesis of new series of N-acylsulfmoylphosphonates-oxazolidin-2-one starting from chlorosulfonyl isocyanate, chiral oxazolidinones and α-aminophosphonates in two steps (carbamoylation and sulfamoylation) is described; the desired products were obtained in good yields.
The newly synthesized compounds were systematically characterized by IR, 1H NMR, and MS.

Keywords: Oxazolidin-2-one, sulfonamide, α-aminophosphonates.



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➢ **POSTER PRESENTATION**

Estimation of the tatal flavonoid, antioxidant, anti -bacterial potentials of *Ruta chalepensis* methanolic extract.

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Abstract

The objective concerning this study was to decide aggregation flavonoid content (TFC) primarily based of flavonoid-aluminum chloride (AlCl3) and antioxidant activity by spectrophotometric method and determination of against bacterial action in *ruta chalepensis* (natural plant) utilizing reaction surface philosophy. Homegrown prescription or restorative plants have prompted the disclosure of various new medications, then non-tranquilize substances. Among it flora are kinds of the range group *Ruta* has a region including family Rutaceae . *ruta chalepensis* has considerable cell antioxidant properties. The among *invitro* records evidently portrayed the most cancers prevention agent adequacy of methanolic extricate, which was tried .spectrophotometrically strategy is a vital procedure to decide add up to total flavonoids, and cancer prevention agent action (reductive capacity and DPPH radical foragers action). Results showed that *ruta chalepensis* has high flavonoid substance which was (257± 0.280 µg/ml) in addition to tremendous antioxidant in a concentration dependant manner (ranged from 0.180 to 0.558 for 0.02 and 0.64 mg/ml respectively for reductive ability and 68.60 to 85.03 for 0.125 and 0.500 mg/ml in DPPD radical scavenging activity) and antibacterial in opposition to (*Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia coli or Streptococcus)*.

Keyword: *ruta chalepensis* , herbal remedies, healthcare, annual plants, inhibition zone.

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➢ **POSTER PRESENTATION**

Thermodynamic study of adsorption 2,6-dichlorophenol-indophenol sodium salt dihydrate from aqueous solutions by used nano surface magnesium oxide

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Abstract

The objectives of this study to adsorb 2,6dichlorophenolindophenol sodium salt by using Magnesium Oxide as a nano surface. The adsorption of dyes by using the nanoparticles is a modern and effective way to remove contaminants from their solutions The UV technique was used to follow the dye concentrations in the water solution after mixing them with 0.1 g of MgO and different concentrations of the dye solution were used to obtain the isotherm adsorption. The application of the Langmuir and Freundlich isotherms adsorption was investigated. The isotherm estimate shows that the Freundlich model, obtain better fits to the experimental equilibrium data than the Langmuir model and the effect of temperature was investigated. The best temperature was 298 K. The adsorption decreases by increasing the temperature. The values of ΔG were all revealed that the process of adsorption was spontaneous, within the experimental conditions. The effect of the acidic function was also studied. The amount of adsorption changed with the acidic function which was at pH= 3. The study showed the apparent ability of magnesium oxide to remove dyes efficiently.

Keyword: DCPIP, Nano magnesium oxide, Adsorption, Thermodynami

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➢ **POSTER PRESENTATION**

General considerations and conservation of flora in the Narta area, Albania

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Abstract

Narta area belongs to Vlora region and is characterized by a rich flora, vegetation, and diversity of habitats. The relations between these various types of habitat are a great ecological importance. The relatively of the vegetation is due to human pressure and erosion.
The Narta area is characterized by the dominance of the coastal, alluvial plain, and salted lands. It is also a protected landscape. This study is focused in the identification of flora in Narta area. A check list with the most important species of wild flora is given. The flora of Narta area consists of 126 wild plants. According to Raunkiaer's life form of plants, dominating species are Therophytes(Th) 33% , followed by Hyemicryptophytes(H) 29%.
Currently, Narta area continue to be threatened by alteration of their functions which means degradation of their values, despite the fact that certain positive step in the direction of their sustainable management have started.
The aim of this study was to describe the basic types of vegetation in this area, and to show global importance of area of Narta and needs for their effective protection. Maritime pines like:*Pinus maritima, Pinus pinaster* and *Pinus pinea* are founded in this area. They have a major impact on the dune landscape throughout the area. The most pioneer species are *Salsola kali*, *Cakile maritima*, *Xanthium strumarium* at the beginning isolated become more frequent when leaving the coastline.

Keywords: Therophytes, Hemicryptophytes, sustainable management, erosion, Pinus.

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➢ **POSTER PRESENTATION**

Determination of bioactive compounds of oregano species grown *in vitro*

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Abstract
Plants naturally are a rich source of secondary metabolites, well known as polyphenols and novel therapeutic compounds. Among of this plant we found Oregano that is an aromatic and medicinal plant, native to the Mediterranean region, it is dedicated to various purposes such as alimentation, drinks, and traditional medicine due to the bioactive compounds.
In recent years, the phenolic and flavonoids compounds are the subject of many researches because, in addition to their use as conservatives in the food stuffs, they intervene in the treatment of many diseases (1).
Within the framework of discovered new bioactive compounds in natural sources, we have investigated in this work, the phenolic and flavonoids compounds of four species of oregano grown in vitro: *Origanum majorana L.*, *Origanum elongatum* (Bonnet) Emb. & Maire, *Origanum compactum* Benth., *Origanum vulgare* L.
This study concerns the extraction and the quantification of total phenolics and flavonoids by the Folin-Ciocalteu reagent and the aluminium trichloride respectively. The results of this quantification showed the richness of this plant of total phenols and total flavonoids.
These findings suggest that *Origanum* may be considered as an interesting source of bioactive compounds for therapeutic and food manufactures.
Our current work is focused on the study of antioxidant activity in oregano species, because different studies have shown that the AOX effects of medicinal and aromatic plant are related to the presence of phenolic structures such as thymol and carvacrol and so these compounds could replace synthetic antioxidants currently used in the food industry, and due to their natural origin improve health

Keywords : flavonoïds, Oregano, polyphenols

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➢ **POSTER PRESENTATION**

Phytochemical screening of *Vitex agnus castus.*

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Abstract

Vitex agnus castus also called vitex, chaste tree, chasteberry or monk's pepper is a native of the Mediterranean region, bu it's also found in many parts of central Asia. It's widely cultivated in warm temperate and subtropical regions fot its delicate-textured aromatic foliage and butterfly-attracting mid sumer spikes of lavender flowers opening in late summer in cooler climates, the fruit is a berry that looks like pepper. This fruit as well as other parts of the plant are typicallyused as an herbal remedy to treat a variety of diseases as premenstrual syndrome (PMS), symptoms of menopause, infertility issues and other conditions affecting a woman's reproductive system. The phytochemical analysis shows the presence of flavonoids, alkaloids, steroids, and other compounds. This study is useful because when we know the chemical composition of this plant we will master its use and know the different mechanisms of action.

Keywords: Vitex, Phytochemical screening, Reproductive system.

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➢ **POSTER PRESENTATION**

Effect of 532nm CW Nd:YAG laser on antibiotics susceptibility of *Klebsiella pneumoniae* isolated from burn and wound infections

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[3]Department of Molecular & Medical Biotechnology, College of Biotechnology, Al-Nahrain University, Baghdad, Iraq.

Abstract

This study was designed to evaluate the effect of laser diode light at 532nm on susceptibility of*Klebsiellapneumoniae*isolates from burn and wound infection to antibiotics.The susceptibility of three isolates of *K.pneumoniae*(T40, T92 andT105) supplied from previous study was tested toward nine antibiotics before radiation. Results showed that all isolated were sensitive to Imipenem (IMP) and Ciprofloxacin (CIP) and resistance to other antibiotics. The susceptibility of all isolates after subjecting to laser diode light at 532nm wavelength 3mW, for 1, 2 and 3min was evaluated against nine antibiotics, results showed that a significant increase in susceptibility for all isolates toward imipenem and ciprofloxacin.

Keywords: Nd: YAG Laser, Antibiotic Susceptibility of *Klebsiella pneumoniae*, Burn and Wound Infections.

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➢ **POSTER PRESENTATION**

Structural, magnetic and elastic properties of full-heusler alloys Cs_2CrGe

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Abstract

The structural, magnetic and elastic properties of full-Heusler alloys Cs_2CrGe are examined in this study using FP-LAPW method based on density functional theory. Results of our calculations predict that the Hg_2CuTi-type structure is more stable than the Cu_2MnAl-type structure and the ground state of this alloy is ferromagnetic. The total magnetic moment calculated is according to the Slater-Pauling rule $\mu_{tot} = N_V - 18$ for full-Heusler alloys. The band structure of Cs_2CrGe shows half metallic in spin down for the three approaches GGA, GGA+U, and mBJ-GGA with an important magnetic moment equal to $4\mu_B$ and which is in good agreement with the Slater-Pauling rule.

Keywords: Full-Heusler, FP-LAPW method, half metallic, slater-Pauling rule.

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➢ **POSTER PRESENTATION**

Synthesis of a water-soluble calix[8]arene proline derivative for increase water solubility of Morin

Anisa Azımı[1], Mehmet Oguz[2], Mustafa Barıs Kocer[1], Ayse Yıldırım[1], Ayse Damla Demir[1], Mustafa Yılmaz[*1]

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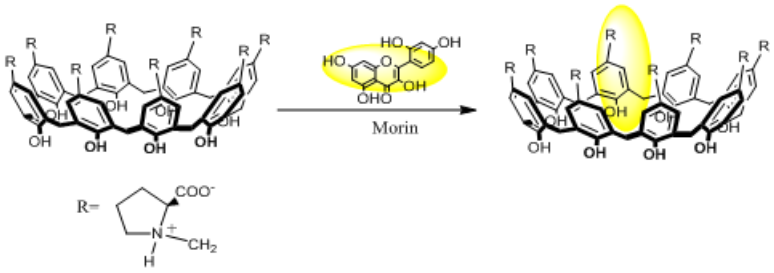
Abstract
Calix[n]arenes synthesized by activation of phenol formaldehyde under appropriate conditions have been subject to many researchers because of having ring structure which easily and limitless functioned from either phenolic-O-position or p-positions. Since calix[n]arenes have basket structure, they have been used to carry many ions and molecules [1]. Beside this, in the last decades, anti-cancer properties of some calix[n]arene derivatives was detected and phase studies have been started. In this study, we aim to synthesize new water-soluble calix[8]arene L-proline derivative and used the water-soluble calixarene derivative in order to increase the solubility of naturally occurring and commercially available flavonoid molecule morin that has a weak solubility in the water, which limited its use during treatment of cancer [2]. For this purpose, the calix[8]arene L-proline derivative was synthesized and characterized by various spectroscopic methods (1 H NMR, FTIR) and complexation studies were performed with morin . The cytotoxic properties of the calix[8]arene flovonoid complex will be investigated in the future



Keywords: Calix[8]arene, L-proline, Mannich reaction, morine

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➢ **POSTER PRESENTATION**

Mitokondriyal Sitokrom Oksidaz I (COI) gen dizilerine dayalı *Euaresta bullans* (Wiedemann, 1830) (Diptera: Tephritidae) populasyonlarının genetik analizi

Feedan Mohammed Junaıd[1*], Adile Akpınar[1], Vedat Görmez[2], Murat Kütük[1], Canan Can[1]

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Özet

Bu çalışmada, meyve sinekleri (Diptera: Tephritidae) içerisinde yer alan *Euaresta bullans* (Wiedemann, 1830) türüne ait Türkiye'nin farklı coğrafik bölgelerinde bulunan 7 ilden (Amasya, Çorum, Kahramanmaraş, Kayseri, Samsun, Sinop, Yozgat) toplananarak örneklerin popülasyon genetik analizlerinin ortaya koyulmuştur. Bu kapsamda, 101 ergin örnek, mitokondriyal sitokrom oksidaz I (COI) gen bölgesi baz alınarak değerlendirilmiştir. Sekans ürünlerinden başarılı sonuçlanan 79 örnek analiz edilmiş ve 17 haplotip belirlenmiştir. Meyve sinekleri popülasyonlarına ait nükleotit oranları hesaplanarak (C: %16,7; T: %38,93; A: %29,05 ve G: %15,8) baz bileşimlerinin Adenin ve Timin yönelimli olduğu gözlenmiştir. Çalışmanın neticesi olarak Populasyonlar arası genetik uzaklık %0,09 - %0,046 olarak saptanmıştır. Elde edilmiş olan bu durum *Euaresta bullans* türünün bireyleri arasında genetik varyasyonun çok düşük seviyelerde olduğunu göstermektedir. Araştırmada yapılan nötralite test sonuçlarına (Tajima's D ve Fu's Fs) göre $p<0,05$ bulunmuş ve popülasyonların güçlü yayılım gösterdiği belirlenmiştir. Farklı habitat özelliklerinde ve de farklı coğrafik bölgelerde yayılış göstermiş olmalarına rağmen belli oranda popülasyonlar oluşturarak popülasyonlar arası üreme imkanı bulmuşlardır. Özellikle konukçu bağımlılığının yüksek olması ve konukçuların bulunduğu yerlerde farklı ortamlarda bulunabilmesi, bu türün çevre toleransı bakımından geniş bir toleransa sahip olması ile ilgilidir. Sonuç olarak, *Euaresta bullans* populasyonları arasında gen akışının devam ettiği, herhangi bir coğrafik ve ekolojik bir bariyer engeline takılmadığı, üssel olarak arttığı tespit edilmiştir.

Anahtar Kelimeler: *Euaresta bullans*, meyve sinekleri, Tephritidae, COI, Türkiye

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Estimation of the tatal flavonoid, antioxidant, anti -bacterial potentials of *Ruta chalepensis* methanolic extract.

Haider N. Yahya, Hadeel Mohamed Khalaf, Zaineb Sabeeh Omran

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Abstract

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➢ **POSTER PRESENTATION**

Amiloid beta 1-42 ile SHSY-5Y nöroblastoma hücrelerinde oluşturulan Alzheimer hastalığı modelinde probiyotik kaynaklı ekzopolisakkaritlerin nörokoruyucu etkilerinin araştırılması

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Özet

Demansın en yaygın nedeni olarak bilinen Alzheimer hastalığı (AH), tüm demanslı hastaların % 50-75'ini oluşturmaktadır. Mekanizmanın 3 temel bileşeni β amiloid plaklar, nörofibriller yumaklar ve nöronal hücre ölümüdür. Bir dizi eş zamanlı gerçekleşen oksidasyon, eksitotoksisite, inflamasyon ve tau hiperfosforilasyonu ile devam eden bu süreç nörotransmitter yetmezliği ve tetiklenen apoptotik hücre ölümü ile sonlanmaktadır. Bu sebeple, AH'nda etkili olan mekanizmaların araştırılmasına ve bu mekanizmalar üzerinde etkili olacak ajanların tespitine yönelik çalışmalar önem kazanmıştır. Bu çalışmanın amacı amiloid beta 1-42 ($A\beta_{1-42}$) ile SHSY-5Y nöroblastoma hücrelerinde oluşturulan AH modelinde probiyotik kaynaklı ekzopolisakkarit (EPS)'lerin nörokoruyucu etkilerinin araştırılmasıdır. Çalışmada, probiyotik suşlardan (*Lactobacillus delbrueckii* ssp. *bulgaricus* B3 ve *Lactobacillus plantarum* GD2) elde edilen EPS'ler kullanılmıştır. Suşların EPS üretim kapasiteleri fenol sülfirik asit yöntemine göre spektrofotometrik olarak tespit edilmiştir. EPS'ler farklı süre ve konsantrasyonlarda SHSY-5Y hücrelerine uygulanmış, sitotoksik etki MTT yöntemi ile mikroplaka okuyucuda tespit edilmiştir. $A\beta_{1-42}$ ile oluşturulan toksisite AH için geçerli *in vitro* nöral dejenerasyon modellerinden biridir. $A\beta_{1-42}$ ile oluşturulan AH modelinde EPS'lerin nörokoruyucu etkileri MTT yöntemi ile tespit edilmiştir. $A\beta_{1-42}$ ile oluşturulan AH modelinde EPS'lerin asetilkolin esteraz inhibisyon etkileri Ellman metoduna göre belirlenmiştir. Çalışmada kullandığımız bütün suşların yüksek miktarda EPS ürettiği belirlenmiştir. Tüm suşların EPS'lerinin çok düşük oranda sitotoksik etki gösterdiği tespit edilmiştir. $A\beta_{1-42}$ ile oluşturulan nöral hücre ölümüne karşı EPS'lerin önleyici etkisi değişen oranlarda tespit edilmiştir. $A\beta_{1-42}$ ile indüklenmiş SHSY-5Y hücrelerinde EPS'lerin asetilkolin esteraz inhibisyon etkisi yaklaşık olarak %10 olarak görülmüştür. AH patogenezinde alternatif olabilecek yeni bir ajanın bu mekanizmalar üzerinde etkisinin tam olarak ortaya konulması, daha etkili ilaç alternatiflerinin geliştirilmesi açısından önemli olacaktır. Ayrıca, bu etken maddelerin etki mekanizmalarının ortaya konulması ile, AH harici diğer nöral hastalıklara (amiyotrofik lateral skleroz (ALS), parkinson, huntington ve multiple skleroz (MS), vb.) karşı geliştirilecek biyoteknolojik ilaçlara da model oluşturabilecektir.

Anahtar Kelimeler: Amiloid beta 1-42, ekzopolisakkarit, *Lactobacillus delbrueckii* ssp. *bulgaricus* B3, *Lactobacillus plantarum* GD2, SH-SY5Y insan nöroblastoma hücreleri.

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➢ **POSTER PRESENTATION**

Deneysel hipertansiyonda M*yrtus communis'in* böbrek, kalp ve aort dokuları üzerine etkisinin incelenmesi

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Özet

Hipertansiyonda kanda ve dokularda reaktif oksijen türlerinin üretimi artmakta ve antioksidan kapasite azalmaktadır. Böbrek ve damarlar ise reaktif oksijen türlerinin etkisine en çok maruz kalan organlardır. Deneysel olan veya insanda görülen hipertansiyonda, süperoksit anyon ve hidrojen peroksit üretiminin arttığı, nitrik oksit sentezinin ve antioksidanların biyoyararlılığının azaldığı gösterilmiştir. Antioksidan özellikteki maddelerin çoğu anjiyotensin dönüştürücü enzim sistemini inhibe etmektedir. Bu bilgiler ışığında, çalışmamızda antioksidan kapasitesi yüksek olduğu bilinen mersin bitkisinin deneysel hipertansiyon modeli oluşturulan hayvanların böbrek, kalp ve aort dokuları üzerine etkileri incelenmiştir. Bu amaçla kontrol, hipertansiyon ve tedavi gruplarından böbrek, kalp ve aort dokuları alınarak, malondialdehit ve glutatyon tayini yapılmış ve ayrıca süperoksit dismutaz ve katalaz aktivitesi ölçülmüştür. Elde edilen sonuçlar doğrultusunda mersin (*Myrtus communis*) bitkisinin deneysel hipertansiyon modelinde böbrek, kalp ve aort dokuları üzerine olumlu etkileri tespit edilmiştir. Mersin bitkisinin antioksidan özelliği sayesinde hipertansiyondaki hedef organ hasarlarını önleyerek, hipertansif uç-organ hasarlarını da önleme potansiyaline sahip olacağı gözönünde bulundurulmalıdır.

Anahtar Kelimeler: Hipertansiyon, Myrtus communis, kalp, böbrek, aort

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➢ **POSTER PRESENTATION**

Lignin modifikasyon yöntemlerinin araştırılması ve fenolik içeriği azaltılmış lignin esaslı reçine sentezi

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Özet

Fenol-formaldehit (PF) reçineleri, mükemmel yapışma özellikleri, su, ısı direnci ve kimyasal stabilite özellikleri nedeniyle endüstriyel birçok alanda kullanılır ancak fenol oldukça toksik kimyasallardır ve özellikle sentez sırasında, serbest halde bulanan fenol, üretici ve çevre sağlığını büyük ölçüde etkiler. Bu bilinçle gelişen regülasyonlar, hem uygulama hem de stok tutma zorluklarını beraberinde getirmektedir. Bununla birlikte petrol, limitli bir kaynaktır ve dünyadaki ortalama tüketim verilerine göre petrolün 40 yıl içinde tükeneceği öngörülmektedir. Bu durumun sonucu olan petrokimyasal ürünlerin yüksek maliyeti ve fiyat dalgalanmaları, endüstriyel üreticileri ve araştırmacıları, doğada bolca bulunan, daha düşük maliyetli, yenilenebilir ve petrokimyasal hammaddelerin yerini alabilecek hammadde arayışına itmiştir. Lignin, bitkilerde bulunur ve selülozla birlikte nano ölçekte karbonhidrat ağ yapısında bir hücre duvarı oluşturur. Yapısal olarak aromatik esaslı, eter ve karbon-karbon bağları ile çapraz bağlı heterojen amorf bir polimerdir. Ağırlıklı ikincil yakıt olarak da kullanılan lignin, yapısında bulunan üç fenil propan birimleri ve kendine özgü aromatik ünitelerden dolayı, kısmen kimya sanayi, temel olarak fosil karbon kaynakları yerine kullanılma potansiyeline sahiptir ancak, kompleks ve yoğun olan polifenil propan birimleri düşük reaktivitedir. Bu nedenle ligninin kullanılması için reaktivitesinin arttırılması gereklidir [2,3]. Ligninlerin reaktivitesini artırmak için kullanılabilecek temel modifikasyon yöntemleri ise metilleme, fenolleme ve demetilleme olarak sıralanabilir. Reaktivitenin artırılması, PF reçine üretiminde lignin fenol yerine kullanılması ya da fenol ile birlikte kullanılarak reçinedeki fenol kullanımını azaltılması noktasında oldukça önemlidir. Bu çalışmada da, ligninin reaktivitesini arttırmak amacıyla farklı yöntemlerle modifikasyonu yapılmıştır. İkinci aşama olan reçine sentezinde de, ligninin fenol kaynağı olarak farklı oranlarda formülasyona dahil edilmesi ile elde edilen reçinenlerin performansı incelenmiştir. Sonuçlara bakıldığında, EDAX elementel analiz ve FTIR analizleri yapılmış ve lignin demetilasyonunun başarıyla gerçekleştiği bulgulanmıştır. Bununla birlikte, fenol kaynağı olarak modifiye ligninin ağırlıkça % 5 ila % 50 aralığında değişen oranlarda ilavesinin, % 100 fenol bazlı ürüne kıyasla rekabet edebilir performans gösterdiği bulunmuştur.

Anahtar Kelimeler: Fenol-formaldehit reçineleri, modifiye lignin ve türevleri, demetilasyon, lignin bazlı kontraplak tutkal reçinesi

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➢ **POSTER PRESENTATION**

HERV polymorphisms: a potential diagnostic marker for nasal polyposis

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Abstract

Nasal polyposis (NP) is an inflammatory disease of sinonasal mucosa which leads to formation of benign polyps. Due to its' relatively high incidence, correlations between gene polymorphisms and nasal polyposis has been investigated in a number of studies. Human Endogenous Retroviruses (HERVs) are one of the most important factors underlying genetic polymorphisms. Recent studies demonstrated that altered expressions of HERVs are linked to several pathological conditions. However, association between HERV polymorphisms and the risk for developing nasal polyposis has not been investigated so far. Therefore, we aimed to examine the possible association between HERV polymorphisms and the risk for developing NP.

In this study DNA samples were isolated from nasal swabs of 16 patients who were positively diagnosed with nasal polyposis. Inter Retrotransposon Amplified Polymorphism (IRAP) marker technique was employed to determine the correlations between HERV polymorphisms and the risk for developing NP. HERV-K6, HERV-K11 and HERV-L1 were chosen as candidate HERV and IRAP primers were designed manually.

IRAP-PCR resulted with specific PCR banding patterns for each of the three HERV sequences tested in this study. However, polymorphisms could not be detected between different patients. Similarly, polymorphic bands were not detected between the polyps or nasal mucosal swab samples obtained from the same patient. These findings demonstrate that IRAP-PCR can be performed for testing nasal swab samples and HERV-K6, HERV-K11, HERV-L1 sequences can serve as monomorphic control markers.

We have, for the first time, shown that IRAP-PCR can be performed in nasal-swab samples for investigating possible links between HERV polymorphisms and the risk for developing NP. However, further studies with a larger sample size and testing other HERV sequences are required to be able to answer the question whether or not HERV polymorphisms can be used as potential diagnostic markers for nasal polyposis.

Key words: HERV, Nasal polyposis, IRAP.

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➢ **POSTER PRESENTATION**

Emülsiyon kırınımı ile ekstraksiyon yöntemi kullanılarak yenilebilir yağlarda bazı eser elementlerin tayini

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Özet

Çalışmada Balıkesir'deki yerel bir market veya aktardan temin edilen çeşitli yenilebilir yağ örneklerindeki Cu, Cr, Cd, Mn, Co ve As derişimlerinin belirlenmesi amaçlanmıştır. Bu amaçla yağ örneklerine emülsiyon kırınımı ile ekstraksiyon yöntemi uygulanmıştır. Emülsiyon oluşumu, 2 mL yenilebilir yağ örneğinin % 10 nitrik asit çözeltinde hazırlanan 2 mL % 7'lik Triton X-114 çözeltisi ile karıştırılmasıyla sağlanmıştır. Emülsiyon kırınımı için karışım iki faz ayrımı oluncaya kadar 80 ^{0}C'de su banyosunda ısıtılmıştır. Ardından ekstrakte olan metalleri içeren sulu faz ayrılarak indüktif eşleşmiş plazma kütle spektrometrisi (ICP-MS) ile tayin edilmiştir. Yenilebilir yağ örneklerindeki ortalama metal derişimleri Cu için 6,23-110,14 µg kg^{-1}, Cr için 1,74-26,19 µg kg^{-1}, Cd için 0,15-3,70 µg kg^{-1}, Co için 0,04-1,76 µg kg^{-1} ve As için 0,29-2,84 µg kg^{-1} aralığında bulunmuştur. Zeytin, mısır ve fındık yağlarında Mn derişimi gözlenebilme sınırının altında tespit edilmiştir. Diğer yağ örneklerindeki Mn derişimleri 1,79-743,20 µg kg^{-1} aralığında bulunmuştur. Ağır metal derişimlerinin Türk Gıda Kodeksi'nin izin verdiği sınır değerlerin altında olduğu tespit edilmiştir. Ayrıca yöntemin doğruluğunun kontrolü için aynı işlemler uygulanarak sertifikalı referans yağ örneği (Enviro MAT HU-1 used oil) analiz edilmiş ve sonuçlar sertifikalı değerler ile uyumlu bulunmuştur.

Anahtar Kelimeler: emülsiyon kırınımı ile ekstraksiyon, indüktif eşleşmiş plazma kütle spektrometrisi (ICP-MS), metaller, yenilebilir yağlar.

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➢ **POSTER PRESENTATION**

Determination of Perfluorinated Compound Content of Biosolids-Amended Soils and Wheat Grown in These Soils

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Abstract

Perfluorinated compounds have been widely used for more than 50 years in domestic and industrial products including stain repellents, waxes, textile, adhesives, polishes, paints, electronics and food packaging. Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) are two perfluorinated compounds ubiquitously present in the environment, which could pose potential adverse effects on human health (Tang et al., 2014). Biological wastes are converted into biosolids and are often used for fertilizer purposes to prevent spreading of waste to large areas. The land application of biosolids as fertilizer in agriculture can cause perfluorinated compound contamination in soils (Sepulvado et al., 2011). Perfluorinated compounds in the contaminated soils may enter into the food chain by plant uptake and pose a potential threat to the ecological environment and human health (Wen et al., 2014).

In this study, firstly, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) levels were determined in five biosolids-amended soils. The mean concentrations of PFOA and PFOS range between 26.1 – 102 ng g^{-1} and 0.211 – 0.649 ng g^{-1}, respectively. Then wheat was sowed to these lands. The amounts of PFOA and PFOS passing through the stem, leaf, and grain of wheat were determined. Obtained results showed that the total perfluorinated compounds migration decreased as follows: stem>leaf>grain. Furthermore, the effects of PFOA and PFOS on chlorophyll concentration and soluble protein were examined. A decrease in chlorophyll formation and soluble protein content was observed with increasing PFOA and PFOS concentrations.

Keywords: Perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), biosolid, wheat

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➢ **POSTER PRESENTATION**

Obezite-kanser ilişkisi: aşırı kilo alımı tümör oluşumunu nasıl tetikler?

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Özet

Obezitenin en önemli sonuçlarından biri bazı kanser türlerine yakalanma riskinde artışa sebep olmasıdır. Kanser bölgesine göre değişen ve çeşitli kanser tipleriyle ilişkilendirilen mekanizmalar aracılığıyla obezitenin tümör oluşumunu tetiklediği veya geliştirdiği gösteren birçok epidemiyolojik çalışma mevcuttur. Bu çalışmalar meme, prostat, endometriyum, kolon ve safra kesesi kanserleri gibi obezite ile ilişkilendirilen kanserlerin, diyet bileşenleri veya hormonal dengesizliğin doğrudan mutajenik etkileri sonucu oluştuğunu vurgulamaktadır. Yapılan çalışmalar ayrıca yüksek östrojen ve düşük progesteron seviyelerinin, endometriyal kanser riskini arttırdığını ve aromataz ya da östrojen reseptörü α içermeyen deney hayvanlarının obez olduğu göstermektedir. Ayrıca obesite ile kanser ilişkisini insülin reseptör sinyal iletimindeki anomalilere dayandıran çalışmalar da mevcuttur. Birçok kanser hücresi, insülin ve ilişkili büyüme faktörlerine yüksek afinite gösteren insülin reseptörtörü A (IR-A)'yı yüksek seviyelerde ifade eder. Araştırmacılar IR-A gibi terapötik müdahaleler için yararlı hedefler olabilecek faktörlerin metabolik hastalık ve kansere nasıl katkıda bulunduğunu araştırmaktadır. Son yıllarda obezite-kanser ilişkisini araştıran çalışmalar inflamasyon indüklü kinurenin yolağı aktivasyonunun aril hidrokarbon reseptörünü (AHR) aktive ederek veya beyindeki sinaptik transmisyonu modüle ederek beslenme ve metabolizmanın yanısıra karsinojenezde de rol oynadığını kanıtlanmakta, obezite ve kanser arasında potansiyel olarak önemli bir bağlantı sağlamaktadır. Bu çalışmanın amacı obezite ve kanser arasındaki ilişkinin daha iyi anlaşılmasını sağlamak ve kanser patogenezi mekanizmaları hakkında yeni fikir sahibi olmaktır.

Anahtar Kelimeler: obezite, kanser, insülin direnci, leptin, kinurenin

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➢ **POSTER PRESENTATION**

The Investigation of Cytotoxic and Apoptotic Effects of Novel Synthesized Chalcone-Derived Compounds in Colon Cancer Cell Lines

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Abstract

Colon cancer is the third most diagnosed cancer in the world. It also ranks fourth in cancer-related causes of death. In recent years, rapid increases in mortality and incidence of colon cancer have been observed. For this reason, there is a great interest in the pharmacological activities of the chalcone-derived compounds, which are in the class of natural products. There are also promising studies on the anticancer effects of chalcones.
In this study, we investigated the cytotoxic effects and mechanisms of the novel synthesized chalcones derived compounds in colon cancer cell lines (HT-29, HCT-116). The effects on cell viability were determined by SRB (Sulforhodamine B) and ATP viability tests. Hoechst and propidium iodide fluorescence staining method was used to determine the cell death mode responsible for cytotoxic effect. In addition, pan-caspase inhibitor (z-VAD-FMK) and RIPK1 inhibitor Nekrostatin-1 (Nec-1) were used to distinguish between death mode and apoptosis or necrosis. Expression levels of proteins associated with necrosis and apoptosis cell deaths were determined by Western blot. And the expression levels of the genes (necrosis and apoptosis) are shown using RT-PCR.
Chalcones derived compounds have been shown to induce a strong cytotoxic and apoptotic pathway in human colon cell lines (HT-29, HCT-116), thereby inducing the extrinsic and intrinsic apoptosis pathway and effectively decreasing cell viability. It was concluded that this treatment should be investigated in vivo in order to adapt to the clinic.

Keywords: Colon Cancer, Apoptosis, Chalcones, Anti-Cancer Agent

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➢ **POSTER PRESENTATION**

Geleneksel Saklama ile Dondurarak Saklamanın Nar Suyunun Toplam Antioksidan Kapasitesi Üzerine Etkileri

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Özet

Bazı meyveler, özellikle üretiminin yapıldığı bölgelerde, uzun süreli kullanımı amacıyla evlerde pamuk çekirdeği ve/veya kuru çam yapraklarından yapılan yataklar üzerinde muhafaza edilmekte ve uzun süre tüketilebilir halde saklanabilmektedir. Çok uzun zamandır uygulanmakta olan bu geleneksel yöntemle saklanan nar meyvelerinin suyunun sahip olduğu antioksidan kapasitenin 6 aylık süreçte gösterdiği değişim, aynı süre boyunca -20°C dondurucuda muhafaza edilen nar suyu ile karşılaştırılmıştır. Çalışma başında suyu sıkılarak toplam antioksidan kapasitesi DPPH yöntemiyle ölçülen narlar için, kalan örnek kapaklı santrifüj tüplerinde dondurucuda saklanmıştır. Altı aylık süreçte, aynı tarihlerde olmak üzere, hem donmuş nar suyu hem de geleneksel yöntemle muhafaza edilmiş narlardan taze sıkılan su DPPH yöntemiyle test edilmiştir. Toplamda üç farklı nar cinsi için çalışma tekrarlanmıştır.Yapılan ölçümler sonucunda, dondurucuda saklanan örneklere paralel olarak geleneksel yöntemle saklanan narlarda da toplam antioksidan kapasitede istatistiksel olarak anlamlı bir değişim gözlenmemiştir.

Anahtar Kelimeler: Nar, saklama yöntemleri, antioksidan kapasite, DPPH

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➢ **POSTER PRESENTATION**

Production, Characterization and Investigation of Antimicrobial Activity of Electrospinned [Poly(Lactic-co-glycolic Acid)] Based Wound Healing Material

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Abstract

Wound dressings are medical textile products that help the healing process, which protects the injured area from germs and infections. Nowadays, with the development of new production techniques, the production of modern dressings has emerged as an alternative to traditional dressings [1]. One of the techniques used in the production of these dressings is the electrospinning method which plays an active role in the production of nanofibers. The nanofibers obtained by this method offer significant advantages to wound dressings with their high porosity, small pore size, high surface area / volume ratios and ability to mimic natural extracellular matrix structure [1]. Although natural and synthetic polymers are used in the production of nanofibers used as wound dressings, PLGA is used as a polymer in the study due to its biocompatible, biodegradable properties and a unique material in wound healing [2,3]. In order to perform the wound healing process more effectively, the nanofiber membrane produced from PLGA is loaded with propolis, which has strong antimicrobial activity and is known as natural antibiotic[4]. In this study, electro-spinning method was used for propolis-loaded PLGA membrane production. The water extract of propolis, which is used as the active substance, was added to the membrane by a drip method and thus the propolis loaded membrane was produced. The diameters and pore distribution patterns of the nanofiber structures were investigated by Scanning Electron Microscopy (SEM). It was demonstrated by the FT-IR analysis that propolis was successfully adsorbed into PLGA nanofiber structure. The time-dependent cumulative release amount of propolis in the membrane was determined by the absorbance values measured by UV-Vis spectroscopy, and the absorption capacity of the membrane was determined by the swelling test.The antibacterial activity determination of propolis loaded membranes was performed on *E.coli* and *S.aureus* strains by Disk Diffusion Method.

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Keywords: electrospinning, nanofiber, wound dressing, PLGA, propolis

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➢ **POSTER PRESENTATION**

Dinükleer Tipte Bir Çinko Ftalosiyanin Bileşiğinin Elektrokimyasal, Spektroelektrokimyasal, Fotofiziksel ve Fotokimyasal Özelliklerinin İncelenmesi

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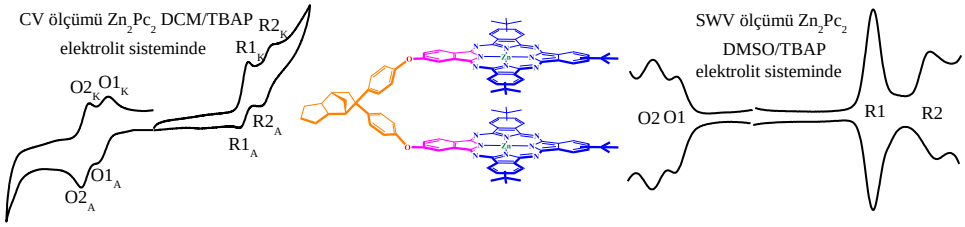
Özet

Ftalosiyanin (Pc) kompleksleri sahip oldukları konjüge π-elektron sistemleri ile tek elektronlu bir seri indirgenme ve yükseltgenme reaksiyonları gerçekleştirirler. Söz konusu bileşiklerin redoks özellikleri ile çeşitli teknolojik uygulamalardaki kullanılabilirliklerini belirleyen elektronik, optik, spektral, elektrokromik ve benzeri birçok özelliği arasında) sıkı bir ilişki söz konusudur. Diğer taraftan bu bileşiklerin redoks özellikleri ve dolayısıyla teknolojik kullanılabilirliğine dair birçok özelliği; merkezde yer alan metalin türüne, sübstitüent olarak yer alan gruplara ve moleküler yapıya bağlı olarak değişim göstermekte ve dolayısıyla hedefe yönelik olarak modifiye edilebilmektedir. Dinükleer tipteki ftalosiyaninlerde, iki metal ftalosiyanin birimi arasındaki etkileşimler de bileşik özelliklerini önemli derecede etkilemektedir.

Metal ftalosiyanin bileşikleri; spektrumun UV-Vis bölgesinde göstermiş oldukları yüksek ışık absorpsiyonu ve keskin renk geçişleri nedeniyle elektrooptik ve elektrokromik malzeme olarak[1], kızılötesine yakın bölgelerde sahip oldukları fotofiziksel özellikleri nedeniyle de kanser tedavisinde fotodinamik terapi (PDT) ajanı olarak kullanım potansiyeline sahiptir. Ayrıca organik esaslı güneş pilleri ve organik ışık yayan diyotlar (OLED'ler) gibi enerji dönüşüm sistemi ve teknolojilerinde de ön plana çıkmaktadırlar.

Bu çalışmada; kapaklı (clamshell) tipte dinükleer bir çinko ftalosiyanin kompleksinin[2] çözelti ortamındaki redoks özellikleri, dönüşümlü voltametri (CV) ve kare dalga voltametrisi (SWV) teknikleri ile aydınlatılmıştır. Söz konusu teknikler ile gerçekleştirilen voltametrik ölçümler, elektrokromik özelliklerin de belirlenmesi amacıyla, eş zamanlı UV-Vis spektroelektrokimyasal ve elektrokolorimetrik ölçümlerle de desteklenmiştir. Ayrıca, PDT alanındaki kullanım potansiyelinin belirlenmesi hedefine yönelik olarak, söz konusu bileşiğin fotofiziksel (floresans kuantum verimi ve floresans ömrü) ve fotokimyasal (singlet oksijen kuantum verimi) ölçümleri gerçekleştirilmiştir. Çinko ftalosiyaninlerden standart olarak alınan sübstitüye olmamış ftalosiyanine göre daha düşük singlet oksijen verimi göstermiştir (Standart çinko Ftalosiyanin için 0.56, clamshell tipte dinükleer bir çinko ftalosiyanin için 0.298). Ancak fotobozunma kuantum verimleri istenilen 10^{-3}-10^{-5} değer aralığındadır ($5.81x10^{-5}$).



Şekil 1. Dinükleer Çinko Ftalosiyanin Bileşiğinin farklı çözücü ortamlarında kaydedilen CV ve SWV ölçümleri.

Keywords: Çinko Ftalosiyanin, Elektrokimya, Spektroelektrokimya, Fotodinamik terapi (PDT)

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➢ **POSTER PRESENTATION**

Antioxidant activity of some benzimidazole ligands and their Zn(II) and Co(II) complexes

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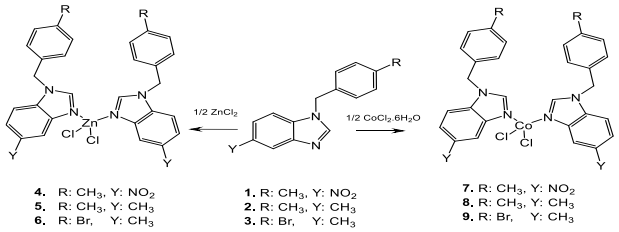
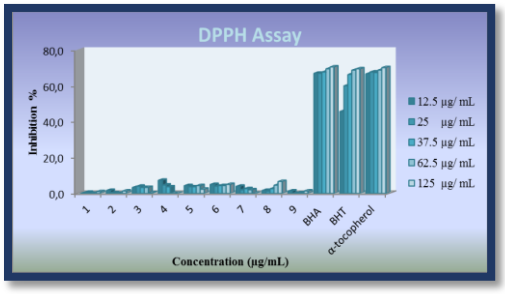
Abstract
Antioxidant activity of three new benzimidazole ligands and their six cobalt (II) or zinc (II) complexes (Scheme 1) were evaluated and compared with those of commercial antioxidants butylated hydroxyanisole (BHA), butylated hydroxytoulene (BHT) and α-tocopherol employing 1,1-diphyenyl-2-picrylhydrazyl (DPPH) assay (Scheme 2).



Scheme 1. Tested benzimidazole ligands and their Zn(II) and Co(II) complexes.



Scheme 2. Assay of DPPH free radical scavenging activity of compounds **1**-**9** references BHA, BHT and alpha-tocopherol.

The comparative antioxidant activities against commercial antioxidants (BHA, BHT and α-tocopherol) at variable concentrations revealed that the metal complexes show enhanced free radical scavenging activities in general as compared to free ligand. Among the metal complexes, Zn(II)-benzimidazole complexes **4**, **5** and **6** showed higher antioxidant activity than those of the corresponding Co(II) complexes. It is also noteworthy that, the compounds bearing electron-withdrawing nitro substituent at position 4 of the benzyl groups showed better antioxidant activity than others. However, the antioxidant activities of the compounds are still very low compared to the standard compounds BHA, BHA, BHT and α-tocopherol.

Keywords: DPPH, antioxidant, benzimidazole Zn and Co complexes.

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➢ **POSTER PRESENTATION**

Antioxidant and antimicrobial activity of CAPE-loaded PLGA nanofibers

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Abstract

Wound healing is a complex process consisting essentially of four phases: hemostasis, inflammation, proliferation and remodeling. The purpose of the wound dressing materials produced are to help these phases take place in order and in their natural time. Cotton and gauze glands classified as conventional wound dressings are insufficient to provide an effective wound healing process[1]. Electrospinning is an advantageous method with a wide range of applications, which allows the production of materials made of nanoscale fibers[2]. Electro-spun polymers are particularly useful for protection of the wound, release of active substance, gas exchange, absorption of exudate, moisture balance and cell attachment[3]. In this study, a wound dressing material consisting of nanoscale fibers was produced by electrospinning using Poly(D, L-lactic-*co*-glycolic acid). Caffeic Acid Phenethyl Ester (CAPE) has been loaded into the wound dressing material. FTIR analyzes of CAPE-loaded wound dressings were performed in comparison with the CAPE and CAPE-free PLGA electrospun. SEM images were taken to examine the fiber quality, fiber diameter and thickness of the material. According to the SEM images, thickness of the electrospun PLGA is 100.6 µm and fiber diameter is 300-600 nm. In addition, produced nanofibers are without beads. In order to investigate the active substance release profiles of wound dressing loaded with CAPE, release studies were carried out in PBS medium. . The antioxidant properties of the produced wound dressing were determined by DPPH method. Finally, time-kill assay was used to evaluation of antimicrobial activity which is one of the most important features that should be present in a modern wound dressing. CAPE-loaded wound dressing material showed a high antimicrobial activity against *S. aureus* compared to CAPE-free PLGA nanofibers. In the progressive studies, it is planned to evaluate the antimicrobial activity of CAPE-loaded PLGA nanofibers against *C. albicans* and *P. aeruginosa* species.

Keywords: Electrospinning, nanofibers, wound dressing, PLGA, CAPE, antimicrobial

Acknowledgements: Financial support from the Scientific Research Department (BAP, Project No. FYL-2019-3566) of Yıldız Technical University is gratefully acknowledged. I thank to the Scientific and Technological Research Council of Turkey (TUBITAK) for supports under 2210-C Graduate Students National Scholarship Program. I would also like to thank Inovenso for its technical support about electrospinning.

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➢ **POSTER PRESENTATION**

Deneysel diyabet oluşturulan sıçanlarda*Vitis vinifera* L.(üzüm) meyve ve çekirdek ekstraktlarının serum enzimlerinin etkilerinin araştırılması

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Özet

Bu çalışmada, deneysel diyabet oluşturulan sıçanlarda (*Wistar albino*), Van yöresinde yetişen üzüm çeşidinin (*Vitis vinifera* L.) meyve ve çekirdek ekstraktlarının farklı dozlarda diyabet komplikasyonları üzerine iyileştirici etkileri araştırıldı. Deneysel muamele öncesi, üç gün boyunca tek dozda (2000 mg/kg vücut ağırlığı) üzüm çekirdeği ve meyve ektresi akut toksisite testi için uygulandı ve ölüm tespit edilmedi. 49 adet sıçan her grupta 7 adet olacak şekilde 7 gruba ayrıldı. Deneysel sıçanlar rastgele gruplandırıldı; Normal kontrol (NK), diyabet kontrol (DK), diyabetik+akarboz (doz 20 mg/kg) (DA), diyabetik+üzüm meyvesi ekstresi 100 mg/kg (DM1), diyabetik +üzüm meyvesi ekstresi 200 mg/kg (DM2), diyabetik+üzüm çekirdeği ekstresi100 mg/kg (DÇ1) ve diyabetik+üzüm çekirdeği ekstresi 200 mg/kg (DÇ2) olarak guruplandırıldı. Ekstraktlar gavaj yoluyla verildi. Deneysel diyabet streptozotosin (STZ) [55 mg/kg, intra peritonal (i.p)] ile oluşturuldu. 21 günlük deneme sürecinde 7 günde bir sıçanların kan şeker düzeyleri ve canlı ağırlıkları kaydedildi. Muameleler sonunda; aspartat aminotransferaz (AST), alanin aminotransferaz (ALT), laktat dehidrogenaz (LDH) serum enzim seviyeleri, lipit profili [trigliserit (TG), total kolesterol (TC), HDL-kolesterol (HDL-c)], kreatin (CRE), üre ile total kanda glikozillenmiş hemoglobin (HbA1c) değerleri tespit edildi. Elde edilen sonuçlara göre; bütün grupların canlı ağırlıklarında anlamlı ($p \geq 0.05$) bir değişiklik saptanmadı. DK grubunun NK grubuna ve ekstrakt takviyesi yapılan diyabetik grupların (DM1, DM2, DÇ1 ve DÇ2) DK ve NK gruplarına göre AST, ALT ve LDH düzeylerindeki önemli ($p \leq 0.05$) artış tespit edildi. Biyokimyasal parametreler ile ilgili olarak; DK grubunun NK grubuna göre glukoz ve HbA1c seviyelerinde artış tespit edilirken, TC ve HDL-c değerlerinde ise diyabetik ve diyabetik ekstrakt verilen gruplarda NK'ya göre anlamlı ($p \leq 0.05$) azalış kaydedildi. Sonuç olarak; üzüm çeşidinin meyve ve tohum ekstraktı antioksidan etkilere sahip olabilirken, diyabetik komplikasyonlara karşı iyileştirici etkileri için kesin bir sonuç bulunmamaktadır.

Anahtar kelimeler:,Diyabet, SerumSıçan, Üzüm, Üzüm çekirdeği,

Bilgilendirme notu:
Bu çalışma Van Yüzüncü Yıl Üniversitesi Bilimsel Araştırma Projeleri Başkanlığı tarafından 2015-FBE-YL062 No'lu proje olarak desteklenmiştir.Ayrıca Van Yüzüncü Yıl Üniversitesi Hayvan Deneyleri Yerel Etik Kurulu Başkanlığı'nın 25.09.2014 tarihli ve 2014/11 sayılı izni ile yapıldı.

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➢ **POSTER PRESENTATION**

Investigation of growth response of maize (*Zea mays* L.) hybrids treated to rhizospheric endophytic *Pseudomonas putida*

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Abstract

Bacteria and plants interaction can be resulted in different relationships; this interaction the plant benefits from the microbes, or the plant suffers, or the plant serves as habitat for microbial communities. Bacteria that positively interact with plants are defined as Plant Growth Promoting bacteria (PGPB) or rhizobacteria (PGPR). Members of PGPRs are localized mostly on rhizosphere or surface of plant tissues called epiphytes or can also be interior of plant tissues called endophytes. They recognized as a key player in sustainable agricultural because of their benefits to plant hosts by facilitating soil mineral nutrient uptake, protecting plants from biotic and abiotic stresses and producing substances that promote growth. It is envisioned that PGPBs will begin to replace the use of chemicals in agriculture, horticulture, silviculture, and environmental cleanup strategies. Beside PGRBs, hybrid seed strategy is also the most promising agricultural productivity boosting approaches because of superiority of the hybrids over their parents. Although positive effect of PGPB on plant growth, their impact on cell division and cell expansion growth processes during leaf development remain largely unknown. For this end, this study aims to evaluate growth response of Turkish maize hybrids against endophytic *Pseudomonas putida* bacteria. For this aims, the seeds of nine contrasting maize hybrids were inoculated by a 10^6 CFU/ml bacterial suspension and the third leaf of the seedlings were observed at phenotypical, physiological and cellular level from appearance to fully got mature. The growth parameters which are leaf elongation rate, leaf length, leaf area, shoot length, shoot dry and fresh weight, chlorophyll content, mature cell length and cell productions was analyzed by comparatively to control groups. The results showed that maize hybrids exhibited different growth response to bacteria such as increasing, decreasing and unchanging. Finally, these findings supplied deeper understanding about the knowledge on plant-microbe interaction.

Keywords: PGPBs, plant microbe interaction, *Pseudomonas putida*, maize hybrids, plant growth

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➢ **POSTER PRESENTATION**

Stability and pH dependent release pattern of gemcitabine loaded polyhydroxybutyrate manyetic nanoparticles

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Abstract

Targeted drug delivery is one of the recent hot topics in cancer therapy. Magnetic nanoparticles are widely studied for their applications in medicine since they have a targeting potential under magnetic field and a suitable surface for the attachment of different therapeutic moieties. Gemcitabine is frequently associated with multidrug resistance (MDR) phenotype which is the major obstacle for the treatment of cancer. Stability and pH dependent release pattern of Gemcitabine loaded polyhydroxybutyrate magnetic nanoparticles (PHB-MNPs) provide a useful delivery system for Gemcitabine in cancer therapy since cancer microenvironment have low pH values with respect to blood and healthy tissues. This study aims to design Gemcitabine loaded PHB-MNPs which are stable at neutral pH values whereas showing pH dependent release at acidic conditions. Gemcitabine loading to PHB-MNPs was optimized as 22 µM by spectrophotometric analyses. Gemcitabine loading was verified by TEM, XPS, Zeta-potential, and FTIR measurements. The stability of Gemcitabine loaded PHB nanoparticles in PBS (pH 7.2) at 37ºC, which mimics the physiological conditions showed only 19.4% release after 36h of incubation. This results indicated that Gemcitabine loaded PHB-MNPs were highly stable at neutral pH which is advantageous for the stability of the drug in blood circulation. Gemcitabine release from PHB-MNPs indicated a pH dependent release pattern. As the pH of the medium was decreased, the drug release increased. The total amount of the drug released within 24h from PHB-MNPs was around 48.8% at pH 4.2. In first 3 hours 13% burst release was observed. This is a desired release characteristic since pH of tumor-tissue and endosomes are acidic, while the blood-stream and healthy-tissues are neutral. As a result, this study shows Gemcitabine loaded PHB-MNPs were highly stable in physiological conditions whereas show pH dependent release pattern at acidic conditions which mimics tumor microenvironment and endosomal conditions.

Keywords: Gemcitabine, PHB-Magnetic Nanoparticles, Release, Stability, Targeted Drug Delivery

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➢ **POSTER PRESENTATION**

Tek hücre jel elektroforezi/alkali komet testi ve uygulamaları

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Özet

Komet testi, canlılarda üzerinde, tek bir hücredeki DNA hasarlarını tespit edilmesini sağlayan sitogenetik bir tekniktir. Tek hücre jel elektroforezi ya da mikrojel elektroforezi de denilen yöntem, 1970'lerden bu yana teknik olarak bazı gelişmeler göstermiştir. Bu işlemde dokudan ya da hücreden izole edilen DNA, fikse edildikten sonra elektroforetik ortamda yürütülür ve uzunlukları farklı DNA parçalarının (kometler) DNA spesifik ve floresan boyalarla boyanması ve çeşitli programlar aracılığıyla görüntülenmesi esasına dayanır. Kometlerin görüntüleri, gözle de değerlendirilebileceği gibi görüntüleme sistemleriyle de analiz edilebilmektedir. Bakterilerden funguslara yüksek bitkilerden omurgalı hayvanlara kadar çok sayıda hücre ve doku üzerinde uygulanabilmektedir. Güvenirliği, hassas olması ve kolay uygulanabilmesi nedeniyle öncelikli alanı genetik toksikoloji olmak üzere, klinik araştırmalar, çevre kirliliğinin biyolojik olarak izlenmesinde, DNA hasarı ve onarım çalışmalarında, apoptozis araştırmalarında kullanılmaktadır. Bu çalışmanın amacı, komet analizi hakkındaki metodolojik olarak gelişen koşulları ve kullanım alanları ile ilgili bilgi vermektir.

Anahtar Kelimeler: Tek hücre jel elektroforezi, alkali komet testi, DNA hasarı

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➢ **POSTER PRESENTATION**

Isolation of lactic acid bacteria from Tarhana

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Abstract

Tarhana is a staple food in Turkey, and produced mainly by the fermentation of wheat flour and yoghurt. There are variations in its use, it can be consumed as a snack, or as a soup, and the ingredients change between different geographical regions. Our study aims to isolate and identify lactic acid bacteria using biochemical and molecular biology identification techniques. Three tarhana samples were used for the study. These samples were studied for their Gram reaction, catalase activity, gas production, growth at 10ºC and 45ºC, 6% and 16% NaCl and pH4.4 and ph9.6 for the biochemical tests. For the molecular biology experiments, PCR-RFLP, sequencing and RAPD-PCR were performed to identify organisms at the species and strain level.

Keywords: tarhana, lactic acid bacteria, PCR, identification, typing

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➢ **POSTER PRESENTATION**

A preliminary X-ray scattering studies on human hair nanostructures for hair care cosmetics

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Abstract

Hair care cosmetic materials are recently developing and promising research field in nanotechnology for personal care industry. Beside of the usage of nano-cosmeceuticals including some nanoparticles and nano-aggregations, the polymer ingredients are also effective in the formation of nanoscale aggregations during the application of these cosmetic materials. The increased bioavailability of active polymer and keratin ingredients and the increased aesthetic appeal of the hair cosmeceutical products with prolonged effects are expected by users and customers. The main purpose of the study was examination of hair sprays' effects on human hair nano and molecular structures to avoid their possible damaging effects on human health. In the present work, nano and molecular scale structural effects of hair spray on the naturally nanostructured hairs were investigated by SAXS, WAXS (Small and Wide Angle X-Ray Scattering) and FT-IR spectroscopic techniques. Scattering intensity profiles collected in the reciprocal space have opened nanoscopic window in the real space by using mathematical Fourier Transformations. Hair samples donated from six healthy women, each of them has different type of hairs (SY: Straight Yellow, WB: Wavy Brown, and CB: Curly Black). The best nano-structured hair samples were obtained for yellow color straight hairs. Hair samples were collected from the inside site about 20±5 cm upper part of the head and washed with acetone and ethyl alcohol to remove the unnatural chemicals. 5 sample groups (one of them is control) were prepared for each group which includes 3 hairs and they fixed by cosmetic hair sprays with 4 different degree of hardness. SAXS, WAXS and FT-IR spectroscopic analyses have showed that 4 coded hair spray is keeping and developing the natural structures of the hair and the nano structured melanin aggregation is detectable by SAXS as seen in the Fig.1. The sizes (Radius of Gyration values: R_g) of the nanoglobules are changing in the range of 8.0-40.0 nm.

Keywords: Hair care cosmetics, SAXS, WAXS

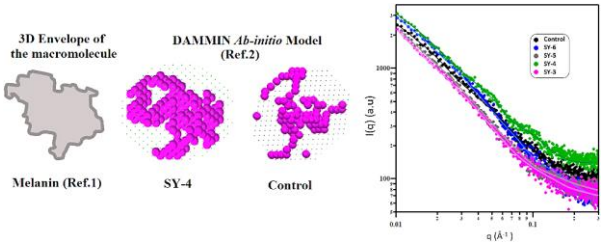

Figure 1. Nano scale structures of melanin, the sprayed hair with the cosmetic product and the natural hair before the cosmetic application (left) and the SAXS profiles

Acknowledgement: The research was supported by H.U. BABK Project No: FYL2018-17456

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➢ **POSTER PRESENTATION**

Türkiye'de apiterapinin yeri

Sema Çetinkaya

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Özet

Günümüzde, çeşitli sağlık problemlerinin tedavisinde modern tıp dışında da bir takım metotlar geliştirilmektedir. Böylece, bireyler daha sağlıklı ve daha düzgün bir yaşam sürdürebilmek adına Tamamlayıcı Tıp ve Alternatif Tıp yöntemlerini de tercih etmektedirler. Bunlardan biri; bal, polen, arı sütü, propolis, arı zehiri ve balmumu gibi arı ürünlerinin kullanıldığı apiterapi yöntemidir. Arı ürünleri insan sağlığını korumada ve iyileştirmede fayda sağlayan, tedavi edici gıda destekleyicileridir. Türkiye' de Sağlık Bakanlığı'nın sistemine kayıtlı 26 GETAT (Geleneksel ve Tamamlayıcı Tıp) Merkezi bulunmaktadır. Bunlardan yalnızca birkaçında apiterapi yöntemi uygulanmaktadır. Bu çalışmada tamamlayıcı ve alternatif tıp yöntemlerinden olan apiterapinin önemine değinilmiş ve ülkemizdeki mevcut durum tartışılmaya çalışılmıştır.

Anahtar Kelimeler: Bal, Arı sütü, Bal mumu, Arı zehiri, Polen, Propolis

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➢ **POSTER PRESENTATION**

Investigation of antioxidant activity extracts of olive mill wastewater

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Abstract

Olive mill wastewater (OMW) is produced during the extraction of olive oil by olive oil the factories. The olive industry is very important in Mediterranean countries, particularly Greece, Syria, Spain, Tunisia, Italy, and Turkey. OMW is a considerable source of pollution because of its high phytotoxicity. The management of OMW has been widely researched and some comprehensive and detailed reviews focusing mainly on management have been published recently[1-3]. Instead of degradation of OMW, alternatively, we can use as antioxidant due to containing high phenolic content. For these purpose, 50 mL of OWM was extracted with 3x50 mL ethyl acetate. After the solvent was evaporated, 2.1 g of extract was obtained. OMW extracts were tested for antioxidant activity using a stable free radical DPPH as test[4] with using BHT and BHA as positive controls. Antiradical activity IC_{50} (µg/mL) was defined as the concentration of extracts necessary to decrease the initial DPPH radical concentration by 50%. IC_{50} value were calculated for BHA, BHT and, OMW extract as 38, 69 and, 118 respectively.

Keywords: Antioxidant activity, Olive Mill Wastewater, DPPH method, Extraction.

Acknowledgement: This research was supported by a grant from Mersin University (BAP 2015-TP2-1234).

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➢ **POSTER PRESENTATION**

The antibiofilm activity of juglone loaded nanoparticles against *Fusarium* spp.

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Abstract

Juglone (5-hydroxy-1,4-naphthoquinone) is a secondary metabolite obtained from walnut and exhibits several biological activities such as antifungal, antibacterial, antiviral, anticancer, antioxidant, cytotoxic and genotoxic. However, the use of juglone in biological systems is limited due to its hydrophobicity and toxicity. Recent studies have shown that polymeric nanoparticulate systems increase the biocompatibility and bioavailability of substances with similar properties. In this study, juglone loaded PLGA nanoparticles were prepared by single emulsion solvent evaporation method and then characterized. The antibiofilm activity of juglone nanoparticles against *Fusarium* spp. was evaluated by standard plate count assay comparatively with the free juglone. The effect on biofilm formation was assessed following the incubation of *Fusarium* spp. cells with 2.5, 1.25, 0.625 and 0.3125 mg/ml juglone or equivalent doses of nanoparticles for 6 hours. Besides, in order to investigate the effect against early phase biofilms, biofilm layers were formed for 6 hours and then incubated with test substances for 24 hours. Results showed that both the nanoparticulate and free forms of juglone entirely inhibited (100%) the biofilm formation and pre-established biofilms at all doses applied. Considering that the PLGA nanoparticulate system provides controlled release and also reduces toxicity, it is very important for juglone nanoparticles to have a similar effect with the free juglone using far less active substance.

Keywords: juglone, PLGA, nanoparticle, biofilm, antibiofilm activity

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➢ **POSTER PRESENTATION**

Mechanism of auramine o binding to DNA studied by a spectroscopic approach

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Abstract

Auramine O (AuO), bis(4-(dimethylamino)phenyl)methanimine(-ium), is synthetic azo–cationic dye which belongs to ultrafast molecular rotors family[1,2]. Although, AuO is well known as a biological stain, various novel uses as a fluorescent probe, such as fluorochrome for in vitro biological applications and, fluorescent marker for amyloid fibrils have been reported [2,3]. The common biological use of AuO brings into attention its interaction mechanism with DNA, which has not been totally elucidated so far.

The interaction between AuO and calf thymus DNA (ct-DNA) was investigated by using UV–Visible absorbance and fluorescence spectroscopies. The measurements have been performed at different temperatures and under different ionic strength conditions. The UV-Vis studies of the system demonstrated that DNA binding causes a 12 nm bathochromic shift of the absorbance maximum of AuO at 432 nm with hypochromism. The bathochromic and hypochromic effects suggest an intercalative binding mode. Moreover, dye intercalation into DNA is confirmed by fluorescence titrations and the thermodynamic data analysis.

Keywords: Auramine O, Intercalation, Binding Mechanism

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➢ **POSTER PRESENTATION**

Kronik myeloproliferatif hastalık tanısı ile takipli ve real-time PCR yöntemi ile JAK2 *V617F* mutasyonu bulunmayan hastalarda, JAK2 *exon 12* mutasyonlarının araştırılmasında sanger sekanslama ve yeni nesil dizi analizi yöntemlerinin karşılaştırılması

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Özet

Miyeloproliferatif bozukluklar, mutant bir multipotent hematopoietik kök hücreden kaynaklanan bir dizi kronik hematolojik hastalıktan oluşmaktadır. Dünya Sağlık Örgütü (WHO) 2016 sınıflandırma sistemine göre, Miyeloproliferatif hastalıklar (MPH); kronik miyeloid lösemi, kronik nötrofilik lösemi, polisitemi vera (PV), primer miyelofibrozis (PMF), esansiyel trombositemi (ET), kronik eozinofilik lösemi ve sınıflandırılamayan miyeloproliferatif neoplazi (MPN) olarak yedi alt kategoriye ayrılmıştır.

JAK2 (Januskinaz 2) geni tirozin kinaz aktivitesine sahip olup, JAK-STAT yolağında yer alan ve hücre proliferasyonunda önemli görevi olan bir gendir. JAK2 V617F mutasyonu genin 14. ekzonu 617. pozisyonundaki valin aminoasitinin fenilalaninine sübstitüsyonuna ile oluşmuş olup, artmış hücre proliferasyonu ve sitokinlere duyarlılığa sebep olmakta ve Philedelphia negatif MPN olarak sınıflandırılan PV, ET ve PMF hastalıklarında sıklıkla görülmektedir. Bununla birlikte, V617F mutasyonu olmayan hastalarda bu miyeloproliferatif bozukluklarda CALR, MPL genleri mutasyonları da araştırılabilmekte ancak bu hastalıkların moleküler temeli tam olarak belirlenememiştir. JAK2 V617F normal saptanan hastalarda daha nadir olmakla birlikte JAK2 geninin 12. Ekzon'unda da mutasyonlar görülebilmektedir. Klonal olarak çoğalma gösteren bu hastalıklarda periferik kanda bulunan lenfositlerin tamamında aynı mutasyonun görülmesi beklenmemektedir.

JAK2 mutasyonlarının %95 eşlik ettiği Polisitemia vera; polisitemi (trombositoz, lökositoz, eritrositoz) ve splenomegali ile karakterize bir MPH'dır. Klinik bulguların net olmasına rağmen bu çalışmada mutasyon bulunamaması hastalığın klonal olması, düşük mutasyon yükünün teknik nedenlerle kaçırılarak yanlış negatif sonuç verilme ihtimalini düşündürmüştür.

Amacımız Sanger Dizileme ve Yeni Nesil Dizileme (NGS) tekniklerini kullanarak ilgili gen bölgesini daha detaylı olarak gözlemlemek ve bu iki teknik arasında metodolojik güven karşılaştırması yapmaktır. Bunun için Ankara Numune Eğitim ve Araştırma Hastanesi Genetik Hastalıklar Tanı Merkezine yönlendirilmiş Myeloproliferatif hastalık tanısı almış 100 hastadan Real-Time PCR JAK2 V617F mutasyonu negatif çıkanların JAK2 Ekzon 12 gen bölgesi Sanger Dizileme yöntemi ile çalışılmıştır. Sonuçlar %100 oranında normal olarak gözlemlenmiştir. NGS çalışmaları bitmiş ön değerlendirme aşamasındadır. Güncel test sistemlerinin güvenirliğinin test edilmesi doğru teşhis ve hastaya olan tedavi yaklaşımını belirlemek için oldukça önemlidir.

Anahtar Kelimeler: Kronik Myeloproliferatif Hastalık, Sanger Dizileme, Yeni Nesil Dizileme, Janus Kinas 2, Real-Time PCR.

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➢ **POSTER PRESENTATION**

Rotenon maruziyetinin bağırsak dokusunda oksidan-antioskidan durum ile inflamatuvar belirteçler üzerine etkileri

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Özet

Rotenon, nörodejeneratif hastalıklar arasında Parkinson hastalığı modeli oluşturmak için sıklıkla kullanılan bir pestisittir. Etki mekanizmasının, nöronlarda mitokondriyal solunum sistemi komplek I'i inhibe etmek olduğu birçok çalışma tarafından gösterilmektedir. 10 yılı aşkın süredir merkezi sinir sistemi ve bağırsak ortamı arasında kuvvetli bir ilişki olduğu bilinmekte ve gün geçtikçe popülerliği artan bir konu haline gelmektedir. Bu çalışmada, bağırsak dokusunda 4 hafta süresince 2 gün aralıklarla 2 mg/kg konsantrasyon olacak şekilde intraperitonal enjeksiyon ile zebra balıklarına rotenon uygulanmıştır. Rotenon maruziyeti durumunda fluvoksamin antidepresanının, bağırsak dokusunda oluşturacağı etkileri araştırmak için, bir grup zebra balığına da 2mg/kg rotenonla beraber 20mg/kg konsantrasyonda suda çözünmüş fluvoksamin intraperitonal olarak uygulanmıştır. Uygulama sonrası anestezi altında bağırsak dokuları disekte edilip, nitrik oksit (NO), lipid peroksidasyon (LPO) düzeyleri ve süperoksid dismutaz (SOD) aktivitesi, TAC1, IL21 ve TNFα gen ekspresyon düzeyleri incelenmiştir. Rotenon grubunda LPO ve NO seviyelerinde kontrol grubuna göre azalma görülmüştür. Buna karşın SOD aktivitesinde rotenon grubunda kontrol gurubuna göre artış gözlenmesine ek olarak, fluvoksamin + rotenon grubunda önemli derecede azalma görülmektedir. Fluvoksaminin gen ekspresyon profilinde oluşturduğu farklılıklar arasında TAC1 ve TNFα özellikle dikkate değer düzeydedir. TAC1 gen ekspresyon ürünü, bağırsak hareketi ve salgılamayı düzenleyici peptid nörotransmitter olarak, sadece beyinde değil, bağırsak duvarındaki intrinsik nöronlarda da eksprese edildiği daha önce raporlanmıştır. Çalışmamızda rotenon maruziyeti grubunda artmış SOD aktivitesinin LPO ve NO düzeylerindeki artışı önlediği öne sürülebilir. Buna ek olarak, rotenon uyarımlı grupta, inflamatuvar belirteçlerden ekspresyonu artan TAC1 geninin, fluvoksamin grubunda azalmış olması; üzerinde durulması ve detaylı çalışma gerektiren bir sonuç olarak sunulmaktadır.

Anahtar Kelimeler: Fluvoksamin, bağırsak, rotenon, TAC1.

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➢ **POSTER PRESENTATION**

Preparation and Characterization of Juglans Regia-Loaded Chitosan Nanoparticles for Skin Care Topical Applications

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Abstract

Juglans Regia (Walnut) Seed Extract protects the natural cellular antioxidant source. This extract is recommended for anti-aging formulations, sun treatments and anti-pollution products. Nanomaterials are used to improve the performance of a wide range of products including moisturisers, anti-ageing creams and hair care products. In this study, JR loaded chitosan nanoparticles were synthesized to produce as an anti-aging product candidate. In this purpose, JR was encapsulated by chitosan using an ionic gelation method with tripolyphosphate (TPP) as the cross-linker. JR, JR-loaded chitosan nanoparticles (CNs) and blank chitosan particles were characterized by various spectroscopic methods such as using Zeta-Sizer and UV-Vis spectroscopy. It was shown that blank CNs have an average size of 53.92 nm, zeta potential of 10.8 mV and a polydispersity index (PdI) of 0.098 and JR-loaded CNs have an average size of 70.38 nm, zeta potential of 11.50 mV and PdI of 0.182. Additionally, the encapsulation efficiency and loading capacity of the JR-loaded CNs were determined and *in vitro* release study was conducted for JR-loaded CNs. Finally, genotoxicity properties of the JR-loaded CNs was determined with AMES test.

Keywords: Juglans regia; chitosan; nanoparticle; cosmetic; anti-aging

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Authors would like to thank AZELIS TR KIMYA END. URUN ITH. TIC SAN A.S. for providing Juglans Regia Seed Extract.

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➢ **POSTER PRESENTATION**

Genotoxicity of *Onopordum acanthium* Flower/Stem/Leaf Extract -Loaded PLGA Nanoparticles for Anti-Aging Cosmetic Products

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Abstract

Recently, the use of the plants in medicine has become widespread. One of these plants is *Onopordum acanthium* L. from the Asteraceae family, and is used in traditional medicine as an anti-inflammatory, anti-tumor, cardiotonic agent. In addition, *Onopordum acanthium* flower/stem/leaf extract has properties as repair the skin and moisturizing. This extract is recommended for skin care and sun care products.
Nanostructured materials provide more efficient delivery of the active ingredient to the skin cells owing to their size-dependent properties which enable nanomaterials to perform better than their bulk counterparts.
The aim of this study is to determine the genotoxicity effect (via Ames test using *Salmonella typhimurium* TA98 and TA100 mutant strains) of *Onopordum acanthium* flower/stem/leaf extract (OAE) loaded PLGA nanoparticles which can be used as skin regenerative product. Accordingly, OAE-loaded PLGA nanoparticles were synthesized by using double emulsion method and characterized by using Zeta-Sizer and UV-Vis spectrometer. The encapsulation efficiency and loading capacity of the OAE-loaded PLGA were calculated. Additionally, in vitro release profile of OAE-loaded PLGA nanoparticles were determined. Finally, genotoxic properties of the nanoparticles were studied using the Ames test using *Salmonella typhimurium* TA98 and TA100 mutant strains.
It was shown that PLGA nanoparticles have an average size of 246.3 nm, zeta potential of -6.56 mV and a polydispersity index (PdI) of 0.097 and OAE-loaded PLGA nanoparticles have an average size of 211.1 nm, zeta potential of -5.31mV and PdI of 0.030. It was calculated that the encapsulation efficiency and loading capacity of OAE loaded PLGA nanoparticles were 99.23% and 99.20%, respectively. It was determined that OAE-loaded PLGA nanoparticles have no genotoxic effect.

Keywords: *Onopordum acanthum* flower/stem/leaf extract; PLGA nanoparticle; cosmetic; anti-aging

Acknowledgements
Authors would like to thank AZELIS TR KIMYA END. URUN ITH. TIC SAN A.S. for providing *Onopordum acanthium* flower/stem/leaf extract.

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➢ **POSTER PRESENTATION**

Evaluation of in-vitro antimicrobial activity of *Foeniculum vulgare* and *Coriandrum sativum* aqueous extracts

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Abstract

The present study has been designated to evaluate the antimicrobial activity of *Foeniculum vulgare* and *Coriandrum sativum* aqueous extracts. The antimicrobial activity of the extract against five bacterial strains and two fungal strains were tested by using Agar Well Diffusion method and minimal inhibitory concentration MIC values. The results showed that aqueous extract of *F. vulgare* and *C. sativum* had antibacterial and antifungal effects against all the tested microorganisms, wherease Nystatin failed to show any effect against *C.cladosporides*. The range of MIC values was 0.7 to 6.2 mg/ml in the *F. vulgare* and *C. sativum* treatments. Therefore, these results suggest that these extracts possess compounds with antimicrobial properties that can be used as antimicrobial agents in new drugs for therapy of microbial diseases in human.

Keywords: Antimicrobial activity, *Foeniculum vulgare*, *Coriandrum sativum*

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➢ **POSTER PRESENTATION**

Effects of the *opcA*$^{-}$ mutation on glucose-6-phosphate dehydrogenase (G6PDH) Activity in *Synechocystis* sp. PCC6803

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Abstract

One of the mechanisms for transitions between light and dark metabolismsof cyanobacteria has been proposed that enzymes are reduced or oxidised through formation and destruction of disulphide bond(s)which are constructed between -SH groups of internal cysteine residues like in plants. Glucose-6-phosphate dehydrogenase (G6PDH), which catalyses the first step of oxidative pentose phosphate cycle, are considered to exhibit a redox sensitivity through disulphide bond formation/destruction. So G6PDH is considered as an important control point in light/dark transitions of carbon metabolism. On the other hand, *opcA* gene product has been involved in G6PDH function since discovered firs in 1995. Based on mutation analyses,OpcA polypeptide has been reported to affect the aggregation state of G6PDH in pure preparations to be involved in catalytic activity, and lastly is needed for redox sensitivity of the enzyme. In this study, investigations were conducted on whether any change was occurred in especially redox sensitivity of G6PDH in *opcA*$^{-}$*Synechocystis* sp. PCC6803.

In this study, G6PDH activity was analysed in cell extract of *opcA*$^{-}$*Synechocystis* sp. PCC6803 without any purification to observe the response of the enzyme in native content of the cell. The cells grown under continuous light was harvested, disrupted and centrifuged, and resulting supernatant was used as enzyme solution. For the purpose of comparison, wild-type *Synechocystis* sp. PCC6803 cells were also analysed under same conditions.Reduced DTT in a 50 mM concentration did not cause any reduction in G6PDH activity in opcA- mutant cells while the enzyme activity was reduced about 30% in wild-type cells.The fact that G6PDH from opcA- cells lost redox sensitivity despite G6PDHs both from*opcA*$^{-}$ and wild-type cellspossess no structural difference indicates thatOpcApolypetidehelps to redox sensitivity of G6PDH in *Synechocystis* sp. PCC6803.

Keywords: Cyanobacteris, *Synechocystis* sp. PCC6803, redox sensitivity, glucose-6-phosphate dehydrogenase, OpcA

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➢ **POSTER PRESENTATION**

In vitro antimicrobial and antioxidant activity evaluation of *Melampyrum arvense* L. var. *elatius* Boiss. and *Sedum spurium* M. Bieb. extracts

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Abstract

Sedum spurium M. Bieb. (Crassulaceae) is a common ornamental plant, whereas, *Melampyrum arvense* L. var. *elatius* Boiss. (Orobanchaceae) is a semi-parasitic plant and grows naturally in the fields. In this study, the dichloromethane and ethyl acetate extracts of *M. arvense* and *S. spurium* were evaluated for their *in vitro* antioxidant and antimicrobial activities. The antioxidant activity was evaluated by DPPH•-ABTS• methods. The antimicrobial activity of *S. spurium* and *M. arvense* extracts was determined using the *in vitro* broth microdilution assay against following human pathogenic strains; *Staphylococcus aureus* ATCC 6538, *Enterococcus faecalis* ATCC 29212, *Escherichia coli* NRLL B-3008, *Helicobacter pylori* ATCC 43504, *Mycobacterium smegmatis* ATCC 25291, *Mycobacterium avium* ssp. *avium* and *Pseudomonas aeruginosa* ATCC 10145. The phenolic constituents of the extracts were analyzed using HPLC technique.

The extracts showed weak antimicrobial activity against Gram-negative/positive bacteria, having the MIC values of 500-1000 μg/mL. Antibacterial activity was not observed against *Mycobacteria* at 2000 μg/mL. In addition, antioxidant activity of *M. arvense* ethyl acetate extract was higher than those of the other extracts. The phenolic compounds of *M. arvense* ethyl acetate extract were characterized as chlorogenic acid, caffeic acid, luteolin-7-O-glycoside, coumaric acid, ferulic acid, and quercetin. The high antioxidant capacity of *M. arvense* ethyl acetate extract may be due to the aforementioned phenolic compounds. In addition, eriodictyol, luteolin and quercetin were detected in *S. spurium* ethyl acetate extract by HPLC.

Keywords: *Melampyrum arvense*, *Sedum spurium*, antibacterial, antioxidant, *Mycobacteria*

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➢ **POSTER PRESENTATION**

Cytotoxic activity of some coumarin derivatives

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Abstract

Cytotoxic activities of oxypeucedanin, isoimperatorin, osthol and umbelliprenin isolated from various Apiaceae plants were investigated against COLO205 and KM12 colon cancer cell lines. The assay used for this study was a two-day, two cell line XTT bioassay, an *in vitro* antitumor colorimetric assay. Isoimperatorin and umbelliprenin showed the best cytotoxic activities with IC_{50} values of 13.54 ug/mL and 20.75 ug/mL on the colon cancer COLO205 cell line, respectively. Whereas, Osthol and umbelliprenin showed modest cytotoxic activities with IC_{50} values of 20.00 ug/mL and 29.17 ug/mL on the KM12 cell lines, respectively.

Keywords: Cytotoxic activity, coumarins, Apiaceae

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➢ **POSTER PRESENTATION**

Beyaz eşya sektörü atıksularının *Lemna minor* ile bitkisel arıtımının incelenmesi

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Özet

Yapay sulak alanlar, evsel ve endüstriyel atıksu arıtımı için konvansiyonel arıtma sistemlerine bir alternatif olarak son yıllarda uygulanması artan enerji ihtiyacı az, yatırım ve işletme maliyetleri düşük, işletim şartları basit, çamur üretimi çok az, doğal bir atıksu arıtma sistemidir. Evsel ve endüstriyel atıksuların arıtımında konvansiyonel sistemlere göre ekonomik ve uygulanabilir bir arıtma yöntemidir.

Bu çalışmada Bolu ilinde bulunan ve pişirici cihazlar üretimi gerçekleştiren Arçelik A.Ş nin üretim faaliyetleri sonucu oluşan atıksuyun, yapay sulak alanlar kurularak arıtılması hedeflenmiştir. Bu çalışma kapsamında; Yapay Sulak Alanlar ile (YSA) yüzen bir sucul bitki olan *Lemna Minör* kullanılarak söz konusu endüstriyel atıksudan başta seçilen bazı ağır metaller olmak üzere kirletici parametrelerin giderimi araştırılmıştır. Bu amaçla farklı tip YSA düzenekleri kurulmuştur. İki adet reaktörde zeolit ve çakıl dolgu malzemesi olarak kullanılmış ve sırasıyla R1(Bitkisiz), R2(Bitkili) olarak verilmiştir. Diğer reaktörlerde ise sadece çakıl dolgu malzemesi olarak kullanılmıştır. R3 (Bitkili) ve R4 (Bitkisiz) olarak isimlendirilmiştir. Reaktörlere yaklaşık 15 gr kadar *Lemna Minor* eklenmiştir. 2 adet reaktörde ise bitkisiz kontrol grubu olarak düzenlenmiştir. Reaktörler 100 gün boyunca kesikli sistem olarak çalıştırılmıştır. Atıksudan ağır metallerin (Ni, Fe, Zn, Pb) ve KOİ'nin giderimi incelenmiştir. Sonuç olarak; Zn giderimi için % giderimler sırasıyla R1-R2, R3-R4 reaktörlerinde %18-30, %85-84 olarak; Fe giderimi sırasıyla %64-70, %65-35; Pb giderimi %40-38, %38-31; Ni giderimi için ise %93-75, %75-69 dir. KOİ giderimide R1,R2,R3,R4 reaktörlerinde sırasıyla %44-83 ve % 85-84 olarak elde edilmiştir.

Anahtar Kelimeler: Yapay sulakalan, *lemna minör*, ağır metal, KOİ

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➢ **POSTER PRESENTATION**

Beyaz eşya sektörü atıksularının ileri oksidasyon prosesi türü olan Fenton prosesi ile arıtımının incelenmesi

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Özet

Ağir metal ihtiva eden atıksuların alıcı ortama verilmesi, bu sulardaki organizmalar icin zehirleyici etki yapmakta ve ortamdaki canlı hayatını tehlikeye sokmaktadir. Bu nedenle kirlilik kaynaklarından olusan atik suların agir metal icerikleri, cevreye verilmeden once arıtılarak cesitli su standartlarma göre izin verilen değerlerin altına düsürülmesi gerekmektedir. Bu calısmada, Fenton prosesi ile Arçelik Pişiriciler grubu atıksularından KOİ, Al, Fe, Ni ,Pb, Zn giderimi araştırılmıştır. Fenton calışmaları kesikli duzende yürütülmüş, FeS04.7H20 miktarının; metal ve KOi giderim verimine olan etkisini belirlemek amacıyla 0,2 gr ve 0,4 gr FeS04 eklenmis ve 5 mL H2O2 sabit tutularak bir dizi deney yapilrmstir. Optimum deney kosullan; 0,4 gr demir (II) sulfat: 7,5 ml H2O2: 100 ml atiksu olarak belirlenmistir. Farkli H2O2 hacimlerinde ise genellikle 5-7,5 ml H2O2 dozajının daha etkin oldugu izlenmistir. 2,5 ml peroksit'ten7„5 ml peroksit miktarlannda Al, Ni ve Pb icin yuksek giderim oranlan elde edilebilmistir. Ancak Zn, Fe ve KOi icin 5-7,5 ml hidrojen peroksit 100 ml atiksu oranında daha verimli oldugu görulmustur,

Anahtar Kelimeler: Fenton prosesi, ağır metal, atıksu

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➢ **POSTER PRESENTATION**

Determination of Antibacterial Activity of *Calendula officinalis* Flower Extracts

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Abstract

Calendula officinalis Linn. belongs to Asteraceae family. It is an annual with bright or yellow orange daisy-like flowers which are used for medicinal purposes. *C. officinalis* extract isolated from different parts possess multiple pharmacological activity, including antioxidant, immunostimulant, anticancer, hepatoprotective, antibacterial, antifungal and genotoxic [1]. In the current study aims to determined antibacterial activity of *Calendula officinalis* flower extracts. The hexane, ethyl acetate and methanol extracts from the flower of *Calendula officinalis* L. were obtained by maceration method. Antibacterial activity of flower extracts was observed against *S. aureus* ATCC 29213, *B. cereus* ATCC 14579, *P. aeruginosa* ATCC 27853 and *E. coli* ATCC 25922 by using a broth microdilution and disc diffusion assays. The experiments were started 8 mg/mL for broth microdilution assay and 10 mg/disc were used for disc diffusion assay. Chloramphenicol was used as a positive control for both assays. All the experiments were performed in duplicate. Hexane, ethyl acetate and methanol extracts showed inhibitory activity against all bacteria at 8 mg/mL. The inhibition zone diameters of hexane and ethyl acetate extracts were 10 mm and 8 mm for all bacteria, respectively. The inhibition zone diameters of methanol extract were 8 mm for *S. aureus* and *P. aeruginosa*, 10 mm for *E. coli* and 12 mm for *B. cereus*.

Keywords : *Calendula officinalis*, antibacterial activity, extract

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➢ **POSTER PRESENTATION**

Determination of Antibacterial Activity of *Centaurium erythraea* Aerial Part Extracts

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Abstract

Centaurium erythraea Rafn. (small centaury) are widely distributed herbaceous plants members of the Gentianaceae which are renowned for their bitter properties. The bitter taste is due to the secoiridoids (e.g. swertiamarin, gentiopicroside, sweroside and amarogentin). Numerous pharmacological effects have been attributed to these plant species e.g. stomachic, digestive, antinflammatory and antipyretic effects as well as cholagogue, hepatoprotective and wound-healing activities [1]. In the current study aims to provide information about antibacterial property of *Centaurium erythraea* aerial parts. The hexane, ethyl acetate and methanol extracts from the aerial parts of *Centaurium erythraea* Rafn. were obtained by maceration method. The experiments were started 8 mg/mL for broth microdilution assay and 10 mg/disc were used for disc diffusion assay. Hexane extract showed inhibitory activity against *E. Coli* ATCC 25922, *P. aeruginosa* ATCC 27853, *B. cereus* ATCC 14579 and *S. aureus* ATCC 29213. The MIC value was 8 mg/mL and the disc diffusion result was 7 mm at 10 mg/mL. Ethyl acetate extract showed inhibitory activity against *B. cereus*, *S. aureus* and *P. aeruginosa*. The MIC values were 8 mg/mL and disc diffusion results were 15 mm for *E. Coli* ATCC 25922, 15 mm for *S. aureus* ATCC 29213, 12 mm for *P. aeruginosa* ATCC 27853 and 16 mm for *B. cereus* ATCC 14579 at 10 mg/mL. The methanol extract showed inhibitory activity against all bacterias. The MIC values were 8 mg/mL and disc diffusion results were 10 mm for *B. cereus* ATCC 14579, 12 mm for *P. aeruginosa* ATCC 27853 and 10 mm for *E.coli* ATCC 25922 at 10 mg/mL.

Keywords : *Centaurium erythraea*, antibacterial, extract

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➢ **POSTER PRESENTATION**

The removal of chromium by tubular polymer inclusion membrane process.

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Abstract

In this study, Cr(VI) ion transport and separation has been investigated by tubular polymer inclusion membrane containing imidazolium based ionic liquids as ion carrier and pumice as a composite material in continuous fluidized processes. For that reason, some effective parameters like membrane thickness, pumice rate, ion carrier type and rate, plasticizer rate, and type etc. have been tested on Cr(VI) separation and transport to optimize the process. According to the obtained results, the studied membrane process has been found as capable for Cr(VI) removal and recovery based applications with adjustable capacity properties.

Keywords: Tubular membrane, polymeric membrane, chromium removal, ionic liquids.

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➢ **POSTER PRESENTATION**

Experimental optimization of emulsion liquid membrane for selective cadmium separation and concentration from acidic zinc plant leach

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Abstract

Worldwide use of cadmium and releasing of cadmium wastes has increased for a few decades Due to its increasing application field, especially in solar panel and battery production and the other technological requirements. In that context, our study is to optimize the emulsion liquid membrane (ELM) and donor and acceptor phase conditions to selectively separate and concentrate the cadmium ion from zinc plant leach solution using Alamine 336 as an ion carrier. In the excellent separation and concentration conditions, extraction efficiency was found in the range of 89-98 % within 10 min contact time by using different feed solutions containing various metal ions. Also, separation factors of cadmium over the other metal impurities were identified in order as βCd/Ni> βCd/Co> βCd/Zn for studied experimental conditions.

Keywords: Separation and concentration of cadmium, wastewater treatment; leach solution, oil-in-water, emulsion liquid membrane.

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➢ **POSTER PRESENTATION**

Comparison of magnetic levitation method in 2D and 3D HeLa cell culture models for its effectiveness in cervical cancer

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Abstract

In two-dimensional (2D) culture systems, cells are grown as monolayers on flat solid surface, lacking cell–cell and cell–matrix interactions that are present in native tumors. In contrast, three-dimensional (3D) culture systems offer the unique opportunity to culture cancer cells alone or with various cell types in a spatially relevant manner, encouraging cell–cell and cell–matrix interactions that closely mimic the native environment of tumors. These interactions cause the 3D-cultured cells to acquire morphological and cellular characteristics relevant to in vivo tumors. HeLa cervical cancer cell lines will be reproduced as three-dimensional spheroids by using the magnetic levitation method. In this technique magnetic iron oxide nanoparticles lead self-assembly of cells into spheroids under magnetic forces. For this purpose, 6 well cell plates without scaffold were used. The cells incubated for 24h at 37°C and 5% carbon dioxide incubator. In the next step, Hela cells were incubated overnight with MNPs (0.25 mg/ml) to allow cellular uptake. Excess MNPs were washed off by PBS and cells were trypsinized, counted, and re-seeded in low attachment 24 well plates. The top lid designed and printed by 3D printer specifically for magnetic levitation method. A magnet is placed on top of the each well of plate lid in small hollow, during which the MNPS internalizes cells are pulled up under magnetic forces. The cells self-aggregate into spheroids within few hours. The cytotoxic values of different concentrations of Doxorubicin were evaluated and compared in 2D and 3D HeLa cell culture models. IC50 values of HELA cells were determined by XTT method.

Keywords: 3D Cell Culture, Magnetic Levitation, Cervical Cancer Treatment, Doxorubicin , HeLa

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➢ **POSTER PRESENTATION**

3D Cell culture method by using magnetic levitation for breast cancer treatment

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Abstract

The 3D culture of human breast cancer cells is a better representation of real cell environments than classical 2D cell cultures. They are generally used in cancer treatment, stem cell research and multi cell culture research and therapy. Here we used a simple design to generate 3D spheroids of human breast cancer cells (MCF-7) by using magnetic levitation method. To form a magnetic field over well, neodymium magnets are used and to gain cells paramagnetic ability Magnetic Nanoparticles (MNP) are given. Magnetic iron oxide nanoparticles were synthesized by the co-precipitation of Fe (II) and Fe (III) salts with some modifications of Iron salts under the nitrogen (N_2) gas flow and by vigorously stirring at 2500 rpm and heated until 90ºC. After 1h, ammonia hydroxide solution was added to the system dropwise for the next 2h. Obtained black precipitate was washed by distilled water and then by ethanol. MCF-7 ($5*10^5$ cells /well) cells were seeded in treated 6 well plates and incubated for 24h. After incubation time MNPs were applied at different concentration (0.125, 0.25 and 0.5 mg/ml) and incubated for 72h at 37°C. After the incubation, media with MNPs were removed and cells were washed with PBS to remove MNPs completely. The cells contained MNPs cultured in a non-treated 24 well plates and magnetic field applied on top of the wells. After 24h the spheroids observed and visualized by the light microscope. Antiproliferative effects of drug in 3D levitation method were measured after 72h treatment of spheroid by Doxorubicin and were compered by 2D culture method. Cell viability of spheroids was analyzed by staining with Live and Dead cell kit and visualized by confocal microscopy. Morphology and size of the spheroids were observed before and after Doxorubicin treatment.

Keywords: Breast Cancer Treatment, Doxorubicin, 3D Cell Culture, Magnetic Levitation, MCF-7

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➢ **POSTER PRESENTATION**

Antibacterial activity of *Viscum album* (Mistletoe) extracts

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Abstract

Viscum album is member of Santalaceae (formerly: Loranthaceae) family. The mistletoe is a hemi-parasitic shrub, which grows on various plants. The plant showed many biological activities such as anticancer, antimycobacterial, antiviral, apoptosis-inducing and immunomodulatory [1]. Previously, the antimicrobial and antifungal activities from leaves and twigs extracts *Viscum album* were determined against three Gram-positive bacteria (*Staphylococcus aureus*, *Bacillus subtilis*, *Enterococcus faecium*), five Gram-negative bacteria (*Escherichia coli*, *Bordetella bronchisiptica*, *Salmonella typhi*, *Pseudomonas aeruginosa*, *Pseudomonas syringae*), one yeast bacteria (*Saccharomyces cerevisiae*) and one filamentous fungus (*Aspergillus flavus*) by using disc diffusion method. The ethyl acetate, chloroform, ethanol, and methanol extracts of leaves and twigs showed inhibitory activity against all Gram-negative and Gram-positive bacteria [2]. The objective of this study is to determine the antibacterial activity of *Viscum album* extracts. The plant material was macerated with hexane, ethyl acetate, and methanol, respectively. Antibacterial activity of the plant extracts was observed against *Staphylococcus aureus* ATCC 29213, *Bacillus cereus* ATCC 14579, *Pseudomonas aeruginosa* ATCC 27853 and *Escherichia coli* ATCC 25922 by using a broth microdilution and disc diffusion assays. The experiments were started 8 mg/mL for broth microdilution assay and 10 mg/disc extracts were used for disc diffusion assay. Chloramphenicol was used as a positive control for both assays. All the experiments were performed in duplicate. The ethyl acetate extract of the plant showed inhibitory activity against all tested bacteria at 8 mg/mL MIC value and different inhibition zone diameters. Also, the methanol extract showed antibacterial activity all Gram-negative and Gram-positive bacteria. And *B. cereus* was susceptible against the methanol extract at 4 mg/mL MIC value and 14 mm the inhibition zone diameter. The hexane extract did not show inhibitory activity against the test bacteria.

Keywords: *Viscum album*, extract, antibacterial activity

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➢ **POSTER PRESENTATION**

Antibacterial activity of *Myrtus communis* leaves exctracts

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Abstract

Myrtus communis (Myrtaceae) is an evergreen scrub. It is used as an antiseptic, disinfectant drug and hypoglycaemic agent [1]. The crude methanol extract of the plant was determined antibacterial activity against 6 Gram-positive (*Staphylococcus aureus*, *Micrococcus luteus*, *Streptococcus pyogenes*, *Streptococcus agalactiae*, *Listeria monocytogene*) and 4 Gram-negative bacteria (*Escherichia coli*, *Proteus vulgaris*, *Pseudomonas aeruginosa* and *Campylobacter jejuni*) by using disc diffusion method. The extract showed inhibitory activity against all tested bacteria except *C. jejuni* [2]. The objective of this study is to determine the antibacterial activity of *Myrtus communis* leaves extracts against *Staphylococcus aureus* ATCC 29213, *Bacillus cereus* ATCC 14579, *Pseudomonas aeruginosa* ATCC 27853 and *Escherichia coli* ATCC 25922 by using a microdilution and disc diffusion assays. The hexane, ethyl acetate and methanol extracts of leaves were obtained by maceration method. The experiments were started 8 mg/mL for microdilution assay and 10 mg/disc extracts were used for disc diffusion assay. Chloramphenicol was used as a positive control. All the experiments were performed in duplicate. The ethyl acetate and methanol extracts showed inhibitory activitiy against the tested bacteria. *B. cereus* were susceptible against both extracts. The MIC values of ethyl acetate and methanol extracts were 4 mg/mL and 2 mg/mL and the inhibition zone diameters were 10 mm and 20 mm, respectively. Also, methanol extract was effective on *S. aureus* at 2 mg/mL MIC value and 20 mm inhibition zone diameter. The hexane extract did not show inhibitory activity against the test bacteria. The ethyl acetate and methanol extracts from the leaf of the plant showed antibacterial activity the tested bacteria at different MIC values and inhibition zone diameters. The methanol extract was more active against Gram-positive bacteria than Gram-negative bacteria.

Keywords: *Myrtus communis*, extract, antibacterial activity

➢ **POSTER PRESENTATION**

Deneysel Alzheimer modelinde bor ve taurin uygulamasının protein karbonil ve ileri oksidasyon protein ürünleri düzeylerine etkisinin araştırılması

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Özet

İnsan bedeninin en karmaşık organı olan beyinde meydana gelen Alzheimer Hastalığı (AH) demansın en yaygın türüdür ve tüm demans hastaların %60-70' inde görülen kronik nörodejeneratif bir hastalıktır. Alzheimer Hastalığı son yıllarda yapılan çalışmalarda nöro-endokrin bir bozukluk olabileceği düşünülerek "Tip-3 Diyabet" olarak da tanımlanmaya başlanmıştır. Ülkemizde rezerv bakımından büyük öneme sahip bir element olan bor canlı beslenmesinde mikro elementtir. Canlı organizmalar üzerinde birçok etkisi olduğu düşünülen borun oksidatif stresi azaltma üzerine de etkileri vardır. Tiyol içeren aminoasitlerden biri olan taurin ise merkezi sinir sisteminde hem nöronlarda hem de glial hücrelerde farklı yoğunluklarda bulunur. Vücutta oksidan-antioksidan dengeyi ve hücre bütünlüğünü koruması, vücut direncini arttırması gibi özellikleri ile bir antioksidan olarak koruyucu ve destekleyici terapilerde önemli bir yer tutmaktadır. Streptozotosin (STZ)' nin sıçanlarda intraserebroventriküler (İCV) uygulanması insanlarda olduğu gibi hafızanın aşamalı olarak bozulması, serebral glukoz ve enerji metabolizmasının beyin insülin sistemi işlev bozukluğu göstermesi ile karakterize olan Alzheimer Hastalığına benzer bir deneysel model oluşturmaktadır. Bu bilgiler ışığın da bu çalışmada ratlara stereotaksik yolla tek doz STZ uygulanmış 14 gün beklendi. Bu süre sonunda Morris Water Maze (MWM) ile ratlarda AH modeli oluşumu izlendi. AH oluşumunu takiben 21 gün boyunca ratlara gavajla bor ve ip olarak taurin uygulandı. Bu süre sonunda ratlar kalpten kan alınarak dekapite edilip, beyin dokuları ve kanları alındı. Alınan beyin dokuları homojenize edilip spektrofotometrik olarak protein karbonilleri düzeyleri izlendi. Kanlardan elde edilen serumlarda ticari kit kullanılarak ileri düzey okside protein (AOPP) düzeyleri incelendi. Deneysel olarak Alzheimer oluşturulan ratlara tek başına bor, tek başına taurin ve bor ile taurinin birlikte uygulanmasının AOPP ve protein karbonilleri düzeyleri üzerinde azaltıcı etkisi olduğu gözlendi.

Anahtar Kelimeler: Alzheimer Hastalığı, bor, taurin, protein karbonilleri, AOPP

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➢ **POSTER PRESENTATION**

Alzheimer hastalığının bir modeli olan intraserebroventriküler streptozotosin enjeksiyonları: DCLK-1 ve İnterlökin-1 üzerinde bor ve taurinin rolü

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Özet

Alzheimer hastalığı(AH) en sık görülen demanstır. AH'nın son yıllarda nöro-endokrin bir bozukluk olabileceği düşünülmektedir. Tip 3 diyabet terimi, AH'de beyinde oluşan insülin eksikliği ve direncine dikkat çekmek için kullanılan bir terimdir. STZ, yaygın olarak deney hayvanlarında diyabet modeli oluşturmada kullanılır. Yeni keşfedilen bir protein olan DCLK-1 mikrotübül ilişkili proteinlerden biridir ve gelişmekte olan memeli sinir sisteminde-nöronal migrasyonda rol almaktadır. İnterlökin(IL-1) fibroblast, endotel hücreleri ve özelliklede makrofajlarca yapılan bir sitokin olup yerel beyin doku reaksiyonlarında önemli rol oynamaktadır. IL-1 seviyesinin Alzheimer'da arttığı gözlenmiştir. Bor ülkemizde rezerv bakımından büyük öneme sahip olan bir element olup kullanım alanları oldukça geniş olduğu için bora maruziyet her yönden fazladır. Borun canlı organizmalar üzerinde birçok etkisi olduğu da bilinmektedir. Bor, beyin fonksiyonları ve zihinsel performans için temel bir elementtir. Taurin memeli dokularının temel hücre içi aminoasitidir ve doğal antioksidan olarak kabul edilir. Vücutta oksidan antioksidan dengeyi ve hücre bütünlüğünü koruması, vücut direncini artırması gibi özellikleri ile bir antioksidan olarak koruyucu ve destekleyici terapilerde önemli yer tutmaktadır. Bu bilgiler ışığında bu çalışmada ratlara stereotaksik yolla tek doz STZ uygulanmış, 14 gün beklenmiştir. Bu süre sonunda Morris Water Maze(MWM) ile ratlarda AH modeli oluşumu izlenmiştir. AH oluşumunu takiben 21 gün boyunca ratlara gavajla bor ve ip olarak taurin uygulanmıştır. Bu süre sonunda ratlar kalpten kan alınarak dekapite edilmiş ve kanları alınmıştır. Kanlardan elde edilen serumlarda ELİSA yöntemi ile ticari kit kullanılarak IL-1 ve DCLK-1 düzeyleri incelenmiştir. Alzeheimer hastası ratlara tek başına bor, tek başına taurin ve bor ile taurinin birlikte uygulanmasının IL-1 ve DCLK-1 düzeyleri üzerinde azaltıcı etkisi olduğu gözlenmiştir.

Anahtar Kelimeler: Alzheimer, Streptozotosin, Bor, Taurin, IL-1, DCLK-1

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➢ **POSTER PRESENTATION**

Investigation of synthesis, characteristics and electrocatalytic properties of different carbon type-supplied platinum binary and third catalysts using the cathode of A PEM fuel cell

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Abstract

Fossil fuels and fossil fuel-based energy systems in the world are being used in extremely high levels due to the increase in world population and energy demands. Excessive consumption of fossil fuels requires health and environmental concerns, as well as the new generation of technology for the continuous depletion of limited fossil fuel reserves in the world, energy conversion and energy production. When it comes to the use of alternative energies, reliable energy storage without harmful emissions, which will significantly reduce the carbon footprint, has led to the use of fuel cells, the most important part of hydrogen energy. The fuel cell is the device that converts chemical energy to high-efficiency electrical energy. PEM fuel cells stand out with their fast starting, high efficiency, high power density, low operating temperature and safe operation. One of the biggest obstacles to the commercialization of PEM fuel cell is the use of platinum-based electrocatalysts which are very expensive. In addition, the slow kinetics of the oxygen reduction reaction in the cathode region reduces the high energy conversion efficiency. In this study impregnation and co-precipitation methods have been used to add transition metals to the support carbons. X-ray diffraction analysis was performed in synthesized catalysts and cyclic voltammetry electrocatalytic characterization was performed to examine the catalytic activity on oxygen reduction reaction. As a result of characterization studies, it was observed that PtCoMC has the highest electrochemical active surface area(294,94 m^2/g) of the catalyst synthesized by impregnation method. In addition, VulcanXC-72R, which is used as carbon support, has been observed to be more efficient in increasing the catalyst activity. In XRD results, platinum diffraction peaks were observed in both synthesis methods and in different carbon supports at 2θ=39.7°, 46.2°,67.5°,81.2°and 85.7° angles. Co_2O_3, NiO and Fe_2O_3 crystal phases were obtained in the catalysts structures according to the XRD results.

Keywords: Fuel Cell, PEM, Cathode, Oxygen Reduction Reaction, Platinum

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➢ **POSTER PRESENTATION**

Synthesis, characterization, and *in-vitro* release study of curcumin-loaded electrospun nanofiber membranes reinforced with hydroxyapatite

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Abstract

Electrospinning is a common and simple technique for the fabrication of nanofiber membranes. Electrospun nanofiber membranes provide a significant number of abilities to drug delivery applications because of their high surface to volume ratio and porous structure [1,2]. Furthermore, curcumin has an anti-inflammatory, potent antioxidant capacity, anti carcinogenic, analgesic, and antimicrobial properties alongside its poor aqueous solubility, intense staining color, and very low bioavailability [3]. The aim of this study is to obtain membranes with controlled drug release profile. In this respect, fiber membranes were synthesized with 18% polycaprolactone (PCL) (w/v) and 1% polyethylene oxide (PEO) (w/w) by using different ratios of Hydroxyapatite (Hap) and Curcumin (Cur) via electrospinning method (with flat plate or rotating collector). The prepared membranes were characterized by scanning electron microscopy (SEM), atomic force microscopy (AFM), Fourier transform infrared spectroscopy (FTIR), X-ray diffraction (XRD), and *in-vitro* drug release experiments. In addition, *in vitro* cytotoxicity on the human breast adenocarcinoma cell line (MCF-7) was analyzed to assess the potential usage of drug-loaded membranes in cancer treatment. FTIR and XRD results showed that membranes were successfully produced. All of the membranes were obtained with uniform and beadless morphology according to the SEM and AFM images. *In-vitro* cytotoxicity study indicated that the Cur-loaded membranes exhibited toxicity on human breast carcinoma cells in 24 h. In terms of release experiments, PCL/PEO-0.1HAp-5Cur membranes released Cur more controlled than other membranes. As a result, produced membranes have potential for use in drug delivery systems.

Keywords: nanofiber; electrospinning; drug release; curcumin

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➢ **POSTER PRESENTATION**

In vitro Study on Antioxidant, Antibacterial and DNA Interaction Activities of Extracts from *Arbutus andrachne* L.

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Abstract

Traditionally, the fruits and leaves of *Arbutus andrachne* are well known and used in for applications in antimicrobial, antioxidant and anticancer activity. This study was aimed to determine the *in vitro* antibacterial, antioxidant and DNA interaction activities of the different extracts of *Arbutus andrachne*.
Arbutus andrachne was collected from Amasya Province during May 2018. Dried leaves powder were mixed with of suitable solution. Then, the mixtures were extracted with the soxhlet apparatus for 4 hours. The antibacterial effects of extracts were researched on pathogens, namely *Staphylococcus aureus* ATCC 25923, *Staphylococcus aureus* ATCC 25953, *Escherichia coli* ATCC 25922, *Pseudomonas aeruginosa* ATCC 27853, *Pseudomonas aeruginosa* ATCC 9027, *Bacillus cereus* ATCC 7064, *Bacillus subtilis* ATCC 6633, and *Salmonella enteritidis* ATCC 13076 using disc diffusion methods. Gentamicin and cefotaxime were used as control for bacteria. To try to understand each plant extracts effect on the antioxidant methods, we studied the different methods as named radical scavenging activity (DPPH), metal chelating activity, ferric reducing antioxidant power assays. In the plant extracts, total phenolic and total flavonoid contents were determined by spectrophotometric methods due to investigating the effect of secondary metabolites on antioxidant activity. To explore the beneficial effect of the extracts on hydroxyl radical-mediated DNA damage plasmid DNA pUC18 was used.
As a result, *Arbutus andrachne* extracts had antibacterial effect when they compared with control group antibiotics. According to disc diffusion methods, the highest antibacterial effect was identified in ethanol, chloroform and hexane extract, respectively. Ethanol extracts of *Arbutus* andrachne showed the best antioxidant activity. Moreover, extracts of *Arbutus andrachne* had repair effects on plasmid DNA in H_2O_2 condition.
The investigated *Arbutus andrachne* extract showed significant bioactivities. These extracts have been a promising candidate for the preparation of new natural products. However, future studies should be carried out to verify such actions in different matrices.

Keywords: *Arbutus andrachne* L. Antioxidant, Antimicrobial, DNA interaction

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➢ **POSTER PRESENTATION**

İntraserebroventriküler streptozotosin enjeksiyonu ile oluşturulan deneysel Alzheimer modelinde bor ve taurinin beyin dokusu malondialdehit ve glutatyon düzeylerine etkisi

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Özet

Nörodejenaratif hastalıklarının en başında gelen Alzheimer Hastalığı (AH)'nın 2050 yılında 152 milyona ulaşacağı tahmin edilmektedir. AH'nin kesin tanısı olmamakla birlikte, son yıllarda nöro-endokrin bir hastalık olabileceği ve beyindeki insülin eksikliği ve direncine bağlı olarak Tip 3 Diyabet olduğu yönünde çeşitli araştırmalar yapılmaktadır. İntraserabroventiküler streptozotosin (ICV-STZ) enjeksiyonunun nöroinflamasyon, insülin sinyal disfonksiyonuna ve serebral glukoz alınımı kronik olarak azaltarak bilişsel bozulmaya sebep olduğu bilinmektedir. Geniş bir kullanım alanı olan bor minerali, pek çok biyolojik olaylara katılan bir iz elementtir. Merkezi sinir sisteminde nöronlarda ve glial hücrelerde bulunan, sisteinden sentezlenen ve tiyol içeren antioksidan etkili bir aminoasit olan taurinin hiperglisemiyi insülin benzeri etki göstererek azalttığı bilinmektedir. Bu sebeple çalışmamızda ICV-STZ Alzheimer modeli ile bor ve taurinin beyin dokusu üzerindeki etkisini araştırmak amacıyla doku malondialdehit (MDA) ve glutatyon (GSH) düzeyleri ölçüldü. Ratlara stereotaksik yolla tek doz STZ uygulandı ve 14. günün sonunda Morris Water Maze (WMW) testi uygulandı. AH oluşturulduktan sonra 21 gün boyunca bor gavaj ile taurin ise intraperitonal (ip) olarak verildi. Deneyin sonunda hayvanlar dekapite edilerek beyin dokusu alındı. Doku MDA ve GSH düzeyleri spektrofotometrik olarak çalışıldı. Deneysel olarak Alzheimer oluşturulan gruplardan sadece bor uygulanan grupta MDA düzeylerinde Alzheimer grubuna göre anlamlı bir biçimde azalma gözlenirken; GSH düzeylerinde anlamlı bir fark tespit edilememiştir. Bor ve taurinin birlikte verildiği grupta ise bordan kaynaklı MDA düzeylerinde anlamlı bir azalma tespit edilmiştir. Bu sonuçlar göstermektedir ki eksojen bor uygulaması beyin dokusu lipit peroksidasyonunu azaltmıştır.

Anahtar Kelimeler: Alzheimer Hastalığı, Bor, Taurin, MDA, GSH

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➢ **POSTER PRESENTATION**

Anethum graveolens L. (dereotu) etanollü ekstresinin hipertiroidizm üzerindeki olası etkilerinin incelenmesi

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Abstract

Bu taslakta *Anethum graveolens*'in hipertiroidi ve kandaki T3 ve T4 miktarını azaltmasına yönelik rat modeli oluşturma ve oluşturulan bu model sonrasında kandaki T4 ve T4 miktarının değişimi ve bunun hipertiroidi olan ratlardaki etkisinin incelenmesi yer almaktadır.

Bu çalışmada asıl amaç dereotunun tiroid hormonları üzerindeki etkilerini incelemek ve nasıl etkilediğini anlamaya çalışmaktır. Çalışma hayvan deneyini de kapsıyor olmakla beraber dereotunun hipertiroidiye karşı kullanım potansiyelini incelemek için yapılmıştır. Özet olarak; 30 gün boyunca *Wistar albino* türü ratlara oral yolla levotiroksin uygulamanması yapıldı ve hipertiroidi gelişen ratlara sonrasında 5 gün boyunca oral yolla dereotu ekstresi verildi. Sonrasında T3 T4 ve TSH kan değerlerine bakıldı ve dereotunun, tiroid hormonlarının(T3, T4) kan değerlerini düşürdüğü gözlemlendi. Bu çalışma dereotunun; T3, T4 tiroid hormonları üzerindeki etkisini incelemek üzere yapılmıştır.

Keywords: *Anethum graveolens*,hipertiroidi, Hayvan Modeli, Endokrinoloji, Tiroid Hormonları

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➢ **POSTER PRESENTATION**

Artvin Şavşat yöresi propolisinin kolon kromatografisi ile fraksiyonlara ayrılması ve ayrılan fraksiyonların temel biyoaktif özelliklerinin belirlenmesi

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Özet

İnsan sağlığı için kullanılan doğal ürünler, yeni farmakolojik keşifler için gelecek vadeden kaynaklardandır. Bu kaynaklar arasında en yaygın kullanılan doğal ürünlerden biri de arı ürünleridir. Arı ürünü olduğu bilinen propolis ağaçların kabuk ve kozalaklarından, bitkilerin tomurcuk ve filizlerinden toplanmaktadır. Bu özel madde çeşitli polenler, yağlar, özel reçine ve mumsu maddelerin bileşiminden oluşmaktadır. İçeriğinde bulunan 300'den fazla aktif madde sayesinde propolis, gıda ve alternatif ilaç olarak kullanılmaktadır. Bu aktif maddelerin bazıları flavonoidler ve polifenolik bileşiklerdir. Bulunduğu bölgenin iklim koşulları, rakım farklılıkları, nem faktörü, sıcaklık ve en önemlisi de bitki örtüsü çeşitliliğinden dolayı propolis, içerdiği biyoaktif bileşenler bakımından fiziksel ve kimyasal farklılıklar göstermektedir. Farklı bölgelerden temin edilen propolisle ilgi birçok antioksidan çalışması olmasına rağmen, propolisin kolon kromatografisi yöntemi uygulanarak elde edilen fraksiyonlar üzerine sınırlı sayıda çalışma bulunmaktadır. Bu çalışmada Artvin'in Şavşat yöresinden temin edilen propolisin biyoaktif bileşenleri, kolon kromatografisi kullanılarak 8 farklı fraksiyona ayrılmıştır. Bu fraksiyonların biyoaktif özellikleri DPPH radikal yakalama aktivitesi, toplam polifenol içerik tayini, toplam flavanoid içerik tayini ve demir (III) indirgeyici güç tayinleri yapılarak antioksidan kapasiteleri belirlenmiştir. Fraksiyonlara uygulanan antioksidanlık analizleri sonucunda en yüksek polifenolik içerik E fraksiyonunda 248,14 mg GAE/g propolis, flavonoid içerik E fraksiyonunda 116,71 mg QE/g propolis, FRAP metodunda D fraksiyonunda 420,8 mg AAE/g propolis, DPPH radikal giderme aktivitesinde ise SC50 değeri F fraksiyonunda 15,4 µg/ml elde edildi. Çalışma kapsamında elde edilen verilerin ileride yapılacak olan propolis çalışmalarında kullanılması hedeflenmektedir.

Anahtar Kelimeler: Propolis, Apiterapi, Kolon Kromatografisi, Biyoaktif Bileşenler

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➢ **POSTER PRESENTATION**

Antibacterial, antioxidant and dna interaction properties of *Cistus creticus* L. extracts

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Abstract

Medicinal plants are a natural source that possesses significant biological functions. *Cistus* species which are medical plant are of antibacterial, antioxidant and cytotoxic activities. The present study was carried out to investigate the antibacterial, antioxidant and DNA interaction properties of *Cistus creticus* extracts.
Samples of *Cistus creticus* were collected in May 2018 in the region of Amasya. The different extract of *Cistus creticus* leaves was obtained by using soxhlet apparatus for 4 hours. Antibacterial activity of extracts was tested against four Gram-positive (*Staphylococcus aureus* ATCC 25923, *Staphylococcus aureus* ATCC 25953, *Bacillus cereus* ATCC 7064, *Bacillus subtilis* ATCC) and four Gram-negative (*Escherichia coli* ATCC 25922, *Pseudomonas aeruginosa* ATCC 27853, *Pseudomonas aeruginosa* ATCC 9027, *Salmonella enteritidis* ATCC 13076) by the disc method. Antioxidant activities of extracts were determined with DPPH radical scavenging, ferric reducing and metal chelating methods. Moreover, total phenolic and total flavonoid contents of extracts were investigated by using spectrophotometric methods. The ability to repair the plasmid DNA breaks created by hydroxyl radicals was also determine using pUC18 plasmid DNA.
As a result, *Cistus creticus* extracts has strong inhibitory activity against all tested Gram-positive and Gram-negative bacteria. The chloroform extract was also very effective against Gram-positive bacteria especially *Bacillus cereus* (14 mm). Among the Gram-negative bacteria, the most susceptible bacterium was identified as *Pseudomonas aeruginosa*. Moreover, ethanol extracts had repair effects on plasmid DNA in H_2O_2 condition. Among the different extracts of *Cistus creticus* chloroform extract showed the highest in vitro antioxidant activity.
In this study, *Cistus creticus* collected from Amasya has shown significant antibacterial, antioxidant and DNA interaction activity and could be therefore a useful source in the discovery of new antibacterial and antioxidant compounds. However, the use of extracts as a complement to the treatment requires further research to thoroughly understand the activities and interactions with recommended medicines.

Keywords: *Cistus creticus* L. Antioxidant, Antimicrobial, DNA interaction.

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➢ **POSTER PRESENTATION**

Effects of microwave on early seedling growth and mitotic division of wheat

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Abstract

Microwave is a type of electromagnetic radiation and has a lot of applications such as communication, cooking, radar and some agricultural applications including control of insects and microorganisms in stored grains, increased germination of seeds with thickened shells, grain drying and product processing. The aim of this study was to examine effects of microwave heating on wheat seeds in terms of physiological and mitotic division. Two winter wheat variety (*Triticum aestivum* L. cv Tir and Bezostaja) were subjected to heating in a microwave oven with a medium power level (460 W) for 30, 60 and 120 seconds. For control, non-treated seeds were used. Control and treated seeds were placed on petri plates including tissue paper and moistened with distilled water. Seeds were germinated at 25±2 °C and 16-h light/8-h dark photoperiod. Germination percentage, root and shoot length, and fresh weight of germinated seeds were recorded. To observe mitotic division, after 2 days of germination, root tips were fixed with carnoy fixative and treated with 1 N HCl solution. Root tips were stained using acetic orcein and mitosis were watched using squash preperation method.. Germination percentage of microwave oven-treated wheat seeds were signifacantly lower than non-treated ones. This effect increased when the time was prolonged. On the other hand, there was not a significant change in terms of physiological parameters. Also any abnormalities were not observed between mitotic phases. To conclude, inhibitory effect of microwave oven treatment on wheat seed germination was very clear, but it had no significant effect on early seedling growth and mitotic phases.

Keywords: Microwave treatment, wheat, germination, mitotic division

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➢ **POSTER PRESENTATION**

A word-dictionary based algorithm to predict functional sites using perl

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Abstract

Recently, wet-lab sequencing methods and technologies are developing rapidly and as a consequence genomic data is increasing almost exponentially. Determining the connection of the information encoded in the genome sequences with the gene expression is extremely important to understand the complex transcription processes of genome. However, it is still an important problem, both in bioinformatics and computer science, to find regulatory region motifs in this massive DNA data. Among the various algorithms and approaches developed for this purpose, word-dictionary-based approaches that model the DNA code as words in an unknown language have an important place.
In this study, a new algorithm has been introduced by modifying dictionary-based approaches to predict regulatory regions and to reduce the background interference. The words were determined by a statistical method and the addition of new words to the dictionary was made by comparing with the existing word database and possible mutation, insertion and deletions were taken into consideration. In addition, it is aimed that the dictionary self-modifies its database by using experimental data and to use this data to make realistic word estimates. The introduced algorithm was applied to some experimentally defined datasets and the results were compared with the existing algorithms. It is also applied to experimental datasets that are not annotated to find regulation regions. A script in PERL language, which is widely used in the field of bioinformatics, is implemented, with the accompanying database and interface.

Keywords: Bioinformatics, PERL, regulatory sites, dictionary-based algorithms

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➢ **POSTER PRESENTATION**

Modelling the biofilm formation of the milk contaminant *Geobacillus thermodenitrificans* DSM 465^T

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Abstract

In this study, the biofilm production responses of an important thermophilic member, causing product spoilage in dairy industry, were followed. The biofilm production of *Geobacillus thermodenitrificans* DSM 465^T on 316 L type stainless steel surfaces was observed in static conditions during 144 hours of incubation period (1-144 hours) and at three different temperature values (55, 60, 65°C) in order to define an appropriate mathematical model. The data showed that rapid biofilm production occurred in first hours and this biofilm formation rate became steady with the time. The hyperbolic model below was chosen as the appropriate model:

$$y(t) = \frac{A_{max}t}{b + t}$$

Here, t is the time (in hours), y (t) is time-dependent biofilm production (log_{10}CFU/cm^2), A_{max} the maximum amount of biofilm (log_{10}CFU/ cm^2) produced, and b is the time (in hours) for half the maximum amount of biofilm to occur. While t=b, y (t) = A_{max}/2. When the results obtained from this model applied for the three different temperatures, the A_{max}/2 values of the *G. thermodenitrificans* DSM 465^T did not change depending on the temperature. The A_{max} values were found to be 5.01 (CFU/cm^2) at 55ºC, 5.33 (CFU/cm^2) at 60ºC, and 5.20 (CFU/cm^2) at 65°C. The highest value was accesed at 60 °C, by the aid of the model. However, these three values were not significantly different from each other. As it was possible to use a constant A_{max} value, thereby a simpler and more useful model was obtained by reducing the bivariate model to a single variable. Consequently, this model gives an idea about how sanitary procedures can be carried out at the critical stages of production for thermophilic bacilli which causes product spoilage by their biofilms in milk industry.

Keywords: Thermophilic bacilli, *Geobacillus*, dairy industry, biofilm

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➢ **POSTER PRESENTATION**

Apricot increases the probiotic bacterial survival at low pH

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Abstract

Apricot is a very popular fruit and is the focus of interest in many studies. Recently many scientist try to understand its beneficial applications from cosmetics, food to drug industry. Apricot is the endemic plant that doesn't grow in everywhere. Malatya, one of the cities of Turkey has favourable climatic conditions for the apricot farming. About 85% production of the apricot in the world originates from Malatya. There is very little knowledge about the potential beneficial effect of the apricot consumption on the healthy through improving the survival rate of the probiotic bacteria. According to the information given, we aimed to show whether the apricot increase the probiotic bacterial survival in harsh conditions such as low pH.

We purchased the sun dried apricot (Hacı halil) from indigenous seller. Then it was rended into the small particles with blender. It was dissolved in the distilled water and centrifuged at +4°C 3000 rpm for 10 min. The supernatant was used as apricot source. MRS broth was prepared with/ without apricot at different pH 6.3 (control), 2, 3, 4. Autoclaved at 121 °C for 20 min. *Lactobacillus Bulgaricus* was growth in MRS agar during overnight in 37 °C with shaking 110 rpm. Then bacteria was concentrated with centrifuged at +4°C 3000 rpm for 10 min. 1ml of the bacterial sample was added to the different MRS broth including apricot and different pH's. All the bacterial sample was added to 96 well plate. The absorbance values was read versus time at 600 nm wavelength using the spectrophotometer (epoch). Results was recorded and graphs was drawn. Negative controls were made in the MRS broth without the apricots. All experiments were carried out triplicates. We determined that the apricot contributes to probiotic bacterial survival when compared to its negative controls at low pH.

Keywords: Apricot, Probiotics, Bacterial survival.

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➢ **POSTER PRESENTATION**

Determination of chemical content of *Prunus laurocerasus* and investigation of antiproliferative activity properties against PC3 cells by real-time cell analysis system

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Abstract

For centuries, people have benefited from medicinal and aromatic plants to combat diseases. The therapeutic properties of the plants are due to the active substances they contain. One of the biggest problems in cancer treatment is the effect of chemotherapy drugs on healthy cells. In healthy cells, it is important to discover new compounds that have minimal toxic effects and target the actual cancer cells. Recent studies have shown that many natural compounds show low toxicity in normal cells. The fruits and seeds of *Prunus laurocerasus* (*Laurocerasus officinalis* Roemer, taflan) are used for therapeutic purposes. It is known that this plant is effective against many diseases such as bronchitis, eczema, cancer, digestive system discomfort. The extraction processes of *Prunus laurocerasus* were carried out using two different methods. The plant was first boiled in water and then extracted with ethyl acetate to obtain the crude extract (Demirtas et al., 2013). As the second extraction method, the solvent system of chloroform: methanol [$CHCl_3$:MeOH (1:1)] was used to dissociate the plant cell membrane and pass all components to the organic solvent (Abay et. al., 2015). Secondary metabolite profiles of these extracts were investigated by chromatography techniques. The antiproliferative properties of the extracts obtained from Prunus laurocerasus were investigated by a real-time cell analysis system (xCelligence RTCA, ACEABIO, USA) against prostate cancer cells (PC3). The extract of seedless fraction obtained by boiling and ethyl acetate extraction (E1) showed the highest antiproliferative activity against PC3 cells (Fig. 1). The antiproliferative activity of Prunus laurocerasus should also be investigated against other cancer cell lines. Thus, the potential of the antiproliferative activity of this plant will be strongly elucidated.

Keywords: *Prunus laurocerasus*, antiproliferative activity, PC3, chromatography

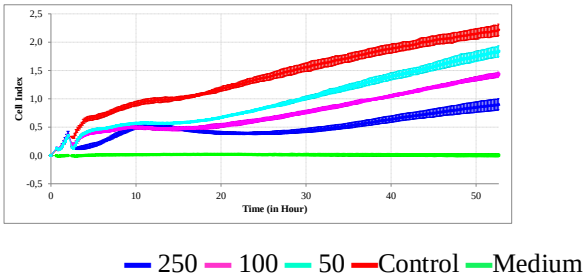

Fig 1. Antiproliferative activity of E1 extract against PC3 cells

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➢ **POSTER PRESENTATION**

Zingeronun Mezoteliyoma Hücre Hattı H2452 Üzerine Etkilerinin İn Vitro İncelenmesi

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Özet

Mezotelyoma; akciğer, kalp ve karın zarında gelişen ve teşhisten sonra ortalama yaşam süresi 1 yıl olarak verilen, nadir ancak oldukça öldürücü bir kanser türüdür. Zingeron, zencefil (Zingiber officinale) bitkisinde bulunan bir biyoaktif fenolik bileşiktir. Zingeronun etkileri melanoma, böbrek ve kolon kanseri gibi birçok kanser türü üzerinde araştırılmış, ancak mezotelyoma üzerine etkilerini inceleyen çalışmalar sınırlı kalmıştır. TRPV1 (Transient receptor potential vanilloid receptor-1) bir seçici olmayan iyon kanal proteinidir ve zingeron tarafından aktive edilebilmektedirler. Çalışmamızda; H2452 mezotelyoma hücrelerinin in vitro koşullarda zingeron ile muamele edilmesi sonucu gerçekleşen etkiler ve bu etkilerin TRPV1 iyon kanalıyla ilişkisinin anlaşılması amaçlanmıştır. Bu amaç doğrultusunda, ilgili hücre hattı değişen derişimlerde zingerona maruz bırakılmış ve bu etken madde ile 24 saat için IC_{50} değeri, MTS metoduyla 9,7±3,07 olarak belirlenmiştir. Daha sonra IC_{50} değerinde etken madde ile 24 saat muamele görmüş hücreler, herhangi bir muameleye maruz kalmamış kontrol hücreleri ile birlikte toplanmış ve hücrelerdeki TRPV1 protein seviyeleri Western Blot aracılığıyla gözlenmiştir. Buna göre, zingeron muamelesi TRPV1'nin miktarını azaltıyor görünmektedir ($p<0.05$). Protein seviyesinde gözlenen bu değişimin gen ifadesiyle ilişkisinin kurulması için benzer bir muamele sonunda kantitatif RT-PCR gerçekleştirilmiş ve TRPV1 mRNA'sının arttığı gözlenmiştir. TRPV1'in süreci ne yönde etkilediğinin göstergesi olarak hücrelere TRPV1 shRNA'sı uygulanmış ve böylece TRPV1 proteininin üretilmesi engellenerek, böyle bir durumda hücrenin zingeron moleküllerine nasıl tepki verdiği MTS ve hücre proliferasyon verileriyle değerlendirilmiştir. TRPV1 susturulması zingeronun hücreler üzerindeki etkilerini değiştirmemiştir ($p>0.05$). Bu çalışma sonunda, zingeronun H2452 mezotelyoma hücre hattı hücreleri üzerinde öldürücü potansiyele sahip olup olmadığı ilk kez değerlendirilmiştir. Ayrıca, bu etken maddenin hücreler üzerine etkisinin TRPV1 reseptörlerinden bağımsız gerçekleştiğine dair ilk veriler elde edilmiştir.

Anahtar Kelimeler: Zingeron, TRPV1, Mezoteliyoma

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➢ **POSTER PRESENTATION**

Topraktan İzole Edilen Bakterilerin Herbisit Degredasyon Potansiyellerinin Belirlenmesi Ve Moleküler Düzeyde Tanımlanması

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Özet

N-(fosfonometil) glisin (glifosat), kararlı karbon-fosfat (C-P) bağlı, sentetik ve seçici olmayan bir herbisit bileşiği iken 2,4-diklorofenoksi asetik asit (2,4-D), fenoksi asitler grubuna dahil olan, seçici bir herbisittir. 2,4-D'nin teratojenik, mutajenik ve karsinojenik etkileri olduğu bilinen kalıntıları geri dönüşümsüz sorunlara neden olabilmektedir. Öte yandan, glifosatın kanseronojenik etkiler gösterdiği ve memeli olmayan türlerde oksidatif stres ve asetilkolinesteraz inhibisyonu ile organ hasarına neden olduğu bildirilmiştir. Yapılan önceki çalışmalarda, bazı toprak bakterilerinin glifosat ve 2,4-D'yi parçalayabildikleri tespit edilmiştir. Glifosatı degrede edebilen canlılar arasında *Achromobacter* sp., *Comamonas odontotermitis*, ve *Pseudomonas sp*. sayılabilirken; 2,4-D parçalayıcı olarak *Achromobacter, Arthrobacter, Corynebacterium, Cupriavidus* cinsleri örnek olarak verilebilir. Bu çalışmada, Kahramanmaraş ve Balıkesir bölgelerinde sırasıyla glifosat ve 2,4-D ile mumamele edilmiş iki tarım arazisinden izole edilen bakterilerin adı geçen herbisitleri degrede etme potansiyellerinin spektrofotometrik testler yardımıyla belirlenmesi ve bu bakterilerin gen sekanslama ve protein analizi yöntemiyle moleküler düzeyde tanımlanması amaçlanmıştır. Bu amaç doğrultusunda; seri seçilimlerle elde edilen bakteri kolonilerinin, izole edildikleri araziye bağlı olarak üç farklı derişimde (0,1g/L, 0,5g/L ve 1g/L) glifosat ya da 2,4-D dışında herhangi bir karbon kaynağı içermeyen besiyerinde yetiştirilmeleri sağlanmıştır. Yetiştirilen bakterilerin büyüme hızları 14. günde takip edilmiş ve degredasyon yeteneklerini anlamak için bakterilerin yetiştirildiği sıvı ortamında kalan miktarlar aynı süre sonunda ölçülmüştür. Elde edilen sonuçlara göre; izole edilen bakterilerden hiçbiri glifosatı degrede edememekte hatta bazılarında glifosat bakteri büyümesini olumsuz yönde etkilemektedir. Yine de, bu ortamda en iyi büyüme gösteren bakteriler *Klebsiella variicola* ve *Klebsiella pneumoniae* olarak tanımlanmıştır. Öte yandan, 2,4-D'yi degrede edebilen bir koloni bulunmuş ve bunun bir *Acinetobacter baumannii* kolonisi olduğu tespit edilmiştir. Çalışmanın devamında, daha fazla seçilen koloni üzerinde tanımlama yapılacak ve degredasyon seviyeleri HPLC kullanılarak tayin edilecektir.

Anahtar Kelimeler: glifosat, 2,4-D, toprak bakterileri, moleküler tanımlama.

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➢ **POSTER PRESENTATION**

Ayvalık tuzlası'nın bakteriyel çeşitliliğinin araştırılması

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Özet

Ayvalık Tuzlası Balıkesir'in Ayvalık ilçesine 10 km uzaklıkta İzmir-Çanakkale yolu üzerinde bulunan deniz tuzlasıdır. Tuzla thalassohalin ortam özelliğindedir ve deniz suyunun buharlaşması sonucu oluşmaktadır. Ayvalık Tuzla'sının şimdiye kadar mikrobiyolojisi ile ilgili gerçekleştirilen çalışmalar son derece azdır ve tuzlanın mikrobiyal çeşitliliğini tam olarak yansıtmamaktadır. Literatürde ülkemizdeki tuzlalar üzerine yapılan mikrobiyolojik çalışmaların eksikliği nedeniyle bu çalışmada tuzlanın bakteriyel çeşitliliğinin araştırılması ve hangi türlerin baskın bulunduğunun saptanması amaçlanmıştır. Bu amaçla çalışmada tuzlanın 5 farklı havuzundan Eylül 2016 tarihinde örnekleme yapılmış ve bakteriyel çeşitliliği belirlemek için moleküler teknikler uygulanmıştır. Çalışmada, havuzlardan alınan su örnekleri, izolasyon için yüksek tuz içeren 3 farklı besi ortamına yayma plak yöntemi ile inoküle edilmiştir. İnkübasyon ve saflaştırma sonrası bu besiyerlerinden 83 izolat elde edilmiştir ve farklı koloni morfolojisine sahip olduğu düşünülen 16 örnek seçilerek tanımlama amacıyla manuel olarak ve kit protokolü ile DNA Ekstraksiyonu yapılmıştır. Elde edilen saf DNA'lara 16S rRNA genine spesifik PCR kurularak, dizi analizi gerçekleştirilmiştir. Dizi analizi sonuçlarının değerlendirilmesinde NCBI veri tabanı kullanılmış ve %99 ve üzeri benzerlik gösteren türler belirlenmiştir. Sonuçlara göre 1 numaralı havuzda *Saccharospirillum sp. Pontibacillus marinus* ve Uncultured bacterium; 2 numaralı havuzda *Saccharospirillum sp. Henriciella sp. Serratia marcescens subsp.* Uncultured bacterium*;* 3 numaralı havuzda *Saccharospirillum sp. Caulobacter sp. Aliifodinibius sp.* Uncultured bacterium; 4 numaralı havuzda *Aliifodinibius sp. Halophilic bacterium* ve 5 numaralı havuzda *Aliifodinibius sp.* tespit edilmiştir. Çalışma sonucunda moleküler yöntemler kullanılarak elde edilen sonuçlardan Ayvalık tuzla'sının Halofilik mikroorganizma çeşitliliği yönünden oldukça yüksek bir potansiyele sahip olduğu belirlenmiştir. Bu tuzlada olduğu gibi ekstrem çevrelerdeki mikrobiyal çeşitliliğin araştırılması endüstriyel ve diğer biyoteknolojik uygulamalarda kullanımın artmasını sağlayacaktır.

Anahtar Kelimeler: Ayvalık Tuzlası; Halofilik Bakteri; PCR

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➢ **POSTER PRESENTATION**

Kısmen ve Tamamen Primer Amin Sübstitüe Mono-Ferrosenil Spirosiklotetrafosfazen Türevlerinin Antitüberküloz Aktiviteleri

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Özet

Amaç: Tüm dünyada ilaca direçli tüberküloz vakalarındaki artış hastalığın kontrol edilmesi için yapılan çalışmalarda zorluğa neden olmaktadır. Bu nedenle dirençli TB vakalarının tedavi edilebilmesi için yeni, etkin antitüberküloz moleküllerin sentezlenmesi gerekmektedir. Çalışmada mono-ferrosenil N/O spirosiklotetrafosfazenlerin ansa ve spiro izomerinin benzil ve hekzil amin gibi mono dentat ligandlarla vermiş olduğu türevlerin antitüberküloz aktivitelerinin belirenmesi amaçlanmıştır.

Metot: Antitüberküloz aktivitesi çalışılacak olan mono-ferrosenil spirosiklotetrafosfazen türevi 4 bileşik Ankara Üniversitesi, Kimya Bölümünde sentezlenmiştir. Elde edilen ferrosenil-tetramerik fosfazen türevlerinin antitüberküloz aktiviteleri CLSI (Clinical and Laboratory Standards Institute) önerileri doğrultusunda agar temelli Middlebrook 7H10 besiyerinde "Agar proporsiyon yöntemi" ile test edilmiştir. Antitüberküloz aktivite testleri için, M. tuberculosis H37Rv (ATCC 27294) referans suşu ile hastalardan izole edilmiş bir adet çok ilaca dirençli M. tuberculosis ve bir adet yaygın ilaca dirençli M. tuberculosis klinik izolatları kullanılmıştır. Kullanılan mikroorganizmalar, Halk Sağlığı Genel Müdürlüğü, Ulusal Tüberküloz Referans Laboratuvarı'ndan temin edilmiş olup testler Biyogüvenlik Düzey III Laboratuvarı'nda gerçekleştirilmiştir. Bileşiklerin besiyerindeki son konsantrasyonu sırasıyla 5, 10, 20, 40 ve 80 µg/ml olacak şekilde ayarlanmıştır. Sentezlenen bileşikler, dimetil sülfoksit (DMSO) içerisinde çözdürüldükten sonra, 0,2 µm'lik filtrelerden geçirilerek steril edilmiştir. Middle Brook 7H10 besiyeri hazırlanıp otoklavlandıktan sonra besiyerinin sıcaklığı 45-50 °C'ye düştüğü zaman OADC ve çözünmüş bileşiklerden belli oranlarda ilave edilerek petri kaplarına dökülmüştür. Sterilite kontrolü yapıldıktan sonra bileşiklerin antitüberküloz aktiviteleri test edilmiştir. Ekimleri yapılan petri kapları 37°C'de 21 gün inkübasyonun ardından değerlendirilmiştir.

Bulgular: Kullanılan 4 maddeden 4'ü de (A1, A2 ve A3, A4) *M. tuberculosis* H37Rv suşuna karşı antitüberküloz aktivite göstermiştir. A2 ve A4'ün *M. tuberculosis* H37Rv suşu için MİK değerleri 35 µg/ml, A1'in 70 µg/ml ve A3'ün 20 µg/ml olduğu saptandı.

Yorum: Sentezlenen maddeler *M. tuberculosis* H37Rv suşuna invitro olarak etkili bulunmuştur. Sonuç olarak, in vitro antitüberküloz aktiviteleri saptanan bu maddelerin antiüberküloz aktivitesi en yüksek olan A3 maddesinin tedavi seçeneği olarak değerlendirilmesi amacıyla yapılacak daha detaylı klinik çalışmalar için öncülük yapacağı düşünülmektedir.

Anahtar Kelimeler: Ferrosenil siklotetrafosfazenler, tüberküloz, antitüberküloz aktivite

Bu çalışma, 215Z496 numaralı TÜBİTAK projesi tarafından desteklenmiştir.

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➢ **POSTER PRESENTATION**

The reaction of cabbage (*Brassica oleracea* l.) breeding lines against *Turnip mosaic virus*

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Abstract
Turnip mosaic virus (TuMV) is the most important and widespread virus infecting brassicas worldwide. In 2017, and 2018, seventy cabbage (*Brassica oleracea* L.) breeding lines from Black Sea Agricultural Research Institute (BSARI, Samsun, Turkey) were screened for their reaction to TuMV-BA isolate by mechanical inoculation under controlled conditions. The level of reaction to TuMV was determined based on biological assays, symptom expression, disease severity rating scale (0-9). On the basis of 0-9 disease rating scale of the lines tested, the scales were 0 (nine lines), 1 (two lines), 3 (three lines), 5 (thirteen lines), 7 (twenty three lines), and 9 (twenty lines). The virus infections were detected in cabbage plants using double-antibody sandwich enzyme-linked immunosorbent assay (DAS-ELISA). The study will also be continued in field conditions. This study was supported by The Scientific and Technological Research Council of Turkey (TÜBİTAK 215O749 project).

Key words: breeding lines, cabbage, reaction, TuMV

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➢ **POSTER PRESENTATION**

Lepidoptera'da Proboscis (Emme Hortumu) Yapısı

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Özet

Böceklerde alınan besinin yapısına(sıvı-katı) ya da alınma şekline göre değişik ağız tipleri gelişmiştir. Sıvıyla beslenen böceklerin yaklaşık% 28'i Lepidoptera takımında yer alır. Lepidoptera'nın % 95'inden fazlası tübüler bir proboscis vasıtasıyla sıvı alır. Kelebeklerde (Lepidoptera) ağız parçalarının yapısı, esas yapıya nazaran bir hayli değişiklik gösterir. Labrum ve mandibula kısalmıştır. Birinci maxilla, şimdiye kadar görülenlerin aksine kaynaşarak tek parça haline dönüşmüştür. Beslenme birlikleri, Lepidoptera'da uzun zamandır bilinmektedir. Yetişkin Lepidoptera geleneksel olarak en az iki geniş beslenme birliğine sınıflandırılmıştır.Çiçek ziyaretçi kelebekler nektarla beslenirler. Çiçek ziyaret etmeyen kelebekler (bağlayıcı olmayan besleyiciler), su akıntıları ve çürümüş meyve gibi ıslak yüzeylerden beslenirler.Çiçek ziyaret eden kelebeklerde; Dağınık sensilla styloconica mevcuttur. Fırçalı bir proboscis bulunmaz. Çiçek ziyaretçilerinde 3. Bölge varlığı, proboscisin dar çiçekli korollalara girmesine yardımcı olmak için uyarlanabilir bir değere sahip olabilir.Çiçek ziyaret etmeyen kelebeklerde; çürüyen meyveler gibi gözenekli substratlardan beslenen Lepidoptera, yoğun uzamış sensilla stiloconica sıralarından oluşan fırçalı bir proboscise sahiptir. Dorsal legulaelar, proboscis ucuna kadar uzanır ve proksimal bölgede dorsal legulaeların geniş ve alt dalları (Bölge 1) vardır. Çiçek ziyaret etmeyen kelebeklerin proboscis yapısı, gözenekli yüzeylerden sıvı alımı için artan hidrofilik yüzey alanı ve kılcallık sağlayabilir. Bu çalışmada farklı beslenme tiplerine ait kelebek türleri ve hortum yapıları hakkında bilgi verilmiştir.

Anahtar kelimeler: Lepidoptera, proboscis, morfoloji

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➢ **POSTER PRESENTATION**

Synthesis of some new benzothiadiazinedioxides bearing 1,2,4-oxadiazole unit

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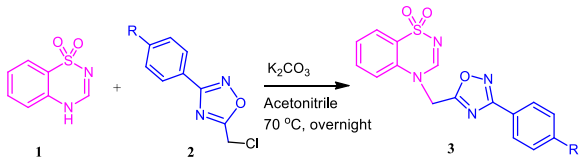
Abstract

This work focused on the synthesis of some 3-aryl-4H-1,2,4-benzothiadiazine-1,1-dioxide derivatives 3 and then determination of their structures. Novelty of the anticipated chemistry can be considered as follows; benzothiadiazine 1,1-dioxide derivatives exhibit various important biological activities and some of them are currently being used as medicines containing benzothiadiazine 1,1-dioxide skeleton.[1-4] For this reason, our purpose is to obtain these compounds through benzothiadiazine dioxide **1** and 5-chloromethyl oxadiazole **2** reaction. The new compounds have been elucidated by means of spectroscopic and physical methods.



	R		R
a	CH_3	e	I
b	CH_3O	f	NO_2
c	F	g	CF_3
d	Cl	h	NMe_2

Keywords: Benzothiadiazine 1,1-dioxide, amidoxime, aldoxime, microwave

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➢ **POSTER PRESENTATION**

Survival of probiotic cultures added to baby foods during refrigeration

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Abstract

Probiotic baby food, is produced by adding live and probiotic microorganisms into vegetable and fruit purees, has beneficial functional effects on health. In this study, probiotic bacteria (*Bifidobacterium breve, Bifidobacterium infantis, Bifidobacterium acidophilus)* were added to prepared vegetables and fruit purees. The survival of these probiotic bacteria during refrigeration was monitored. Probiotic baby food samples were stored at + 4 °C for up to 20 days. During the storage period, the survival of the bacteria was recorded according to the results of the analyses performed at certain intervals (days 0,1,2,5,10,15,20). In order to monitor microbiological changes, total mesophilic aerobic bacteria (TMAB) count, total psychrophilic aerobic bacteria (TPAB) count, lactic acid bacteria (LAB) count, mold-yeast count, pH and titration analyses were performed. As a result, lactic acid bacterial counts taken at 20 days were <1, <1, 6.88, 5.39, 4.25, 3.68 log-cfu/g, and TMAB counts were <1, <1, 6.75, 5.63, 4.45, 4.17 log-cfu/g, TPAB counting results were <1 log-cfu/mL. According to the results, lactic acid bacteria count was increased up to the 15th day in the probiotic culture added vegetable purees. As a result of TMAB analysis, an increase was observed up to the 15th day. According to these results, vegetable purees can be stored up to + 4^0C 15 days.

Keywords: Infant food, Probiotic baby food, vegetable puree, fruit puree

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➢ **POSTER PRESENTATION**

Development of active substance for the diagnosis and treatment of cancer from human recombinant nano-antibody constructs

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Abstract

Epidermal Growth Factor Receptor (EGFR) is one of the cell membrane receptors that is overexpressed in many cancers, and its overexpression is related to a reduced chance of survival and increased resistance to tumor treatment. Because of these important cellular roles, EGFR has become an important target for monoclonal antibody-based(MAbs) therapy of cancer. Phage display technology is one of the possible ways to produce MAbs in a short time period. This technique allows the expression of (poly) peptides with diverse specificity on the surface of bacteriophage and their selection against the desired target. In this study, we aimed to develop a nano-antibody construct against EGFR by phage display technology. First, naive human VH antibody gene library, cloned to the phagemid vector, was transformed into a non-suppressor strain of *Escherichia coli* and recombinant phages were obtained. These phages were used in biopanning against EGFR to select only recombinant phages which bind to this receptor. After several rounds of selection, specific clones were controlled by PCR in terms of presenting the antibody gene fragment. Positive clones were also controlled by phage-ELISA against the target. Clones that show a high binding capacity to the target antigen in phage-ELISA assay were sequenced. After sequencing, we planned to perform soluble expression and purification of recombinant anti-EGFR nano-antibodies. After these studies, we aim to characterize these nano-antibodies by using Biacore SPR system and assess their biological activities by *in vitro* bioassays. In conclusion, given the advantages of nano-antibodies over the whole antibody molecules such as their smaller size, high solubility, and stability, their use might be considered for a more effective therapy of cancers.

Keywords: Cancer diagnosis and treatment, nano-antibodies, phage display technology, monoclonal antibodies (MAbs), Epidermal Growth Factor Receptor (EGFR)

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➢ **POSTER PRESENTATION**

The morhology and histology of alimentary canal in *Coreus marginatus* (Linnaeus,1758) (Heteroptera, Coreidae)

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Abstract

This study aims to describe the morphological and histological structures of the alimentary canal in the adults of *Coreus marginatus* which is economically important agricultural pest. The alimentary canal was examined by light microscopy and scanning electron microscopy (SEM). The adult samples of this species were collected from Kazan, Ankara, Turkey in July 2018. For the light microscope examinations, the alimentary canal of *C. marginatus* were dissected in 70% ethyl alcohol under a stereo microscope, and fixed for 24 hours in formalin. The tissues were dehydrated, embedded paraffin, and cut in to 6-7 µm-thick sections. Sections were stained with Hematoxylen-Eosin, then samples were examined under a light microscope, and photographed. For SEM, specimens were fixed in 2.5% Glutaraldehyde, and dehydrated ethanol progressive series. The tissues were dried with Hexamethyldisilazane, coated with gold and examined with JEOL JSM 6060 LV SEM. The alimentary canal of *C. marginatus* consists of three important sections: the foregut, the midgut and the hindgut. Foregut has pharynx, esophagus and proventriculus. The principal and accessory salivary glands are connected to the foregut. Midgut has ventriculus, midgut channel and bulb structure. Hindgut has ileum, pylorus and rectum. There are four Malpighian tubules are connected with midgut and hindgut. The gastric caecum is connected to the pylorus of the hindgut. It is apparently composed of four rows of plate like structures surrounding a tube. In the histological examinations, the internal layer of foregut has a simple cylindirical epithelium with cells. Its external layer of the foregut consists of muscle tissue. Epithelial cells of the midgut are cylindrical, arranged as a single layer. They have microvilli, and their nuclei are ovoid. Epithelial cells are surrounded by muscle layer. The hindgut is composed of an epithelial cell layer and muscle layers. Depending on the ileum Malpighian cubic epithelium consisted of a single layer.

Keywords: Foregut, midgut, hindgut, light microscope, SEM.

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➢ **POSTER PRESENTATION**

Investigating the effects of fluoxetine on the growth kinetics and gene expression profiles of *Saccharomyces cerevisiae*

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Abstract

Fluoxetine is a selective serotonin reuptake inhibitor which is widely prescribed as psychiatric drug for the treatment of clinical depression, compulsive behaviours and premenstrual dysphoric disorders. It has been detected in surface water and municipal effluents. This study aims to analyze the possible toxic effects of fluoxetine on a single-celled eukaryotic model organism, *Saccharomyces cerevisiae* using growth pattern and gene expression profiles as endpoints. Yeast cells were exposed to various fluoxetine concentrations (25, 100, 200, and 400 µM) at mid-exponential phase for 3h. To determine the inhibition rates after fluoxetine exposure, cell viability was measured by vital staining with methylene blue solution (0.01 % methylene blue, 2 % sodium citrate). The growth curves were constructed by monitoring optical density at 600 nm. Twenty-five and 100 µM fluoxetine showed 9.39 and 18.78% decrease in cell number compared with that of the control group respectively. There was slight effect on growth kinetics and no cell death in these concentrations. On the other hand, growth inhibition became apparent at 200 and 400 µM fluoxetine with 71.82 and 88.58% reduction in cell number respectively. Cell death occurred at these concentrations, therefore, concentrations lower than 200 µM fluoxetine were chosen for further analyses. Following this, qPCR analysis on yeast cells upon exposure to non-lethal concentrations of fluoxetine will be assessed using genes involved in different pathways such as oxidative stress, cell cycle, and apoptosis. These results demonstrate that fluoxetine is detrimental to yeast and gene expression data may contribute to molecular mechanisms underlying the modes of action of fluoxetine.

Keywords: Fluoxetine, *Saccharomyces cerevisiae*, growth kinetic, gene expression

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➢ **POSTER PRESENTATION**

Antioxidant properties of 3,4-dimethoxyphenethoxy peripheral substituted metallophthalocyanines compounds

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Abstract

Although phthalocyanines have been discovered for more than a century, they remain current. These new synthesis lead to both the acquisition of new derivatives and the discovery of new application areas. Some of these applications can be listed as photodynamic therapy, catalyst, sensor, solar cell, photovoltaic. Recent studies have shown that the antioxidant and antimicrobial properties of phthalocyanines have been extensively studied. One of the obstacles that restrict the applications of phthalocyanine compounds is that they are not soluble. They must be soluble in one of the conditions in which phthalocyanines can be application in practice. In this work, 3,4-dimethoxyphenethoxy substituted phthalocyanine compounds with solubility in solvents were synthesized and characterized by spectral data. These compounds are soluble in $CHCl_3$, THF, DMF, DMSO. Antioxidant and antimicrobial activity properties of these compounds were also determined. Phthalocyanine compounds showed moderate antimicrobial activity. It was concluded that phthalocyanine complexes exhibit more DNA cleavage activity than the starting material ligand.

Keywords: Phthalocyanine, synthesis, soluble, antioxidant, antimicrobial.

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➢ **POSTER PRESENTATION**

Yeşil sentezle gümüş nanopartikül sentezi ve antimikrobiyal aktiviteleri

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Özet

Gümüş, altın ve bakır gibi metalik nanopartiküller çeşitli uygulamalarda kullanılmaktadır. Bu partiküller kimyasal, fiziksel ve biyolojik (yeşil sentez) metodlarla üretilebilmektedir. Metalik partiküllerin yeşil sentezle üretiminin diğer metodlara gore çeşitli avantajları vardır. Gümüş nanopartiküller (AgNP'ler) gibi nanopartiküllerin üretiminde bakteriler, funguslar, algler ve bitkiler kullanılabilir. AgNP'lerin yeşil sentezi düşük maliyet ve çevre dostu özelliklerinden dolayı büyük ilgi çekmektedir. Bu çalışmada bitki özütü AgNP üretimi için redükleyici ajan olarak kullanılmıştır. Renk değişimi ve karakteristik absorbans piki AgNP oluşumunun ilk göstergesidir. XRD analizi bu nanopartiküllerin kristal yapıda olduğunu ve TEM analizi de AgNP'lerin sferik şekilli olduğunu göstermiştir. Nanopartiküllerin çeşitli patojenik bakteriler ve maya üzerine antimikrobiyal aktivite çalışmaları bu nanopartiküllerin Gram-negative *Echerichia coli*, Gram-positive *Staphylococcus aureus* ve maya *Candida albicans* üzerine antimikrobiyal etki yaptığını göstermiştir. Sonuçlar, yeşil yöntemle sentezlen bu AgNP'lerin yüksek antimikrobiyal özelliklerinden dolayı etkili antimikrobiyal ajanlar olarak kullanım potansiyellerinin olduğunu göstermiştir.

Anahtar Kelimeler: Antimikrobiyal aktivite, Gümüş nanopartikül, Yaprak özütü, Yeşil sentez

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➢ **POSTER PRESENTATION**

Yeni sentezlenen çinko bağlı benzimidazol metal kompleksi bileşiğin sitotoksik ve antimikrobiyal aktivitesi

Özgür Yılmaz[1], Özfer Yeşilada[1*], Elif Apohan[1,3], Hasan Kucukbay.[2], Ülkü Yılmaz[3]

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Özet

Kanser çağımızın en önemli hastalıklarındandır ve Bu hastalığın tedavisi için farklı yöntemler geliştirilmeye çalışılmaktadır. Bu yöntemlerden birisi de yeni ilaç üretimidir. Sağlıklı hücrelere karşı düşük etkiye sahip ancak kanser hücrelerine karşı yüksek toksisite gösterebilen ilaçların geliştirilmesine yönelik yoğun araştırmalar yapılmaktadır. Benzimidazol türevi bileşikler kemoterapötik ajan olarak test edilmektedir. Bu çalışmada yeni sentezlenen benzimidazol türevi bir bileşiğin (Diklorobis[5-nitro-1-(4-metilbenzil)-1*H*-benzimidazol-$_kN^3$]çinko(II)) kolon kanseri hücre hattı HCT116, karaciğer hepatosellüler karsinoma hücre hattı Hep3B, non-small lung cancer hücre hattı A549 ve sağlıklı akciğer epitelyum hücre hattı BEAS2B hücre hatlarında sitotoksik etkisine bakıldı. Sitotoksik etki, tripan mavisi ve MTT yöntemleri ile ölçüldü. Bileşiğin *Escherichia coli* (ATCC 25922), *Staphylococcus aureus* (ATCC 29213), *Pseudomonas aeruginosa* (ATCC 27893), *Candida albicans* (ATCC 90028) ve *Candida trophicalis* üzerine antimikrobiyal etkisi minimum inhibe edici konsantrasyonun (MİK) saptanmasıyla izlendi. Bileşiğin A549, BEAS2B, Hep3B ve HCT116 hücre hataları üzerindeki IC50 değerleri sırasıyla 19,47 µg/ml, 22,88 µg/ml, 19,54µg/ml ve 36,46 µg/ml olarak belirlendi. *E. coli*, *S. aureus*, *P. aeruginosa*, *Candida albicans* ve *Candida trophicalis* üzerine MİK değerleri sırasıyla 1600 µg/ml, 800 µg/ml, 800 µg/ml, 800 µg/ml ve 200 µg/ml olarak belirlendi. Sonuçlar bu bileşiğin özellikle sitotoksik etki olarak etkili bir bileşik olduğunu ve mikroorganizmalar üzerine de değişen oranda antimikrobiyal etki gösterdiğini ortaya koymuştur. Sentezlenen bileşiğin farklı kanser hücre hatları üzerinde denenebilir bir potansiyeli olduğu da gözlenmiştir.
Bu çalışma İnönü Üniversitesi Bilimsel Araştırma Projeleri Koordinasyon Birimince Desteklenmiştir. Proje Numarası: FDK-2018-1503

Anahtar Kelimeler : Antimikrobiyal, bakteri, benzimidazole, kanser, maya, sitotoksik

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➢ **POSTER PRESENTATION**

Tekstil boyaları ile kontamine atık suların arıtımında ucuz ve çevre dostu biyosorbentlerin kullanımı

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Özet

Tekstil endüstrisinin gelişimi ülke ekonomisini olumlu yönde etkilemektedir, fakat ayrıca su kirliliği gibi bazı çevre problemlerine neden olmaktadır. Tekstil boyaları sucul ortamlar için en önemli kirleticilerdir. Bu çalışmanın amacı portakal kabuğundan elde edilen biyosorbentlerin boya ile kirlenmiş sıvıların arıtımı için kullanılabilme potansiyelini keşfetmektir. Bu çalışmada kurutulmuş portakal kabuğu, portakal kabuğu ile poliakrilamit kompoziti ve surfaktan ile modifiye portakal kabuğu olmak üzere 3 tip biyosorbent kullanılmıştır. pH, boya derişimi ve temas süresi etkisi araştırılmıştır. Araştırma sonuçları modifiye portakal kabuğunun en iyi biyosorpsiyon kapasitesi gösterdiğini desteklemektedir. Sonuç olarak, tekstil boyası ile kontamine suların artımında kullanılabilecek ucuz ve çevre dostu bir biyosorbenttir.

Anahtar Kelimeler: Biyosorpsiyon, tekstil boya, atık su arıtımı

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➢ **POSTER PRESENTATION**

Likenlerden elde edilen biyosorbentlerin tekstil atık sularının arıtımında kullanım potansiyelinin belirlenmesi

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Özet

Tekstil endüstrisi atık suları önemli derecede su kirliliğine neden olan faktörler arasında yer almaktadır. Özellikle tekstil ürünlerinin boyanmasında kullanılan sentetik boyalar su kirliliğine neden olan birincil kirleticilerdir. Bu nedenle tekstil fabrikası atık sularının doğaya salınmadan önce arıtılması gerekmektedir. Bu çalışmanın amacı ucuz ve kullanışlı bir arıtım yöntemi olan biyosorpsiyonla tekstil boyası giderminde likenlerden elde edilen biyosorbentlerin kullanım potansiyelini belirlemektir. Çalışmada Bilecik Kent ormanından toplanan liken örneklerinden elde edilen biyosorbentler kullanılmıştır. Kurutulmuş liken örnekleri ve bu örneklerle hazırlanan kompozitlerin tekstil boyası giderimine pH, boya derişimi ve temas süresi etkisi belirlenmiştir. Çalışma sonuçlarına göre likenler kullanılarak yapılan kompozitin boya gideriminin kurutulmuş liken örneklerinin boya gideriminden daha fazladır. Bu çalışmada üretilen kompozitin ucuz ve etkin bir biyosorbent olarak kullanılması önerilmektedir.

Anahtar Kelimeler: Atıksu arıtmı, tekstil boya, kompozit, liken,

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➢ **POSTER PRESENTATION**

Synthesis of pyrazoline derivatives that are exocyclic substituted with the steroid molecule

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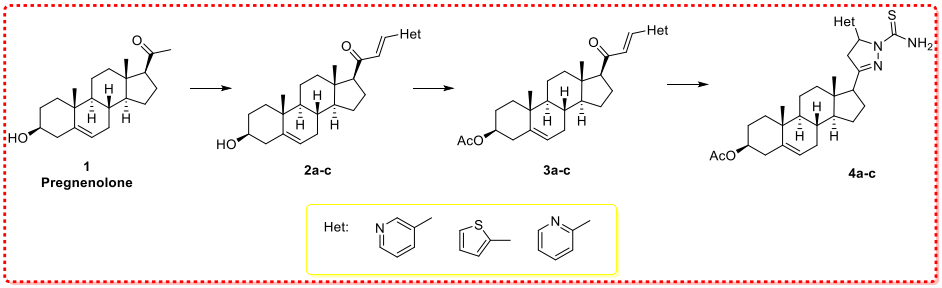
Abstract



Naturally occurring compounds like steroids has attract much attention of synthetic organic and medicinal chemist due to their tremendous number of biological activities. Researches were carried out on steroids which figured out their biological functions. Different pharmacological roles of natural compound like the steroids explore their different ring modifications. The biological functions of steroids increases potentially on modification by fused heterocyclic compounds such as pyrazole, indole, imidazole etc.

Steroids attracts much attention due to their special biological activities. With the exception of naturally occurring substances, most steroid drugs are semi-synthetic compounds prepared by adding specific functionality to the core structure of a steroid.

Aim of the study is the modification of C-20 and C-21 carbon atoms of Pregnenolone by pyrazoline derivatives with also novel heteroaromatic substituents substituted with the steroid D ring using thiosemicarbazide as the nitrogen nucleophile.

Keywords: Steroid, Pregnenolone, Pyrazoline.

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➢ **POSTER PRESENTATION**

Aroma composition of Lavender honey produced in southwestern Anatolia

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Abstract

Honey, an aromatic and viscous substance, is an important nutrient for people. It has a very high energy source. Turkey is one of the leading countries in terms of plant diversity and honey production thanks to its geographical location and climatic characteristics. For this reason monofloral honey types are consumed. Lavandula spp. honey is characterized a monofloral honey by a distinctive aroma, taste and a light amber colour. In monofloral honeys, one of the most important distinguishing features of nectar source of honey or botanical origin is the aroma of honey. For this reason, interest in scientific studies aimed at determining aroma components in terms of evaluate geographic origin or the naturalness of honey has increased recently. Identification of the volatile constituents of the monofloral honey can give a fast, reliable idea about the botanical source of honey. In this study ıt is aimed to determine aroma components of lavander honey produced in two different regions which have different pollen contents. Differences and similar components were investigated. For this study Lavender honeys were produced in Muğla-Ula Armutçuk village, Burdur and were provided with the contribution of Bee Growers Association. Aroma components of Lavender honey were determined qualitatively and quantitatively by HS-SPME-GC / MS method. The mass spectra of each component were identified using NIST2010 and Wiley library data. At the same time, the structures of all compounds detected in aromas were elucidated by taking into account the RI (retention indices) values and literature data. As a result of the analysis, 2-nonen-1-ol, linalool, (Z) -3-decen-1-ol, phenyl acetaldehyde, octane, 2-nonanon, alpha-pinene, alpha-terpineol and beta-damascenone are main components in the aroma of lavender honey. While 1, 8-cineol and phenyl acetaldehyde are present in the Lavender honey produced in Burdur, this components remains at the trace level in lavender honey produced in Muğla. On the other hand, 2-nonanon is found in a significant amount in Muğla, while it remains at the trace level in honey produced in Burdur. In addition, since 1-8-cineol, phenylacetaldehyde and 2-nonanone are common in both honey, It also form an opinion that these compounds can be originated from lavender plants. With the data obtained, we believe that the aroma components of Lavender honey have partial differences with respect to the region where honey is produced, and therefore, by optimizing the aromas, it is appropriate to use this method for honey determination.

Keywords: Lavender honey, HS-SPME-GC/MS, Aroma, 1-8-cineol, phenylacetaldehyde, 2-nonanone

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➢ **POSTER PRESENTATION**

Development of SWCNT decorated bimetallic nanocatalyst for the catalytic hydrolysis of methylamine-borane

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Özet

To date, many materials have been developed by the researchers for the chemical storage of hydrogen. Among these materials used for hydrogen storage, boron-nitrogen (B-N) containing compounds are of great interest both because of their high mass density of hydrogen and their stability and non-toxicity. Methylamine-borane (CH_3NH_2-BH_3, MeAB), an important B-N compound, is an ammonia-borane derivative and it has been studied in hydrolysis reactions over the past years due to massive hydrogen density of 11.96. Hydrolytic dehydrogenation of MeAB, 3 moles of hydrogen can be obtained per mole MeAB in the presence of a suitable catalyst.

In this work, we report a facile synthesis of single-walled carbon nanotubes (MWCNT) decorated novel metal based bimetallic nanocatalyst and its catalytic activity for the hydrolysis of MeAB. Novel metal based nanocatalyst was simply and reproducibiy prepared through wet-chemical deposition / reduction technigue and then characterized by various techniques. In addition, detailed kinetic studies on the catalytic reaction were performed to determine the activation energy, activation enthalpy and activation entrophy.

Anahtar Kelimeler: Catalysis, Hydrolysis, Methylamine-borane, Nanocatalyst, Single-walled carbon nanotube

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➢ **POSTER PRESENTATION**

Preparation, characterization and catalytic application of Vulcan carbon supported bimetallic nanocatalyst ın the hydrolytic dehydrogenation of dimethylamine-borane

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Abstract
Hydrogen has been evaluated to be an ideal energy source because of its zero carbon emission and high heat of combustion compared with traditional fossil fuels in recent years. Today, the safe and efficient storage of hydrogen is one of the most important and challenging problems in the hydrogen based energy policies. There are numerous solid hydrogen storage materials for chemical storage of hydrogen. One of which is dimethylamine-borane ($(CH_3)_2$-$NHBH_3$, DMAB). DMAB is appropriate materials due to their high efficiency of H_2 production, high stability, and non-toxicity. Their price is much lower than other B-N compounds such as ammonia-borane.
In this study, we report a facile synthesis Vulcan XC-72R carbon black supported nanocatalysts and its catalytic performance for the hydrolytic dehydrogenation of DMAB. Nanocatalysts were simply and reproducibly prepared classical techniques and characterized by ICP-OES, P-XRD, XPS, TEM and TEM/EDX analyzes.
Anahtar Kelimeler: Dimethylamine-borane, Hydrogen, Hydrolytic dehydrogenation, Nanocatalyst, Vulcan carbon

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➢ **POSTER PRESENTATION**

Simple synthesis and biochemical applications of functional graphene stabilized transition metal (0) nanoparticles

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Abstract

Production of novel and efficient antibacterial and anticancer agents are significantly required because of growing antibacterial resistance spectrum of bacterial infections and cancer events, respectively. One of the most lately developed biocidal materials is graphene and its derivatives are considered graphene-family nanomaterials (GFNs), which has been extensively studied. GFNs have diverse applications in material science, chemistry, biotechnology, and physics due to their excellent physicochemical properties.
Functionalized graphene derivatives have a strong interaction with metal ions due to functional groups on the surface or at the edges of graphene oxide. Thanks to their specific surface area, porous structure and rich surface charge, it is considered to be a valuable material for applications. In this context, functional graphene supported transition metal nanoparticles which were summarized above in their superior properties were prepared as ex-situ in aqueous media and characterized by advanced spectroscopic methods. Then biological properties (antimicrobial, antioxidant and DNA cleavage) of prepared metal nanoparticles were investigated.

Keywords: Application, Biochemical, Functional graphene, Metal nanoparticles

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➢ **POSTER PRESENTATION**

ZJU-5 Metal-organic framework structure: synthesis, characterization and uranium adsorption properties

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Abstract

Uranium occurs in primary deposits in nature, U(IV)O_2. Nowadays, uranium is used as a typical nuclear fuel to increase its power generation capability. Uranium ore has led to more and more U (VI) cations being released into the environment through operations such as mining, processing, fuel production, recycled fuel, and thus has become a common pollutant of uranium in soils, surface and groundwater. To remove the radioactive uranium from the aqueous solutions, various conventional methods are used such as chemical precipitation such as hydroxide, carbonate or sulfite, and subsequently liquid-solid separation, sorption, membrane processes and reverse osmosis, electrolytic recovery and liquid-liquid extraction. Adsorption is the most effective and simple method among these techniques.

In this work, the adsorption properties of ZJU-5 metal-organic framework (MOF) structures with pore volume (1.08 cm^3/g) and large surface area (BET surface area 2829 m^2/g) in the removal of uranium (VI) cation from aqueous solutions was investigated. Analytical and spectroscopic methods such as EA, XRD, TEM, TEM / EDX, NMR, FT-IR, BET and UV-vis were used to examine the properties of ZJU-5 to be prepared and the adsorption behavior of uranium ions on ZJU-5. Temperature, pH, mixing time and solution concentration parameters were observed to determine optimum uranium adsorption conditions on ZJU-5. The adsorption capacity of the uranium ion was determined and the kinetic, equilibrium and thermodynamic parameters were calculated and adsorption results were applied to different adsorption isotherm models.

Keywords: Adsorption, Kinetic, Metal-organic framework, Uranium, ZJU-5

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➢ **POSTER PRESENTATION**

Synthesis and biological activities of new fully-substitued cyclotriphosphazenes

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Abstract

Hexachlorocyclotriphosphazene ($N_3P_3Cl_6$, trimer) is also a very useful starting compound for obtaining the partly- and fully- substitued organocyclotriphosphazene derivaties. The replacement reactions of $N_3P_3Cl_6$ with bidentate reagents may give spiro-, dispiro- and ansa-, spiro-ansa-,bino- and trispiro-products, regio/stereoselectively. The yields and distributions of these products vary considerably depending on the structures of ligands, polarity of the solvents and reaction temperatures. In this work, the spectroscopic properties, molecular and crystal structures, DNA interactions and antimicrobial activities of the monospiro- trimeric phosphazenes formed from the reactions of the hexachlorocyclotriphosphazene with benzylamines containing N/O donor atoms and the fully substituted phosphazenes obtained by the reactions of partially substituted tetrachlorophosphazenes with secondary amines. Therefore, firstly, bidentate benzylamines have been obtained from the reactions of benzaldehyde with the appropriate aliphatic amines. The reactions of the benzylamines and trimer gave the mono-substituted phosphazenes depending on stoichiometric ratios. Then, the fully substituted derivatives have been synthesized using partly substituted tetrachloro compounds and secondary amines (pyrrolidine, morpholine, piperidine, DASD). The phosphazenes formed as a result of these reactions have been separated and purified using column chromatography. The solid state structures of the one phosphazene derivative, from which the appropriate single crystal can be obtained, were determined the conformations of the rings, bond lengths and bond angles. On the other hand, the antimicrobial effects and the DNA-interactions of the compounds have been investigated.

Keywords: Antibacterial, trimeric phosphazene, DNA interactions

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➢ **POSTER PRESENTATION**

Determination of tocopherol content of some medicinal plants cultivation in Konya

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Abstract

Konya is a region with rich agricultural potential where many plants are cultivated and cultivated with a large surface area. Apart from cereals and legumes, which contain basic nutrients, they are also produced in different medicinal plants. The main purpose of this study was to determine the amount of tocopherol of some medicinal plants (lavender, Turkish oregano, lemon balm, salvia species, german chamomile and black seed) grown in controlled plots in Çumra region of Konya. In Konya and its region, cereals rich in vitamin E (tocopherol) are produced in agricultural terms. However, medicinal plant production is not done enough. The aim of this study is to reveal alternative plants as a source of tocopherol. Another purpose is to increase the economic value of these plants by revealing plants that may be different tocopherol sources and to take part in the production pattern. In this study, an automated HPLC system for determination of tocopherol profile of some medicinal plants in Konya was used. It was seen that the medicinal plants analyzed have high amounts of alpha tocopherol mostly. The biggest total tocopherol amount was 2798,5677 ± 24,4063 mg/kg oil and the lowest amount was 5,8803 ± 0,0182 mg/kg oil.

Keywords: Tocopherol profile, Liquid chromatography, Medicine plants.

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➢ **POSTER PRESENTATION**

Bioreduction of acetophenone using *Lactobacillus Kefir* whole cells: Optimization by responce surface methodology

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Abstract

Chiral alcohols are very important intermediates in the synthesis of enantiomerically pure pharmaceuticals. For example, the conversion of substituted acetophenones to their corresponding optically active alcohols (phenylethanols) is one of the most common reactions in organic chemistry. (*R*)-1-Phenylethanol or (*S*)-1-phenylethanol have a number of potential applications and used as building blocks for the synthesis of bioactive compounds such as pharmaceuticals, agrochemicals and natural products. Enzymatic or microbial production of the chiral alcohols is the best method of preparation of them from the corresponding ketones. Living cell catalyzed bioreduction of ketones proceeds effectively in suspended (free) whole cell systems.
In this study, bioreduction of acetophenone was investigated using *Lactobacillus kefir* whole cells having high enantioselectivity for (*R*)-1-phenylethanol. Responce Surface Methodology (RSM) was used for optimization process parameters. Bioreduction experiments were accomplished and the effects of substrate concentration, amount of biocatalysts (living whole cells of *Lactobacillus kefir),* reaction time were investigated in batch system. Beside these, cofactor regeneration is important for bioreduction reactions going on enzymes using cofactors (NADH or NADPH). Thus, glucose concentration was also choosen as a process parameter. These parameters for RSM were coded as substrate concentration (x_1), glucose concentration (x_2), amount of whole cells (x_3), reaction time (x_4). For substrate, glucose and whole cells concentrations, 23 mM, 111 mM, 15 g/L were choosen as the center point (zero level), respectively. Reaction time was investigated from 2 to10 h and 6 h was taken as center point. For responce, (*R*)-1-phenylethanol concentration was choosen and the levels of coded parameters were given in Table 1.

Table 1. Coded process parameters and levels for responce surface methodology

		Levels of Coded Parameters				
Process parameters	**Coded parameters**	**-2**	**-1**	**0**	**1**	**2**
Substrate concentration, mM	x_1	5	14	23	32	41
Glucose concentration, mM	x_2	29	70	111	152	193
Amount of whole cells, g/L	x_3	5	10	15	20	25
Reaction time, h	x_4	2	4	6	8	10

The RSM experiments were performed. The "Design Expert" software (Version 6.01, Stat-Ease Inc., Minneapolis, USA) was used for regression and graphical analysis of the data obtained. According to results, substrate concentration and reaction time are the most important parameters on (*R*)-1-phenylethanol concentration. The following regression equation was obtained as an empirical relationship between (*R*)-1-phenylethanol and the test variables in coded units.

$$y = 20.70 + 8.27 \cdot x_1 + 0.19 \cdot x_2 + 0.08 \cdot x_3 + 0.04 \cdot x_4 + 0.23 \cdot {x_1}^2 - 0.09 \cdot {x_2}^2 - 0.09 \cdot {x_3}^2 + 0.05 \cdot {x_4}^2 + 0.11 \cdot x_1 x_2 + 0.07 \cdot x_1 x_3 + 0.35 \cdot x_1 x_4 - 0.04 \cdot x_2 x_3 - 0.24 \cdot x_2 x_4 + 0.05 \cdot x_3 x_4$$

Keywords: Acetophenone, Bioreduction, *Lactobacillus kefir*, Optimization

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➢ **POSTER PRESENTATION**

Antibacterial effects of disinfectant containing 10% povidone iodine according to TS EN 1276

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Abstract

Analysis required for the registration of biocidal products, the T.C. Ministry of Health of Turkey"working principles and procedures of Biocidal Products Laboratory Analysis" is performed in the direction. These analyses include physical, chemical analysis, stability tests and biological activity studies. Microbiological efficacy tests of disinfectants and antiseptics within the first main group are carried out using national and international standard methods. Microbiological tests which must be carried out in human hygiene products, enable the safe use of these products for public health before they are placed on the market. TS EN 1276 standard is used to determine the antibacterial activity of chemicals and antiseptics. The method is based on the principle of detection of the logarithmic reduction obtained by contacting the microorganisms with the sample to be tested. Hygienic hand disinfectant, equipment disinfectant and surface disinfectant as a method of determining the effectiveness of chemicals in public-personal and food-feed areas. To determine the antibacterial activity by using microorganisms of *Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa* and *Enterococcus hirae* in chemical disinfectants and antiseptics. In the analyses performed with 10% povidone iodine solution prepared in laboratory environment, the activity test was performed under clean conditions for 1 minute contact time by using the appropriate neutralizer for the active substance. Petri dishes were incubated at 36 ° C for 20 - 24 hours. At the end of the incubation period, the colonies were evaluated and evaluated. It is stated that the prepared solution is effective by seeing the required logarithmic reduction. As a result, the TS EN 1276 method has been elaborated with analyses and the effectiveness of the product used as a prototype has been demonstrated with pre-validation studies.

Anahtar Kelimeler: Antibacterial Activity Test, TS EN 1276, Povidone iodine

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➢ **POSTER PRESENTATION**

Surimi ürünleri

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Özet

1940'lı yılların başlarından beri surimi teknolojisi ve bu teknolojiye dayanan ürünlerin geliştirilmesi Uzak Doğu, Amerika Birleşik Devletleri ve Avrupa ülkelerinde önemli bir yere sahiptir. Surimi, Japonca genel bir terimdir, protein ekstraktı olarak bilinmektedir. Depolanması, taşınması ve tüketiminin kolaylığı sebebi ile Uzak doğudan doğan bu ürün grubu hızla dünyaya yayılmaktadır. Türkiye'de ise henüz surimi teknolojisine dayanan gıda üretimi mevcut değildir. Türkiye; 8000 km kıyısı, 1200 hektardan büyük gölleri ve sayısız akarsularıyla zengin bir su ürünleri potansiyeline sahiptir. Dünya nüfusunun hızla artması sebebi ile insanlar yeni protein kaynaklarına yönelmektedirler. Hayvansal kaynaklı ürünler protein içeriği yüksek gıdalar arasında yer almaktadır ve balıketi protein bakımından oldukça zengindir. Surimi imalatı; iç organların, başın ve omurgaların uzaklaştırılması ile yağ, kan ve kokulu maddeler gibi istenmeyen maddelerin yıkanarak kıyılmış balık etinden çıkarılması ve miyofibriller proteinin konsantrasyonunu artırmak için kıyılmış balık etinin soğutulmuş su ile tekrar tekrar yıkanması ile gerçekleştirilir. Bu işlemler sonucunda aminoasitlere, ribonükleotidlere, organik bazlara, şekerlere ve organik asitlere dayanan karakteristik balık tadı büyük bir olasılıkla ortadan kaldırılır. Balık eti yüksek protein içeriğinin yanı sıra vitamin ve mineral madde içermesi ile sindirilebilirlik açısından da önemli özelliklere sahiptir. Üretimde en çok kullanılan surimi ürünleri Alaska mezgiti (*Therogro cholocogrammaotör*) ve kırmızı berlam (*Uronophcis chussotör*) balığıdır. Dondurulmuş surimi uzun raf ömrüne sahiptir ve çeşitli teknolojik işlemler sonucu katkı maddelerinin ilavesiyle surimiye dayalı ürünlerin üretilebilmesi gibi faktörler surimi teknolojisinin gelişmesini sağlamıştır. Surimi 60 değişik balık çeşidinden üretilebilmektedir ve her tür için az çok değişik üretim tekniği gerektirmekle beraber genel olarak üretim teknolojileri aynıdır.

Anahtar Kelimeler surimi, protein, balık

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➢ **POSTER PRESENTATION**

Solubility and Dissolution Enhancement of Posaconazole with Polymethacrylate Carrier using Hot Melt Extrusion

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Abstract

A new antifungal agent, posaconazole has been attracting great attention due to its effective antifungal properties. However, it has a highly lipophilic crystalline structure resulting in poor water solubility, and thus reducing its dissolution and oral bioavailability. Recently, solid dispersion by hot melt extrusion (HME) has been used as a facile method to enhance posaconazole solubility. In HME method, the drug is blended with a polymeric carrier and processed to overcome solubility issues by changing the crystalline structure of the drug to amorphous form. The aim of this study is to propose an alternative hydrophilic polymer carrier Eudragit EPO (Amino Methacrylate Copolymer) to produce Eudragit EPO-Posaconazole extrudates, and thus to improve the solubility of posaconazole. The obtained extrudates were characterized using DSC, XRD, FT-IR and *in vitro* dissolution tests. The performance of Eudragit EPO as a carrier was compared with the state-of-the-art polymers including Soluplus and Povidon. The results revealed that the posaconazole extrudates produced by HME technique using Eudragit EPO were fully amorphized. The *in-vitro* dissolution studies showed that the HME processed Eudragit EPO-posaconazole has a five-fold higher dissolution rate compared to the initial physical mixture. Further, when compared with other polymeric carriers, Eudragit EPO enabled more significant drug release. Therefore, we conclude that Eudragit EPO polymer is an appropriate alternative in HME process to prepare a formulation of posaconazole with improved dissolution and solubility.

Keywords: Posaconazole, Hot melt extrusion, Polymer, Solubility, Eudragit EPO

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➢ **POSTER PRESENTATION**

Microwave assisted synthesis of pectin-based copolymers

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Abstract

Pectin is a natural anionic plant polysaccharide found in vegetables and fruits. It is composed of large quantity of poly(D-galacturonic acid) bonded via α-1,4-glycosidic linkage having carboxyl groups, which are partially in methyl ester form. The functionalization of pectin with synthetic polymers has attracted great attention due to its application in many industrial fields especially in food and pharmaceutical industries. In this study, we have attempted to synthesis graft copolymer of pectin with poly(N,N-dimethylaminoethyl methacrylate), which is thermo-responsive polymer, under microwave irradiation. The structure, molecular weight and thermal stability of the graft copolymers were investigated using FTIR, GPC and TGA/DSC analyses. The effects of various process parameters on grafting were systematically studied: microwave power, monomer and pectin concentrations. In addition, lower critical solution temperatures (LCST) of graft copolymers were determined by UV spectroscopy. The obtained results reveal that graft copolymers are thermo-responsive, with LCST of 41 °C. Therefore, based on the results the synthesized copolymers could be considered as a promising copolymer for stimuli-responsive drug delivery system.

Keywords: Pectin, Copolymer, Thermo-responsive polymer.

Acknowledgement

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➢ **POSTER PRESENTATION**

Functional Effects of Probiotic Foods on Human Health

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Abstract

The popularity of functional foods has increased in recent years. The most widely known and most commonly consumed group of functional foods is probiotic foods. The number of studies on probiotic microorganisms used in the production of probiotic foods has increased significantly over the last two decades. Probiotics, means that 'for life' as the origin of the word, have beneficial effects on human and animal health. Probiotic microorganisms include various bacterial species, such *as Lactobacillus, Propionibacterium, Streptococcus, Bacillus, Lactococcus, Enterococcus, Pediococcus, Bifidobacterium, Bacteroides, Akkermansia*; different species of yeasts such as *Saccharomyces, Candida*, and various mold species such as *Aspergillus*.

There are many studies on the effects of probiotics on human health. In this review, the effects of probiotic microorganisms on the health due to the metabolites they produced, and the mechanisms of this effect were explained. Studies have shown that probiotic microorganisms are effective in the prevention and/or treatment of many diseases such as lactose intolerance, necrotizing enterocolitis, inflammatory bowel diseases, constipation, *Helicobacter pylori* infection, cardiovascular diseases and cancer. When the results obtained are evaluated, it is seen that microorganisms used in probiotic foods are composed of more than one genus/species which can provide combined effect instead of a single species/strain, thus increasing the bioavailability. However, it has been emphasized that the desired effect with probiotic consumption can only be achieved by the inclusion of food containing probiotic microorganism as a part of daily diet and by regular consumption.

Keywords: Functional food, Probiotic microorganisms, Nutrition, Human health.

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➢ **POSTER PRESENTATION**

Electrochemical determination of 2-nitrophenol using 3-amino-1,2,4-triazole-5-thiol covered pencil graphite electrode in water samples

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Abstract

2-Nitrophenol (2-NP) is an important nitroaromatic group and used for the preparation of pharmaceuticals, dyes, explosives, pesticides, herbicides, textile, and other chemical intermediates [1]. 2-NP has been already listed by The Environmental Protection Agency (EPA) as one of priority pollutants because of its carcinogenicity and bioaccumulation [2]. So, its easy, rapid determination with a low detection limit is important. Electrochemical, chromatography, spectroscopy methods have been used for the determination of 2-NP. Among these methods, electrochemical methods are preferred due to low cost, not requiring pretreatment, high sensitivity features [3].

In this study, a pencil graphite electrode (PGE) modified with 3-amino-1,2,4-triazole-5-thiol using cyclic voltammetry (CV) was prepared. Prepared electrode was used to determine 2-NP by differential pulse voltammetry (DPV). For this reason, optimum conditions were firstly investigated such as covering cycle, electrode length, supporting electrolyte, pH. The modification procedure of PGE was performed between -1.2 and +2.0 V potential range with 25 CV at 100 mV s^{-1} sweep rate. The proposed electrode was successfully utilized for the sensitive determination of 2-NP in water samples.

Keywords: Pencil graphite electrode, 2-nitrophenol, differential pulse voltammetry.

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➢ **POSTER PRESENTATION**

Maniola Jurtina (Lepidoptera: Nymphalidae) Proboscis Morfolojisi

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Özet

Lepidoptera (kelebekler ve güveler) 47 süper familyada tanımlanmış yaklaşık 160.000 tür içeren en kalabalık böcek takımlarından biridir. Erginleri emici ağız tipine sahip olup çoğunluğu anthophilous (çiçekle beslenen-seven) ; çiçek nektarını ve diğer sıvı maddeleri emmek için kullanılan bir hortuma sahiptirler. Bununla birlikte, birçok türün, çamur birikintileri, şeker, memelilerin ter, lakrimal sıvı ve yara eksüdatlarını emdiği de bilinmektedir. Besinlerini tübüler bir proboscis vasıtasıyla alır.Proboscis dinlenme halinde kıvrılmış olarak başın alt tarafında durur. Beslenme sırasında açılarak düz bir durum halini alır. Emme hortumu dorsal olarak ve ventriküler olarak "legulae" olarak adlandırılan bir yemek kanalı oluşturan kütiküler projeksiyonlarla birleştirilen, iç içe geçmiş iki uzun Maksiller galeae'dan oluşur. Parçanın enine kesiti incelenirse her bir galeanın bir oluk şeklinde olduğu ve bunların karşılıklı durmaları ile de hortumun meydana geldiği görülür. Galea üzerinde duyu organı olarak görev yapan sensillalar bulunur. Sensillaların yapısı beslenme ilişkilerinin ortaya konulmasında önemli bilgiler sunar. Bu çalışmada *Maniola jurtina*'nın proboscisi çalışılmıştır. Örneğin hortumu stereo mikroskobu ile çekilmiş daha sonra kafa thorakstan pens yardımı ile koparılmış ve altınla kaplanarak sem de incelenmiştir.

Maniola jurtina Satyridae familyasinda yer alır. Larvaları graminae türleri ile beslenen türün erginleri polyphag olup çiçek nektarıyla beslenir. Proboscis 4 sıra oluşturacak şekilde sarılmıştır. Galeal yüzey pürüzlü yapıdadır diken bulundurmaz. Sırt bölgesinde ve hortumun ventral galeal duvarlarında farklı sensillalar vardır. *Maniola jurtina*'da 3 farklı sensilla tipi görülür. Bunlar sensilla basiconica, sensilla styloconica ve sensilla trichodeadır. Dış hortum yüzeyinde sensilla basiconica düzensiz sıralar halinde bulunur, buna karşın yemek kanalında tek bir sıra oluştururlar. Sensilla trichodea galeanın proksimal bölgesinde, lateral ve ventral yüzeyde dağınık halde bulunur. Proboscisin distal bölgesinde keskin uçlu duyu konileri etrafına yerleştirilmiş altı dikenli kısa stylustan oluşan Sensilla styloconica (ss)bulunur. Modifiye edilmiş dorsal galeal bağ, yüksek türevli beslenme alışkanlığının bir uyarlaması olarak kabul edilir.

Anahtar kelimeler: Lepidoptera, proboscis, morfoloji

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➢ **POSTER PRESENTATION**

Farklı Et Kurutma Yöntemleri ve Dünyada Yaygın Olarak Tüketime Sunulan Kurutulmuş Et Ürünleri

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Özet

Et, kasaplık hayvanların iskelet kasları için kullanılan terimdir. Eski çağlardan beri temel besin kaynaklarımız arasında yer almaktadır. Etlerin raf ömrünü uzatmak için genellikle kurutma yöntemleri kullanılmaktadır. Çiğ etin raf ömrü oldukça kısa olduğu için kurutma işlemi hem üretici hem de tüketici için avantaj sağlamaktadır. Kurutma işlemi sırasında etten buharlaşarak ayrılan suyun miktarı genellikle et ağırlığının %60-70'lik kısmını oluşturmaktadır. Kurutulmuş et ürünlerinin mikrobiyolojik bozulmalara karşı korunabilmesinin temel prensibi; etin su aktivitesinin mikroorganizmaların üremeleri için gerekli değerin altına düşürülmesidir. Taze etin su aktivitesi 0.99-0.98 civarındadır. Geleneksel olarak bilinen en eski kurutma yöntemi, etin doğal koşullarda; belirli bir sıcaklık ve nemde farklı şekillerde kesilip güneş ışınlarının altında suyunun buharlaştırılmasıyla kurutulmasıdır. Endüstriyel tip kurutucular ise sıcak havalı kurutucular (fırın kurutucular, kabin kurutucular, tünel kurutucular, bantlı kurutucular, sandık kurutucular ve püskürtmeli kurutucular), valsli kurutucular, vakum kurutucular, dondurarak kurutucular, mikrodalgalı kurutucular olmak üzere 5 sınıfa ayrılabilmektedir. Dünyada yaygın olarak tüketime sunulan kurutulmuş et örneklerine örnek; pastırma, kilishi, odka, biltong, quvanta, charque, cecina, kaddid, jerky, pemmican, rougan. Bu ürünler bölgeye özgü soslarla ve baharatlarla karıştırılıp farklı tekniklerle kurutularak ve bölgeye has tüketim alışkanlıklarıyla tüketilmektedir. Bu çalışmanın amacı, kurutma yöntemlerini ele alarak tüketime sunulan farklı kurutulmuş et örneklerini derlemektir.

Anahtar Kelimeler: Kurutulmuş et, et kurutma yöntemleri, kurutma,

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➢ **POSTER PRESENTATION**

Surfactant-dye interactions in dodecyltrimethylammonium bromide solutions

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Abstract

The formation of surfactant-dye associations plays a key role in the dye industry such as in achieving dyeing level by assisting in wetting textiles and by controlling dye absorption by fibers [1]. For those industrial applications, the stability of the surfactant-dye complexes is crucial and dependent on the interactions between the dye and the surfactant molecules [2-4]. Especially, because of strong electrostatic interactions between ionic dyes and micelles formed by surfactants with oppositely charged head groups, they form molecular complexes. These complexes are mostly formed by dyes and surfactants at specific concentrations below the critical micelle concentration (CMC) of the surfactants [5]. Therefore, the studies of dye-surfactant interactions are subject to numerous investigations and provide useful information on the understanding of the characteristics of those interactions [6-9].
In the present study, we performed the specific interactions between anionic dye 'Sunset Yellow, SSY' and the micelles of the cationic surfactant 'dodecyltrimethylammonium bromide, DTMABr'. The critical micelle concentrations of DTMABr in the absence and in the presence of SSY were determined from electrical conductivity measurements. Four different SSY concentrations were chosen for the investigation of the SSY-DTMABr interactions. The results indicated that there exist strong interactions between the dye and surfactant molecules and these interactions get stronger as the concentration of the dye is increased in the dye-surfactant solutions.

Keywords: Surfactants, dyes, surfactant-dye interactions, electrical conductivity, micelle, critical micelle concentration.

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➢ **POSTER PRESENTATION**

İyonik sıvı modifiye edilmiş polimer sorbentlerle sulu çözeltilerden Zn(II) giderimi

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Özet

Dünya nüfusunun gün geçtikçe artması ve endüstriyel uygulamaların gelişmesi, tatlı suya olan ihtiyacı arttırırken aynı zamanda daha fazla miktarda atık su açığa çıkmasına neden olmaktadır. Özellikle tatlı suya olan talebin artması atık suların geri dönüşümünü zorunlu hale getirmektedir. Bu atık sular değişik toksik maddeleri içerdiğinden (organik kirleticiler, Cu, Zn, Fe,Hg, Cd, Pb,Co,Cr, Ni.. ağır metaller) önemli çevre sorunlarından birini oluşturmaktadır.

Çevre sorunu oluşturabilen ağır metallerin (Cu, Zn, Fe,Hg, Cd, Pb,Co,Cr, Ni) derişimlerinin izlenmesi ve giderilmesi çevre korunması açısından büyük önem taşımaktadır. Sulardan ağır metallerin giderilmesi için; çöktürme, nanofiltrasyon, ters osmoz, membran prosesi ve elektrodiyaliz gibi birçok yöntem kullanılmaktadır. Son zamanlarda bu klasik yöntemlerin yanında alternatif yöntemler de kullanılmaya başlanmıştır. Bu yöntemlerden biri sıvı-sıvı özütlemesi ile iyon değişimi arasında bağlantı kuran ve çevre dostu bazı iyonik sıvıların polimerlere emdirilmesiyle hazırlanan özütleyici emdirilmiş reçinelerdir.

Bu çalışmada, değişik çevre dostu iyonik sıvıların gözenekli polimerlere bağlanmasıyla elde edilen sorbentler(özütleyici emdirilmiş reçineler) kullanılarak, sulu çözeltilerde bulunan Zn(II) iyonlarının giderimine etki eden parametreler (optimum sorbent miktarı, pH, zaman, denge, yabancı iyon etkileri..) incelenmiş ve ticari reçinelerle performans karşılaştırması yapılmıştır.

Optimum özütleyici emdirme oranını bulmak amacıyla Purolite PAD500 ve Purolite MN202 polimer sorbentleri değişik oranlarda - bis-2,4,4-trimetilpentil-fosfinik asit(Cyanex 272) özütleyicisi ile karıştırılıp özütleyici emdirilmiş reçineler sentezlenmiş, ardından FT-IR ve TGA yöntemleri ile karakterizasyonları gerçekleştirilmiştir.

Her iki özütleyici emdirilmiş reçine ile yapılan çalışmalar sonucunda optimum reçine miktarı, 0.5g/ 25 mL, optimum çalışma pH'ı 6.5 olarak saptanmıştır. Özütleyici emdirilmiş reçinelerin, Zn(II) giderim kapasiteleri; PAD500-SIR için 6.32 mg/g, MN202-SIR için ise 5.55 mg/g olduğu hesaplanmış ve Langmuir izoterm modeline uygunluk gösterdikleri belirlenmiştir. Sentezlenen özütleyici emdirilmiş reçinelerin, dengeye ulaşma sürelerinin 60 dk olarak belirlenmiş, kinetik açıdan Pseudo 2.mertebe izoterm modeline uydukları saptanmıştır.

Özütleyici emdirilmiş reçinelerin Zn(II) giderim performanslarına, farklı derişimlerde hazırlanan Cu(II), Ni(II), Co(II) ve Cr(III) iyonlarının girişim etkileri de incelenmiş ve bu iyonların giderime bir etkisi olmadığı belirlenmiştir.

Anahtar kelimeler: İyonik sıvı emdirilmiş reçineler, Cyanex 272 , Zn(II), iyon değişimi, Purolite reçineler, Lewatit TP260

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➢ **POSTER PRESENTATION**

Investigation of the effect of strong and weak electrolytes on the symmetric tensor invariants of lyotropic nematic phases

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Abstract

Lyotropic nematic phases (LNPs) have been extensively studied in the literature to investigate their properties [1,2]. Three different LNPs are defined: discotic nematic (N_D), calamitic nematic (N_C) and biaxial nematic (N_B) phases [3,4]. From the optics point of view, the first two ones are uniaxial and the latter one is biaxial. The main property of the LNPs is that the local directors of their building blocks, so-called "micelles", exhibit average preferred alignment in a certain direction along the whole sample. The direction of preferred alignment in the LNPs is known as the "phase director" or "optical axis" [5]. There exist two different director alignments: either parallel or perpendicular to the magnetic field direction. While the director of the phase aligns perpendicular to the magnetic field in the N_D phase, the director in the N_C phase is in the parallel direction to the magnetic field.

The LNPs are characterized by a symmetric tensor order parameter [6,7]. They have the same symmetry of the optical dielectric tensor, $\vec{\epsilon}$, which can be chosen as the order parameter [8,9]. The anisotropic part of $\vec{\epsilon}$ is related to the birefringences and the symmetric tensor invariants of the tensor order parameters, σ_2 and σ_3 [9].

In the present study, we are reporting the effect of strong and weak electrolytes on symmetric tensor invariants of lyotropic mixtures presenting uniaxial and biaxial nematic phases. Polarizing optical microscopy and laser conoscopy techniques were used to characterize the properties of the nematic phases. The results indicate that the type of the electrolye is an important parameter on the symmetric tensor invariants of the nematic phases.

Keywords: Lyotropic nematic phases, uniaxial phase, biaxial phase, polarizing optical microscope, laser conoscopy, symmetric tensor invariants, electrolytes.

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➢ **POSTER PRESENTATION**

A comparative analysis of the effect of biopterin and neopterin on the viability and motility of HuH-7 cell line

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Abstract

Hepatocellular carcinoma (HCC) is an inflammation-related liver cancer. Neopterin and its derivatives such as biopterin are metabolites of guanosine triphosphate and are produced by the human monocyte-derived macrophages upon stimulation with γ-interferon. Various studies have suggested the involvement of biopterin in inducing programmed cell death by acting as a co-factor in induced nitric oxide synthetase generation which consequently leads to nitric oxide synthesis. In a previous study, the effect of neopterin on the viability and motility of Sk-Hep1, HuH-7, PLC/PRF/5, Hep3B and SNU-449 has been analysed. Our results revealed a significant decrease in SK-Hep1 viability after neopterin treatment. We also reported an increase in the motility of HuH-7, SK-Hep1, and SNU-449 cells under the treatment of neopterin. However, to the best of our knowledge there isn't any study about the effects of biopterin on the cytotoxicity and motility of HCC cell lines. In this study we aimed to proceed with a comparative analysis of the effect of neopterin and biopterin on the viability and 2-D migration of HuH-7 cell line. At concentrations of 10µM and 50µM, there was no significant efficacy on the viability of Huh-7, for both neopterin and biopterin treatments. However, neopterin drastically increased the motility of HuH-7 cell line even at concentration as low as 25µM, while biopterin did not seem to have any significant effect on the motility of Huh-7 even at high concentrations.

Keywords: HCC,neopterin,biopterin,proliferation,motility

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➢ **POSTER PRESENTATION**

Antioxidant and anticholinesterase studies of new boron-containing compound obtained from 3-methoxy catechol and boronic acid derivative

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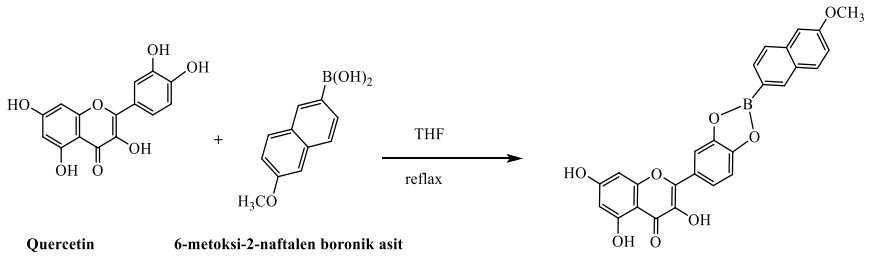
Abstract

Boron minerals and their derives are generally used in various areas of the industry such as glass industry, ceramic industry, cleaning industry, fire retardant and preventive material production, agriculture, metallurgy industry and in the field of medicine increasing in importance in recent years. In this studies, The new boron compounds synthesized and characterized and studied its biological activities (1).

Synthesis of Boron compound:1 mmol (0.302 g) of quercetine was dissolved in 25 mL of THF. Then 1 mmol (0.202 g) of 6-methoxy-2-naphthalene boronic acid was dissolved in 10 mL of THF and added to the reflux flask. The reaction was continued for 4-5 hours at 120°C. After heating, the solid in the solution was allowed to crystallize and was dried by washing in THF.



Quercetin **6-metoksi-2-naftalen boronik asit**

A new boron compound was synthesized and characterized from 6-methoxy-3-pyridinyl phenylboronic acid with quercetin. Obtained boron compound; The antioxidant activities were determined by CUPRAC, DPPH free radical and ABTS cation radical removal methods. Anticholinesterases activities were also examined.

Keywords: Quercetine, 6-methoxy-2-naphthalene boronic acid, biological activities

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➢ **POSTER PRESENTATION**

Purification and characterization of lipase produced by *Cryptococcus* strain isolated from petroleum sludge: Assessment of its application in industry area

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Abstract

Nowadays, microbial lipases have been started to occupy a significant place as industrial biocatalysts due to their regio-, chemo- and enantioselectivity characteristics. They are not only able to catalyze the hydrolysis of triglycerides to fatty acids and glycerol but also they can catalyze a wide variety of reactions such as esterification, transesterification etc. Therefore, they have a broad biotechnological applications in food, detergent, polymer, cosmetic, and pharmaceutical industries. Furthermore, microbial lipases are more stable and can be produced enzymes in bulk at low cost compared to plant and animal lipases. *Cryptococcus diffluen*s D44, which have the ability of producing lipase enzyme, are one of yeast strains isolated from petroleum sludge. This yeast strain produces lipase enzyme extracellularly and can stable in the presence of the organic solvents, especially methanol.

In this work, purification and characterization of lipase from *C. diffluens* D44 was achieved and the synthesis of sugar esters from D44 lipases was investigated, since sugar esters have been gaining popularity owing to their tremendous properties such as surfactant, emulsifier and antimicrobial agents etc. in various industrial areas. According to experimental results, D44 lipase has an ability to produce sugar esters.

Keywords: *Cryptococcus diffluen*s D44, lipase, sugar esters

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➢ **POSTER PRESENTATION**

İmidacloprid'in zebra balığı (*Danio rerio*) ventrikül dokuları üzerine histopatolojik etkileri

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Özet

Günümüzde yoğun pestisit kullanımı hedef dışı organizmalar için ciddi bir tehlike oluşturmaktadır. Özellikle sucul canlıların bu kimyasalların toksik etkilerine karşı son derece hassas organizmalar oldukları bilinmektedir. Bu çalışmada, son yıllarda sıklıkla kullanılan neonikotinoid bir insektisit olan İmidacloprid'in zebra balığı (*Danio rerio*) kalbinin ventrikülü üzerindeki histopatolojik etkilerinin araştırılması amaçlanmıştır. Ergin zebra balıkları beş gün boyunca 9,5 mg/L, 19 mg/L ve 38 mg/L olmak üzere üç farklı İmidacloprid konsantrasyonuna maruz bırakılmış, ayrıca hiçbir kimyasal madde eklenmeyen bir kontrol grubu oluşturulmuştur. Denemenin sonunda tüm örnekler uyuşturularak ventrikülleri çıkartılmış ve Bouin fiksatifinde tespit edilmiştir. Rutin histolojik işlemlerin ardından, dokular parafin bloklara gömülerek 5 µm kalınlığında kesitler alınmıştır. Kesitler hematoksilen-eozin ile boyandıktan sonra ışık mikroskobunda incelenmiştir. Kontrol grubu örnekleri ile karşılaştırıldığında İmidacloprid uygulamasının zebra balığı ventrikülünde kardiyomiyosit dejenerasyonu, vakuol oluşumu, enine bantlarda bozulma, hemoraji, hiperplazi ve nekroza yol açtığı kaydedilmiştir.

Anahtar Kelimeler: İmidacloprid, zebra balığı, ventrikül, histopatoloji

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➢ **POSTER PRESENTATION**

The potential of some plant-derived compounds in inhibition of α-amylase, which is important for diabetic patients

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Abstract

α-Amylase is an enzyme, which hydrolyse the biopolymer starch into its monomers, namely glucose, that causes hyperglycaemia and has a great importance especially in diabetic patients. After consuming starch rich foods, as a result of the α-amylase activity, the glucose concentration in the blood increases drastically, thus α-amylase inhibitors take account to decrease the activity of α-amylase, which is important in controlling the glucose concentration in the blood. It is known that several different compounds were discovered up to now, which are produced by microorganisms, plants, and animals, those can be used as α-amylase inhibitors.
The aim of this study was to determine the α-amylase inhibitory activity of some plant derived secondary metabolites, namely phloridzin, naringenin, quercetin, umbelliferone, cinnamic acid and curcumin, and the results were compared against a positive control, acarbose. As a result it was observed that quercetin with 5mg/mL concentration presented an inhibitory activity better than acarbose, while quercetin and umbelliferone with 10mg/mL concentration showed inhibitory activity very close to acarbose. Further study should be conducted to determine the mechanism of inhibiton.

Keywords: Phloridzin, naringenin, quercetin, umbelliferone, cinnamic acid, curcumin, α-amylase inhibition.

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➢ **POSTER PRESENTATION**

Inhibition of calcium oxalate crystals by *Nigella sativa*

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Abstract

The *Nigella sativa* (NS) seeds are frequently used in the traditional medicine in Middle-East and some Asian countries for the treatment of many diseases such as fever, head cold, headache, asthma, rheumatic diseases and various microbial infections. To our best knowledge, few studies have evaluated the effect of Nigella sativa on the prevention or the treatment of urinary lithiasis.

Urolithiasis is defined by the existence of calculi constituted mainly of calcium oxalate (CaOx) due to crystallization induced by the saturation conditions. We can distinguish calcium oxalate monohydrate calculi (COM) that are solid from those of calcium oxalate dehydrate (COD) that are friable.

Nigella sativa has been selected to evaluate its inhibiting efficiency on the calcium oxalate crystallization. We established an *in-vitro* model to study the morphology and the size of crystals and aggregates through optical light polarized microscope, by taking photography and completed by infrared analysis FTIR.

Synthetic urine that served in this study has been prepared by a mixture of two solutions of oxalate and the calcium. The study reveals that *Nigella sativa* proved to be efficient in the prevention of urinary calculi inducted experimentally and justifies the traditional claims. It is concluded that NS have beneficial inhibitory effect on *in-vitro* crystallization of CaOx. This result could be a motivation for further studies *in-vivo*.

Keywords: Calcium oxalate crystallization, *Nigella sativa*, inhibition, urolithiasis

➢ **POSTER PRESENTATION**

İmidacloprid'in zebra balığı (*Danio rerio*) solungaç dokusu üzerine histopatolojik etkileri

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Özet

Pestisitler, tarım alanlarında yüksek verim elde etme imkânı verse de yanlış ve bilinçsiz kullanımları yer altı sularını dolayısıyla sucul canlıları büyük tehlike altına sokmaktadır. Bu çalışmada tarım alanlarında tercih edilen böcek öldürücü bir pestisit türü olan İmidacloprid'in zebra balığı solungaç dokusundaki histopatolojik etkilerinin araştırılması amaçlandı. Çalışma kapsamında kontrol ve 3 deney (9,5 mg/L, 19mg/L, 38mg/L) grubu oluşturuldu.5 gün süre ile İmidacloprid'e maruz bırakılan (n=10)zebra balıklarının solungaç dokularına rutin histolojik yöntemler uygulandı. Ardından fiksatif, HE (Hematoksilen&Eozin) ve PAS yöntemleri ile dokular boyandı. Daha sonra solungaç dokuları incelenmek üzere ışık mikroskobu kullanıldı. İmidacloprid uygulaması sonucunda solungaç dokusundaki hücrelerde hiperplazi, primer lamelde vakuolizasyon,apikal füzyon,hipertrofi,kanama,sekonder lamelde vakuolizasyon gözlendi.

Anahtar Kelimeler: imidacloprid, solungaç, zebra balığı, histopatoloji

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➢ **POSTER PRESENTATION**

Çanakkale Boğazı'ndan avlanan bazı ekonomik balık türlerinin besin değerlerinin belirlenmesi

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Özet

Bu çalışma Çanakkale Boğazı'ndan avlanan bazı ekonomik balık türlerinin besin değerlerini belirlemesi amacıyla yapılmıştır. Balık türleri Kasım 2018 av sezonu içerisinde kolaylıkla bulunabilen ekonomik öneme sahip balık türlerinden seçilmiştir. Bu balık türleri kolyoz, istavrit, tekir, hamsi, sardalya, mezgit, zargana, uskumru ve lüfer olarak belirlenmiştir. Balıklar Çanakkale Balık Hali'nden sabah saatlerinde mezattan alınarak soğuk muhafaza koşullarında (+4ºC) analizlerin yapılacağı laboratuvara getirilmiştir. Laboratuvara getirilen balıklar baş ve iç organları çıkarıldıktan sonra kıyma haline getirilmiştir. Bu kıyılmış balık örnekleri her balık için 4 parçaya ayrılmış ve her parça farklı analiz için kullanılmıştır. Balıkların besin içeriklerini belirlemek amacıyla protein, yağ, kül ve su analizleri yapılmıştır. Yapılan analizler sonucunda balıklarda su, ham protein, ham yağ ve ham kül içerikleri sırasıyla kolyoz balığında %74,49±6,92; %17,18±1,03; %6,79±0,78; %1,54±0,04 olarak, istavrit balığında %73,83±6,98; %13,17±0,68; %11,48±0,04; %1,52±0,08 olarak, tekir balığında %67,05±1,10; %16,09±0,54; %15,85±1,18; %1,01±0,14 olarak, hamsi balığında %76,74±7,06; %16,39±0,72; %5,55±1,31; %1,31±0,24 olarak, sardalya balığında %67,44±1,13; %18,00±0,41; %13,17±1,17; %1,40±0,11 olarak, mezgit balığında %79,61±1,53; %17,06±0,89; %1,69±0,13; %1,64±0,16 olarak, zargana balığında %69,43±1,36; %21,95±1,19; %6,76±0,39; %1,86±0,08 olarak, uskumru balığında %70,18±7,65; %18,64±1,01; %9,53±1,43; %1,65±0,21 ve Lüfer balığında %71,84±3,57; %16,16±0,56; %11,02±0,41; %0,98±0,02 olarak tespit edilmiştir. En yüksek su içeriği %79,61±1,53 ile mezgit balığında, en yüksek protein içeriği %21,95±1,19 ile zargana balığında, en yüksek yağ içeriği ise %15,85±1,18 tekir balığında tespit edilmiştir. Çalışmadaki tüm balık türlerinin protein içeriği bakımından oldukça yüksek besin değerine sahip oldukları ve en yüksek protein içeriğine sırasıyla zargana, uskumru, sardalya ve kolyoz balıklarının sahip olduğu belirlenmiştir. Balıklardaki yağ miktarı yağ asitleri ile de ilişkili olduğundan oldukça önemlidir. Çalışmada analizi yapılan balıklarda en yüksek yağ içerikleri tekir, sardalya, istavrit ve lüfer balıklarında tespit edilmiştir. Sonuç olarak inceleme yapılan tüm balık türlerinin besin değeri olarak oldukça iyi bir besin değerine sahip oldukları belirlenmiştir.

Bu çalışma Rüveyde ESER'in tez çalışmasının bir bölümünü içermektedir.

Anahtar kelimeler: Çanakkale Boğazı, ekonomik balık, besin değeri

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➢ **POSTER PRESENTATION**

İstanbul Balık Hali su ürünleri pazarlama sektöründe çalışanların hijyen ve sanitasyon konusundaki bilgi düzeylerinin belirlenmesi

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Özet

Bu çalışma İstanbul Balık Hali'nde pazarlama ve satış elemanı olarak çalışan kişilerin hijyen ve sanitasyon konusundaki bilgi düzeylerinin belirlenmesi amacı ile yapılmıştır. Çalışanların bilgi düzeylerini belirlemek amacı ile daha önce yapılmış olan çalışmalardan hazırlanan anket soruları sektöre uygun hale getirilerek bir anket formu oluşturulmuştur. Yapılan anket çalışmasında 15 ayrı işletmede çalışan 100 kişiye anket uygulanmıştır. Çalışanlara cinsiyet, yaş, çalışma yılı, eğitim durumu, medeni hal, mesleki tecrübe, işletmede uygulanan hijyen çalışmaları, hijyen eğitimi, denetleme, haşere mücadelesi, kullanılan alet ekipmanların uygunluğu ve yeterliliği, sağlık kontrolleri, kişisel hijyenleri, ürünlerin pazarlanma ve depolama koşulları, atıkların uzaklaştırılması vb. konularda yüz yüze sorular sorularak anket bilgileri toplanmıştır. Anket sonuçlarına göre çalışanların ağırlıklı olarak 31-50 yaş aralığında olduğu, %92'sinin evli olduğu, %90'ının ilk ve ortaokul mezunu olduğu, %59'unun 10 yılı aşkındır aynı işletmede çalıştığı, %29'unun ise 6-10 yıl arasında aynı işletmede çalıştığı belirlenmiştir. Çalışanların %76'lık kısmının çalıştığı işletmelerde pazarlanan ürünlerin taze su ürünleri, donmuş su ürünleri, marine su ürünleri ve konserve su ürünleri olduğu, diğerlerinde ise sadece taze ve donmuş su ürünlerin pazarlandığı saptanmıştır. Tüm çalışanların işletmede çalışmaya başlamadan önce personel hijyeni, işletme hijyeni ve alet-ekipman hijyeni konularında eğitim aldıkları belirlenmiştir. Anket yapılan çalışanların %86'sının rutin sağlık kontrollerini yılda bir, %10'unun altı ayda bir ve %4'ünün ise üç ayda bir yaptırdığı tespit edilmiştir. Çalışanların %21'i işletmelerinde bir kalite güvence sistemi (HACCP, İSO, GMP gibi) uygulandığını ancak hangisi olduğunu bilmediklerini, %79'unun ise uygulanıp uygulanmadığını konusunda herhangi bir bilgi sahibi olmadıklarını belirtmişlerdir. Çalışanlar ayrıca işletmelerinin düzenli olarak Tarım ve Orman Bakanlığı personeli tarafından denetlendiklerini ifade etmişlerdir. Anket çalışması yapılan 15 işletmede de pazarlama yapılan zeminlerde kaymaz, kaydırmaz ve suya dayanıklı yapı malzemelerinin kullanıldığı, yan duvarlar ve tavanda ise alüminyum panel kaplama malzeme kullanıldığı belirlenmiştir. Ayrıca her işletmenin kendine ait bir soğutma ve dondurma depolama alanın olduğu görülmüştür. Çalışanlar işletmelerinde gün içerisinde kullanılan pazarlama alanı, tezgâhlar ve depolama alanlarının gün sonunda uygun temizlik ve dezenfektan maddeleri ile temizliğinin yapıldığı belirlenmiştir. Tüm işletmelerde herhangi bir kontaminasyona mahal vermemek amacıyla zararlı canlılarla mücadele yapıldığı bu işlemlerin işletmenin kendi imkanları ile gerçekleştirildiği saptanmıştır. Çalışanlar işletme alanında evsel ve su ürünleri atıkları için ayrı alanların olduğunu ve gün içerisinde düzenli olarak bu atıkların işletmeden uzaklaştırıldıklarını belirtmişlerdir. Çalışanlar işletmelerinde kullanılan suyun arıtılarak sisteme alındığını, kullanılan lavaboların fotoselli özellikte olduğunu ve kullanılan suyun drenaj kanalları ile ortamdan uzaklaştırıldığını bildirmişlerdir. Ankete katılan tüm çalışanlar mesai saatleri içerisinde mavi renkli iş elbisesi giydiklerini, eldiven ve bone takmadıklarını belirtmişlerdir. Çalışanların %63'ü ellerini kirlendiği zaman, %33'ünün ise her işlemden sonra yıkadığı belirlenmiştir. Tüm çalışanlar gün sonunda pazarlanamayan ürünlerin özelliği ve mevcut durumuna göre soğutma veya dondurma alanlarına aldıklarını ve bu alanlardaki sıcaklıkların düzenli olarak kontrol edilerek kayıt altına aldıklarını, uygun olmayan su ürünlerinin ise atık alanlarına gönderildiklerini belirtmişlerdir. Sonuç olarak yapılan anket çalışması sonuçlarına göre İstanbul Balık Hali'nde çalışan kişilerin uygulamada birtakım eksiklikleri olsa da genel anlamda işe başlamadan önce aldıkları hijyen eğitimleri sonucunda edindikleri bilgi birikimi ve bu bilgilerin büyük bir çoğunluğunu uyguluyor olmaları hijyen ve sanitasyon konusundaki bilgi düzeylerinin oldukça iyi durumda olduğunu göstermektedir.

Bu çalışma Nuran ÇOLA' nın tez çalışmasının bir bölümünü içermektedir.

Anahtar kelimeler: İstanbul Balık Hali, Personel, Hijyen, Sanitasyon

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➢ **POSTER PRESENTATION**

Properties and utilization of transglutaminase enzyme in meat and meat products

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Abstract

It has been discovered that enzymes can be used to alter the functional properties of foods including meat and meat product, seafoods, edible films, bakery products and dairy products. Transglutaminase (TG) enzyme has now become of great interest to food scientists. Up to 1989, commercial TG has been obtained from animal tissues. In 1989, microbial TG was isolated from *Streptoverticillium* sp. The utilization of TG enzyme in those products to catalyse the formation of isopeptide bonds between proteins results in crosslinkage. This crosslinkage improves the water binding capacity, elasticity, firmness, heat stability and viscosity of foods especially meat products. This paper gives an overview of the utilization of TG and microbial TG enzymes in meat and meat products.

Keywords: Transglutaminase, meat and meat products, functional properties.

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➢ **POSTER PRESENTATION**

Some physical and chemical properties of chicken breast meat marinated with different amounts of ginger oleoresin

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Abstract

In the current study, effects of utilization of different amounts of ginger oleoresin on some physical and chemical properties of marinated chicken breast meat were evaluated. For this purpose, chicken breast meat was divided into three groups and named as Control (C), 05G and 1G. The marinate formulation consisting of olive oil, water, milk and salt was used for all groups. To produce 0.5G and 1G groups, ginger oleoresin was added with the percentages of 0.5% and 1% of meat to the marinates, respectively. All groups were marinated for two hours at 4°C. Following the marination stage, chicken breast meats were vacuum packed and stored at 4°C for three weeks. To determine the effects of ginger oleoresin on physical and chemical properties of marinated chicken breast meat samples; pH, titratable acidity, color (CIE L*a*b*), water activity, thiobarbituric acid (TBA, mg malonaldehyde/kg sample) and cooking loss values were measured at the sampling stages mentioned above. The moisture, protein, fat, ash and salt contents of all samples were also measured. It was determined that moisture, protein, fat, ash and salt contents of the samples were in the ranges of 76.26-76.49%, 19.51-2030%, 1.16-1.51%, 1.48-1.55% and 0.97-1.17% , respectively. Although utilization of ginger oleoresin did not had significant effects on the pH value ($p>0.05$), the pH values of the samples showed significant increases during storage ($p<0.05$). It was determined that titratable acidity and water activity values of the samples showed slight increases and decreases during storage periods. The TBA values of the samples were in the range of 0.562-0.583 mg malonaldehyde/kg sample) at the end of the storage. Utilization of ginger oleoresin with the amount of 1% had no significant effects on a* values of samples. The results of the current study showed that ginger oleoresin could be used to marinate chicken breast meat.

Keywords: Ginger oleoresin, marination, chicken breast meat, physical properties, chemical properties

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➢ **POSTER PRESENTATION**

Effect of oxygen transfer on bacterial polymer production and preparation of bacterial polymer blend having adhesive properties

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Abstract

Biopolymers synthesized from different types of bacteria can serve diverse biological functions. Since they are composed of non-toxic and natural components, and considered as biocompatible, they are easily applicable to the industrial and medical fields. For the production of bacterial polymer, several types of microorganism can be used depending on the backbone structure of the polymer produced. In order to enhance and increase the yield of bacterial polymer production from bacteria, the effect of dissolved oxygen concentration was investigated using different working volumes in the same flasks at different temperatures. The effect of dissolved oxygen concentration was expressed by calculating Critical Circulation Frequency (Nc). Depending on Critical Circulation Frequency (Nc), the results showed that the amount of biopolymer was reduced with the decrease in dissolved oxygen concentrations. Then the bacterial polymer produced by *K.hansenii* was resolved in different concentrations of acetic acid. Multicomponent biopolymer was obtained by mixing the bacterial polymer/acetic acid solution with two different biopolymers. After blending the polymers, it was found that the multicomponent biopolymer has adhesive properties. Depending on the properties of multicomponent biopolymer, it can be used in orthopedics, toys and cosmetics sector.

Keywords : Komagataeibacter hansenii, bacterial polymers ,oxygen concentration, multicomponent biopolymer

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➢ **POSTER PRESENTATION**

Essential oil composition of different parts of *Tanacetum cilicicum*

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Abstract

The Genus *Tanacetum*, belonging to Asteraceae family, is represented by 46 species in Turkey. *Tanacetum* species are used in the treatment of arthritis, fever, migraine, menstrual disorders, stomach-ache, toothache and insect bites in the folk medicine. Also, it is reported that different *Tanacetum* species have anticancer, antimicrobial, anti-inflammatory and antioxidant activities. *Tanacetum* species contain essential oils, flavonoids and sesquiterpene lactones as secondary metabolites. In this study, Water-distilled essential oils from capitula and aerial parts (leaves and stems) of *Tanacetum cilicicum* (Boiss.) Grierson from Turkey were separately analyzed by GC and GC/MS. Forty and thirty-two compounds were identified, representing 99% and 94.4% of the oils of *Tanacetum cilicicum* capitula and aerial parts, respectively. The main constituents of the oil of the capitula were camphor (28.8%), (E)-nerolidol (16.9%), trans-chrysanthenyl acetate (12.8%) and 1,8-cineole (8.9%), whereas the oil from aerial parts comprised mainly trans-chrysanthenyl acetate (22.2%), borneol (19.4%), camphor (11.2%), 1,8-cineole (10.2%) and (E)-nerolidol (9.2%).

Keywords: *Tanacetum cilicicum*, essential oil, 1,8-cineole, camphor, (E)-nerolidol, trans-chrysanthenyl acetate.

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➢ **POSTER PRESENTATION**

Catalytic deoxygenation of waste cooking oil to produce fuel-like hydrocarbons

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Abstract

World energy consumption doubled between 1971 and 2001 and the world energy demand will increase 53% by the year 2030. Both energy and environmental deterioration are serious crisis, which could possibly be reduced by adopting alternative energy sources such as biofuels generation from renewable sources as well as the adoption of sustainable and environmental friendly methods for the generation of biofuel. The amount of WCO is increasing annually. Its cost-effective use to produce value-added fuels is a significant issue, especially for the countries with limited fossil fuel reserves. Deoxygenation reaction is a viable process to remove oxygen from triglycerides based oil to form linear long chain hydrocarbons. Type and amount of catalyst also play a major role in catalyst, in addition to this cost of the catalyst also affects biofuel feasibility. In this study, Catalytic deoxygenation of Waste Cooking Oil by using a macroalgae as catalyst has been investigated. A pyrolysis-gas chromatography/mass spectrometry (Py-GC/MS) system was employed to detect the gaseous products of WCO pyrolysis.

Keywords: Waste Cooking Oil, Deoxygenation, Catalytic Cracking, Biofuel.

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➢ **POSTER PRESENTATION**

Polimer elektrolit membran (pem) elektrolizör için membran sentezi ve karakterizasyonu

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Özet

PEM elektroliz sistemleri birçok avantajlı sebebi ile günümüzde ilgi çekmektedir. Bu sistemde elektrolit olarak proton ileten polimer membranlar kullanılmaktadır. Kullanılan membranlar gaz geçirgen değildir ancak hidrojen iyonları iletebilme özelliğine sahiptir. Bu sistemlerin yaygınlaşmasını kısıtlayan faktörlerden biri olan Nafion membranın 80°C üzerindeki sıcaklıklarda performansının düşmesi ve fiyatlarının pahalı olması sorunlarına çözüm üretmek amacıyla yeni polimer elektrolit membranlar sentezlenmesi amaçlanmıştır.

Son zamanlarda proton iletken zarlı (PEM) yakıt pillerinde kullanılan zarlar üzerine yapılan çalışmaların büyük bir kısmı yüksek sıcaklıkta yüksek performans ve dayanıklılık gösterebilen alternatifler üzerine yoğunlaşmıştır. Şimdiye kadar geliştirilen yüksek sıcaklığa dayanıklı tüm zarlar arasında en başarılı olanlardan bir tanesi de asit yüklü polibenzimidazollerdir. Bu zarın iskeletini yüksek mekanik, termal ve oksidatif dayanıklılığa sahip bir polimer olan polibenzimidazol (PBI) oluşturmaktadır. Bu yapıya asit yüklendiğinde ise zar, proton iletken hale gelmektedir. Bu zarlar yüksek asit yüklerinde, Nafyon zarla karşılaştılabilecek seviyede proton iletkenliğe sahiptir.

Bu çalışma da geliştirilecek membranın; uzun ömürlü olması, işletim koşullarında kimyasal ve elektrokimyasal kararlılık (oksidasyon, indirgenme ve hidrolize yüksek direnç) , yüksek proton iletkenliği ve sıfır elektronik iletkenlik, difüzyonla düşük su kaybı, uygun mekaniksel kuvvet ve dayanıklılık, gazlara karşı düşük geçirgenlik, düşük üretim maliyeti gibi özelliklerin geliştirilmesi amaçlanarak geliştirilen membranın perfonması PEM elektrolizöründe belirlenecektir.

Anahtar Kelimeler: PBI ,PBI Membran ,Elektroliz

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➢ **POSTER PRESENTATION**

Retrotransposon Mediated Biodiversity

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Abstract
Retrotransposons are the subclass of transposable elements and they can increase their copy numbers in the genome through their copy-paste transposition mechanism. Throughout evolutionary process their transposition events resulted in mutations. Thus, they caused the formation of new gene alleles and, in the long term, speciation. Conversely, their transposition events might have harmful effects. Therefore most of the organisms developed various mechanisms for silencing retrotransposons throughout evolutionary processes.
In this study we investigated transposition events of four *Oryza sativa* LTR-retrotransposons *(Hopi, Houba, Osr30* and *RIRE1*) in *Oryza sativa, Brachypodium distachyon, Hordeum vulgare* and *Triticum aestivum* by IRAP marker technique. Plant seeds were germinated between moist filter papers for 10 days and genomic DNAs were isolated from each species. IRAP-PCR primers were designed according to long terminal repeat region of *Hopi*, *Houba*, *Osr30* and *RIRE1* retrotransposons. PCR products were run at 2% agarose gel and polymorphism ratios were calculated using Jacquard's similarity coefficient. PCR resulted with different band profiles and polymorphism ratios between individuals of each species. In four species, only *O. sativa* showed significant polymorphisms between individuals. This result indicates that all tested retrotransposons are still active and cause genomic polymorphism between individuals of *O. sativa* while they were silenced with various mechanisms in other species. Although these four plant species have common ancestor, *O. sativa* was distinguished from others more than 40 million years ago. This result might show that the mechanisms that repress the transposition events of retrotransposons were developed after this point.
Transposition event is an important factor for genome dynamics and evolution of the species. However our knowledge about this mechanism is still in a primitive stage. Comparison of the stabile and dynamic genomes of some species that are closely related, might be helpful to understand the mechanisms that lie behind the silencing process of retrotransposons.
Key words: Retrotransposon, genome dynamic, evolution, biodiversity

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➢ **POSTER PRESENTATION**

Determination of trace elements in bottled spring water

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Abstract
Natural water is one from probably the most important resource on earth which plays a major in human diet. This study monitors the elemental composition of different brands of bottled spring water marketed in Turkey. Spring water samples were analyzed for Cs, Rb, Tl, Co, As, Cr, Pb, Ga, V, Ag, Cd, U, Th, and Mo by inductively coupled plasma mass spectrometry (ICP-MS). Method trueness was confirmed by using 1640A natural water certified reference materials. The linearity, limit of detection, limit of quantification, repeatability, and recovery (%) were assessed. The results were compared with elemental standards for drinking waters set according to the World Health Organization (WHO) and United States Environmental Protection Agency (US EPA).
Keywords: ICP-MS, Spring water, Trace elements, Water quality.

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➢ **POSTER PRESENTATION**

Method validation for the determination of toxic elements in fizzy fruity mineral water drinks using ICP-MS

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Abstract

The presence of metallic impurities in fizzy fruity mineral water drinks can constitute health hazards to the public. In this study, the Inductively Coupled Plasma Mass Spectrometry (ICP-MS) was chosen to be validated, and applied in suitable method of analysis for determination of antimony, lead and cadmium in samples. The detection limits, quantification limits, linearity, accuracy parameters were studied under optimised ICP-MS conditions. The method trueness was confirmed by using certified references materials LGC soft drink and obtained results were had acceptable Z-score values. The results obtained make the method suitable for a precise determination of validated elements in different brands of samples at these low concentration values. Also, the results obtained were check with permissible levels, daily intake (EDI), target hazard quotient (THQ) and hazard index (HI).

Keywords: Fizzy fruity mineral water, Health risk, ICP-MS.

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➢ **POSTER PRESENTATION**

Ditiyenosilol Tabanlı Yeni Bir Elektrokromik Polimerin Sentezi ve Optoelektronik Özelliklerinin İncelenmesi

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Özet

Ditiyenosiloller (DTSler) özellikle güneş enerjisi sistemleri açısından önemli gruplardır, zira bu grupların türevlerinden biri olan 3,3'-silen-2,2'-bitiyofen, bitiyofen yapısının düzlemselliğini arttırdığı için konjugasyon zincirinin uzunluğunu da arttırır. Bu artış soğurma spektrumunun da görünür bölgeden yakın kızılötesi bölgeye kadar uzanmasını sağlar ki bu da özellikle ileri teknolojik uygulamalarda (ışık saçan diyotlar, alan etkili tranzistörler ve güneş pilleri gibi) kullanılacak malzemeler açısından önemli bir özelliktir. Bu sebeple DTSler birçok bilim insanının ilgisini çekmekte ve günümüzde bu malzeme üzerinde çalışmalar yapılmaktadır. Bu çalışmada, floresans, elektrokromik ve çözünür özellikte olan ditiyenosilol tabanlı poli(2,6-bis(3,3-didesil-3,4-dihidro-2H-tiyeno[3,4-b][1,4]dioksefin-6-il)-4,4-dioktil-4H-silolo[3,2-b:4,5-b']ditiyofen) (**P1**), elektrokimyasal olarak sentezlenmiş ve karakterize edilmiştir. Bu amaçla öncelikle 2,6-bis(3,3-didesil-3,4-dihidro-2H-tiyeno[3,4-b][1,4]dioksefin-6-il)-4,4-dioktil-4H-silolo[3,2-b:4,5-b']ditiyofen (1) monomeri, tribütil(3,3-didesill-3,4-dihidro-2H-tiyeno[3,4-b][1,4]dioksefin-6-il)stanin ve 5,5'-dibromo-3,3'-dioktilsilinen-2,2'-bitiyofen'den Stille Kenetlenme Tepkimesi ile sentezlendikten sonra ^{1}H NMR ve Kütle Spektroskopi Yöntemleri ile analiz edilmiştir. Ardından elektrokimyasal yöntemle elde edilen polimerin optoelektronik ve floreans özellikleri incelenmiştir.

Anahtar Kelimeler: Ditiyenosilol, elektrokromizm, kuantum verimi.

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➢ **POSTER PRESENTATION**

1-(3,5-Bis(trifloromethil)fenil)-2,5-di(tiyofen-2-il)-1H-pirol Monomerinin Sentezi ve 3,4-Etilendioksitiyofen ile Elektrokopolimerizasyonu

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Özet

2,5-ditiyenilpirol ve türevleri kolay sentezlenebildikleri, düşük bant aralığına sahip ve elektrokromik polimerler oluşturabildikleri için bu türevlerin homopolimerleri ve kopolimerleri literatürde oldukça fazla çalışılmaktadır. Bu monomerlerin kopolimerizasyonlarında çoğunlukla 3,4-etilendioksitiyofen kullanılmaktadır. Bunun sebebi bu yapının kopolimere yüksek elektrokimyasal kararlılık, yüksek optiksel zıtlık ve kapasitans gibi özellikler sağlamasıdır. Bu çalışmada, EDOT ve 1-(3,5-Bis(trifloromethil)fenil)-2,5-di(tiyofen-2-il)-1H-pirol (1) içeren kopolimer (P(EDOT-co-1)) elektrokimyasal yöntemle sentezlenmiştir. Bunun için öncelikle 1 monomeri Paal-Knorr Tepkimesi ile 3,5-bis(trifloorometil)benzenamin ve 1,4-di(tiyofen-2-il)bütan-1,4-dion'dan sentezlenmiş ve ^{1}H and ^{13}C NMR, HRMS and FTIR ile analiz edilmiştir. Ardından kopolimerizasyon gerçekleştirilmiştir. Elde edilen kopolimer (P(EDOT-co-1)), optik ve elektrokimyasal yöntemlerle analiz edilmiştir.

Anahtar Kelimeler: Ditiyenilpirol; kopolimerizasyon; multielektrokromizm; 3,4-etilendioksitiyofen.

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➢ **POSTER PRESENTATION**

Minimum inhibitory concentrations of some oxadiazol-5(*4H*)-one derivatives against several bacteria and computational studies

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Abstract
Microbial infections are among the oldest health problems in the human history. In the past few decades, scientific research has led to the discovery of antimicrobial agents. However, treatments of the resulting diseases have been threatened by the spreading and resurgence of drug-resistant microbes. Drug resistance is a natural response that is caused by antibiotic use. Hence, new drugs are needed to struggle with this resistance. The aim of this study, evaluation of antimicrobial activity results of some heterocyclic oxadiazole compounds (Figure 1) against several bacteria. The synthesis of compounds are in the literature. Antimicrobial activity of these compounds was also studied against a panel of microorganisms including *Staphylococcus aureus* (ATCC 25983), *Enterococcus faecalis* (ATCC 29212), *Pseudomonas aeruginosa* (ATCC 27853), *Escherichia coli* (ATCC 25922) and *Streptococcus mutans* (ATCC 25175). Some of the oxadiazoles exhibited fair activities against these microorganisms. The geometrical optimization of all the compounds was done by the ab initio (RHF/PM3) method incorporated in the Hyperchem package. Some theoretical descriptors, namely, surface area approx (SAA), molecular volume (MV), molar refractivity (MR), polarizability (polar), magnitude of dipolar moment (μ), the calculated log of octanol–water partition coefficient (clogP), and hydration energy (HE) were calculeted (Table 1). Computer aid is helps to control the experimental data.
As a result, oxadiazole compounds (1a-g) have been good results against particularly *P. aeruginosa* (MIC: 50 μg/ml).
Keywords: Antibacterial activity, heterocyclic compounds, MIC values, oxadiazole derivatives, theoretical calculations.

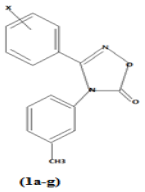

Figure 1. Structure of substituted phenyl-1,2,4-oxadiazol-5(*4H*)-one compounds (1a-g)

Table 1. Calculated theoretical parameters of compounds (1a-g)

Comp.	clogP	SAA (Å^2)	MV (Å^3)	MR (Å^3)	Polar (Å^3)	μ (D)	HE (kcal/mol)
1a	1.22	296.56	253.61	85.67	30.30	6.830	-8.74
1b	2.36	284.18	245.83	83.57	29.67	6.395	-5.94
1c	2.21	261.41	229.36	79.29	27.83	6.246	-7.11
1d	1.61	266.46	231.73	79.42	27.74	4.781	-6.80
1e	1.99	277.20	243.23	84.01	29.76	5.890	-6.73
1f	2.26	282.12	250.73	86.83	30.46	5.819	-6.72
1g	2.78	298.10	253.62	84.51	29.39	3.773	-6.53

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➢ **POSTER PRESENTATION**

Antimicrobial activity and QSAR studies of some new (3-substituted phenyl-4,5-dihydroisoxazole-4,5-diyl)dimethanols

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Abstract

Antimicrobial activity of some new compounds (**1a-l**) was studied against a panel of microorganisms including *Staphylococcus aureus* (ATCC 25983), *Enterococcus faecalis* (ATCC 29212), *Pseudomonas aeruginosa* (ATCC 27853), *Escherichia coli* (ATCC 25922), *Streptococcus mutans* (ATCC 25175) and *Candida albicans* (ATCC 90028). The geometrical optimization of all the compounds was done by the ab initio (RHF/3-21G) method incorporated in the Hyperchem package. Some theoretical descriptors, namely, surface area approx (SAA), molecular volume (MV), molar refractivity (MR), polarizability (polar), magnitude of dipolar moment (μ), the calculated log of octanol–water partition coefficient (clogP), RMS Gradient, hydration energy (HE), energy of binding (E_b), electronic energy (EE) and nuclear energy (NE), were calculeted. Some of the compounds exhibited fair activities against these microorganisms. The pMIC values of the compounds were correlated with σ, π and some theoretical descriptors and fair 1D- and 2D-quantitative structure–activity relationship models were obtained.

Keywords: Antibacterial activity, antifungal activity, dimethanol compounds, MIC, QSAR.

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➢ **POSTER PRESENTATION**

Development of multifunctional nanocarriers for photothermal therapy

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Abstract

Cancer remains one of the world's most devastating diseases which is seen almost every age. Traditional therapeutic approaches, such as radiotherapy and chemotherapy, were developed in the clinics to treat cancer but as known that most of them were not effective. Therefore, the researchers are working on the development of the more effective and personalized diagnosis/treatment materials for the treatment and diagnosis of cancer. Recently, Photothermal therapeutics have been attracted to intense interest. Photothermal therapy (PTT) is based on the concept that photothermal agents, such as gold or carbon materials can effectively absorb near-infrared (NIR) laser energy and convert it into hyperthermia to kill cancer cells. In addition to that, recent studies show that the combination of PTT with chemotherapy can overcome multidrug resistance and enhance therapeutic effect. In this work, a novel multifunctional nanocarrier system based on gold nanorod as core and a biocompatible polymer shell layer is designed for photothermal therapy. The results showed that when stimulated with 808 nm NIR light source, this NIR light energy is effectively absorbed and converted into heat by the nanocarriers for localized photothermal therapy. Moreover, the multifunctional nanocarriers demonstrated pH-triggered drug release profile. According to these results, we believe that this novel multifunctional nanocarrier system may be useful for the combination of PTT and chemotherapy in various cancers.

Keywords: Gold nanorod, NIR light, photothermal therapy, RAFT polymerization, cancer

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➢ **POSTER PRESENTATION**

Controlled release of paroxetine from chitosan-montmorillionite nanocomposite

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Abstract

Controlled drug delivery is promising and growing segment of the pharmaceutical market. Targeted delivery and minimized side effect makes it advantageous than the traditional drug delivery method. Polymeric nanocomposites prepared with clay has great potential importance in nanocomposites. Montmorillionette (MMT) which belongs to smectite clays, with a regular layered structure is widely used in preparing polymeric nanocomposites. Chitosan (CS) is natural biodegradable copolymer and has extremely high affinity for many types of clays. Excellent biocompatibility and admirable biodegradability, low toxicity and low immunogenicity make it eligible for nanocomposites production. Paroxetine hydrochloride (PHH) is a antideppresant , prescribed for major depressive disorders.

In this experimental study, same amount PHH contained MMT , Na-MMT and CS/Na-MMT biocomposites were prepared and their applications in drug delivery was investigated. Drug carriers were studied at the physiological temperature of 37 ^{0}C and pH 7.4 (close to intenstinal environment) by dialysis bag technique. The two forms of clay (MMT/PHH & Na-MMT/PHH) exhibited very close drug release profiles which were slower and also has considerable less total cumulative release than CS/Na-MMT / PHH. Approximately 40 % of PHH was released within 25 hours from CS/Na-MMT biocomposite. It appears that drug release was increased with Chitosan incooperation. After an initial fast release , a gradual release of PHH from CS/MMT was observed. The release from MMT & Na-MMT was gradual and without any burst release. Data obtained from in vitro drug release of each nanocomposites were fitted into four different kinetic models: Zero order, Frst order, Higuchi and Korsmeyer-Peppas Kinetic model. Korsmeyer-Peppas model (Na-MMT/PHH: R^2:0,9912 , MMT/PHH: 0,9925 and CS-MMT/PHH :0,8161) seems to be more suited to decribe release kinetics of the studied systems.

Keywords: Paroxetine, Drug, Release, Controlled, Kinetics, nanocomposites

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➢ **POSTER PRESENTATION**

Effect of surfactant alkyl chain length on the twist of lyotropic cholesteric phases

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Abstract

Lyotropic nematic and cholesteric phases are widely studied in the literature because their structural units, so-called 'micelles', organize in their whole structures with respect to the phase director ($\vec{n}$) in the presence of the magnetic field [1]. In both phases, there exists long-range orientational order and the micelles have finite sizes. However, the cholesteric ones differ from the nematic counterparts since the former exhibit the helical structure and the helix axis is the phase director of the cholesteric phase. Three different cholesteric phases are identified as cholesteric discotic (Ch_D), cholesteric calamitic (Ch_C) and cholesteric biaxial (Ch_B) phases [2,3] and the biaxial phase is located between other two uniaxial ones in the phase diagrams [4,5]. From the sample preparation point of view, the lyotropic cholesteric phases are, in general, produced by three ways [6]. In a first way, a chiral guest molecule may be doped in a lyotropic nematic mixture of achiral surfactant. In the second case, a D- or L-enantiomeric surfactant molecule such as L-alaninehydrochloride undecylester is used to form the lyotropic mixture presenting the cholesteric phase. In the last but not the common way, the chiral solvents may be used.

The cholesteric phases are described by their 'twist' values [7]. It is the reciprocal of the pitch, which is defined as the distance traveled by the local directors of the micelles around the helix axis to complete 360° rotation [8]. In this study, we carried out some polarizing optical microscopy measurements to investigate the effect of the surfactant alkyl chain length on the twist of the discotic cholesteric phase of potassium alkanoates/potassium sulfate/decanol/water/brucine lyotropic mixtures. Potassium undecanoate (KC11), potassium dodecanoate (KC12) and potassium tridecanoate (KC13) were chosen as potassium alkanoate surfactants. The results showed that the surfactant alkyl chain length is an important parameter on the twist of the lyotropic cholesteric phases and the twist decreases as a function of the increase in the surfactant alkyl chain length.

Keywords: Lyotropic cholesteric phases, pitch, twist, surfactant alkyl chain length, discotic phase, polarizing optical microscope.

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➢ **POSTER PRESENTATION**

Effect of micelle size on the biaxial phase domain and uniaxial-to-biaxial phase transitions in lyotropic cholesteric liquid crystals

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Abstract

Three lyotropic cholesteric phases are identified in the literature: (a) discotic cholesteric phase (Ch_D), (b) calamitic cholesteric phase (Ch_C) and (c) biaxial cholesteric phase (Ch_B) [1,2]. In the Ch_D phase, while the local optical axes of the micelles align perpendicular to the magnetic field direction, the helix axis aligns parallel to the magnetic field [3]. In the case of Ch_C phase, because the local axes of the micelles align parallel to the magnetic field direction, the helical structure disappears, i.e. it is unwound [4]. In the Ch_B phases, since the micelles have additional secondary local axes, they are more sensitive to the magnetic field [5]. By this way, they exhibit some advantages in electro-optical and biotechnological applications if they are compared to the uniaxial cholesteric phases.

The main goal of this study is to investigate the effect of micelle size, being a new parameter, on obtaining biaxial cholesteric phases. Some surfactant molecules, exhibiting same ionic head group with different aliphatic alkyl chain length, were chosen for the preparation of lyotropic mixtures. For obtaining the cholesteric phases, brucine was added into these mixtures.

Polarising optical microscopy is an experimental technique in this study. By the use of polarising optical microscopy, (a) the uniaxial-to-biaxial cholesteric phase transitions were determined and (b) partial phase diagrams were constructed.

Keywords: Lyotropic cholesteric phases, micelle size, polarizing optical microscope.

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➢ **POSTER PRESENTATION**

The effect of various anionic surfactants on activity of lipase

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Abstract

Lipase (EC 3.1.1.3 triacylglycerol acylhydrolase,) is an important enzyme in biological systems, where it catalyses the hydrolysis of triacylglycerol to glycerol and fatty acids. The enzyme is distributed among higher animals, plants and microorganisms in which it plays a key role in lipid metabolism.
The presence of surfactants is an important prerequisite for maximum lipase activity. The catalytic activity of lipases is mediated by interface activation. The interfacial activation is a feature that begins with an emulsion of the lipid substrate and thus provides an interface for the enzyme to function. Addition of surfactant reduces the surface tension between the organic and aqueous phase in the reaction medium and increases the emulsification rate.
In this study, a cyclic phenol-formldehyde oligomer, calixarenes, which are the macrocycles having three-dimensional basket, cup or bucket shape; formed from the condensation of p-substituted phenols with formaldehyde in basic medium. They were first time used as a surfactant to see effect on the hydrolytic activity of Candida rugosa lipase .
The hydrolysis of p-nitrophenyl palmitate as probe reaction was investigated and the dependence of reaction rates on surfactant concentrations and pH was studied.

Keywords: Lipase, surfactant, activity.

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➢ **POSTER PRESENTATION**

Design of folic acid modified pH-sensitive magnetic nanocarriers

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Abstract

Cancer remains one of the world's most devastating diseases, with more than 10 million new cases every year. In traditional treatment methods, anti-cancer drug molecules circulate freely in the blood and do not exhibit targeted release and this unproductive circulation of anti-cancer drug molecules kills also healthy cells besides cancer cells. Therefore, the scientists are trying to develop smart treatment methods with interdisciplinary studies for targeted and controlled drug release. For this purpose, in this study, a new pH-triggered and folic acid-targeted hybrid nanocarrier based on a core/shell nanoparticle system was synthesized. The *core/shell* hybrid particle contains a magnetic *core (*Fe_3O_4@SiO_2@mSiO_2*)* which is surrounded by pH-triggered (PLH-PEG) and FA-Targeted (FA-PEG) polymer *shells.* The antitumor drug, doxorubicin (DOX), was loaded in the cores of the hybrid nanoparticles. The synthesized hybrid nanoparticles were characterized using DLS, TEM, BET and Zeta-potential measurements. DOX loading and release efficiencies of the particles were examined in different pH values in a function of time using Fluorescence Spectroscopy. The cytotoxicity of the hybrid nanoparticles was examined using the human breast adenocarcinoma cell line (MCF-7). The hybrid nanoparticles were demonstrated very efficient controlled drug release profile under acidic environments. As a result, the hybrid nanocarriers exhibited potential applications in targeted/pH-control drug release for cancer treatment.

Keywords: cancer, magnetic hybrid nanoparticles, drug delivery, pH response

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➢ **POSTER PRESENTATION**

Atık suların kimyasal içeriğinin ve ön arıtım ünitesindeki azot ve fosfor gideriminin incelenmesi

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Özet

Bu çalışmada, Konya atık su arıtma tesisi örneği ele alınarak tesise gelen 1.300.000 nüfusa eşdeğer atık suyun yapısı incelenmiştir. Atık suyun yapısı ve karakteristiği, toplam kjeldahl azotu (TKN), toplam fosfor (TP), kimyasal oksijen ihtiyacı (KOİ), pH parametrelerine bakılarak incelenmiştir. Yapılan inceleme ve çalışmalar sonucu; coğrafi yapının, nüfus yoğunluğunun ve diğer çevresel etmenlerin atık sulara ne yönde etki ettiği ile ilgili bazı bulgular elde edilmiştir. Diğer bir araştırma konumuz ise yine Konya atık su arıtma tesisi ön arıtım ünitesinin kirlilik giderim verimi toplam kjeldahl azotu (TKN) ve toplam fosfor (TP) parametreleri yönünden incelenmiştir. İnceleme sonrası % verim yönünden %35 ile %50 arası bir giderim yapıldığı saptanmıştır. Yapılan araştırmada numuneler Mayıs-Kasım ayı arasında 7 günlük periyotlarla 24 saatlik kompozit numune şeklinde 23 hafta süresince alınmıştır.

Anahtar Kelimeler: Atık su, Ön arıtma, Toplam Azot, Toplam Fosfor.

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➢ **POSTER PRESENTATION**

Aloe vera bitkisinin kurutulma işlemi ve kuruma eğrilerinin belirlenmesi

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Özet

Aloe vera, faydaları binlerce yıldır bilinen ve doğal tedavi özelliklerinin geniş çaptaki çeşitliliği nedeniyle, eski kültürler tarafından da uzun süredir kullanılan şifalı bir ottur. Ülkemizde aleo vera bitkisinin halk arasında bilinen adı sarısabır otudur. Aloe vera bitkisinin yapraklarının %98'i sudan oluşmakta olup, geriye kalan içeriğini ise temel yağlar, amino asitler, mineraller, vitaminler, enzimler, glikoproteinler, rezin, antrasen ve antrakinon türevleri olmak üzere 75 adet potansiyel aktif madde oluşturmaktadır. *Aloe vera* jeli (özü) , bitkinin yapraklarının orta kısmından elde edilen ve tedavi amaçlı kullanılan kısmıdır.

Bu yapılan çalışmada, aloe vera yaprakları yıkanıp, bıçakla sap kısımlarından kesilerek sarı sularını akıtmak amacıyla 10 dakika kadar kesilen kısım aşağıda kalmak üzere bekletilmişlerdir. Sarı suyundan arındırılan kısımlar ortadan uzunlamasına ikiye bölünmüş ve bir kaşık yardımıyla jel kısım ayrılmıştır. Bu jel kısım etüvde kurutularak aloe vera tozu elde edilmiştir. Kurutma işlemi üç farklı sıcaklıkta, 40 ºC, 50 ºC ve 60 ºC 'lerde yapılmıştır. Elde edilen veriler kullanılarak kurutma eğrileri çalışılmıştır.

Anahtar Kelimeler: *Aloe vera*, kurutma prosesi, kurutma eğrisi.

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➢ **POSTER PRESENTATION**

Fenolün sulu ortamlardan koagülasyon yöntemiyle uzaklaştırılması

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Özet

Fenol ve türevlerini içeren atıksuların insan ve çevre sağlığı açısından oldukça olumsuz etkileri vardır. Fenol ve türevlerinin atıksularda eser miktarlarda bile bulunmaları organizmalar için çok zararlıdır ve birçok fenol bileşiği , insan sağlığını tehlikeye soktuğundan dolayı tehlikeli kirleticiler sınıfında yer almaktadır. Fenol içeren suların arıtılması için çeşitli kimyasal ve fiziksel yöntemler geliştirilmiştir. Bunlar; değişik adsorbentler (aktif karbon, uçucu kül, değişik killer, reçinereler,silika vb.) kullanılarak adsorpsiyon, koagülasyon, biyolojik yöntemler, ozonlama, sıvı ekstraksiyonu vb.' dir.

Bu yapılan çalışmada, sulardan fenol uzaklaştırılmasında, $FeCl_3$ ve $FeSO_4$ koagülantları kullanılarak , koagülasyon yöntemi incelenmiştir. Koagülasyon deneylerinde, koagülant tipi ve miktarı, başlangıç pH'ı, başlangıç konsantrasyonu, zaman gibi parametrelerin, fenol uzaklaştırma üzerindeki verimleri incelenmiştir. $FeSO_4$ ve $FeCl_3$ için optimum başlangıç pH'ları sırasıyla 9.5 ve 10.5 olarak bulunmuş ve fenol uzaklaştırma verimleri ise değişik başlangıç konsantrasyonlarında sırasıyla %90-92 ve %94-95 olarak bulunmuştur.

Anahtar Kelimeler: Fenol, atıksu arıtımı, koagülasyon.

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➢ **POSTER PRESENTATION**

Gemilerde korozyon ve korunma yöntemleri

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Özet

Korozyon, malzeme yüzeyinden başlayan ve derinliklerine doğru ilerleyen, kimyasal ve elektro-kimyasal reaksiyonlar sonucu oluşan dinamik bir süreçtir. Metal ve alaşımlarının ortam ile reaksiyonları sonucu fiziksel, kimyasal ve mekanik özellikleri değişime uğramaktadır. Korozyon nedeniyle meydana gelen malzeme, enerji ve emek kaybının yıllık oranı ülkeler bazında, gayri safi milli hâsılatının yaklaşık %5'i düzeyindedir. Bu oran ABD'de 444 milyar $ ile GSMH'nın %3,1'ne tekabül etmektedir. ABD Donanmasının, donanma korozyon önleme ve kontrol departmanı tarafından hazırlanan 2010 yılı raporunda toplam korozyon maliyeti 7,36 milyar $ olarak açıklanmıştır. Bu miktar içerisinde ilk sırada 3,2milyar $ (%43) ile Gemi Donanması yer almaktadır.
Korozyonun gemilerde sebep olduğu malzeme, işçilik, zaman ve bilgi kayıplarının önüne geçilerek, ülke ekonomisine katkısı önemli bir hedeftir. Yüksek onarım maliyetinin ortadan kaldırılması için korozyon hasarlarının tespit edilmesi ve bu hasarların giderilmesi gerekmektedir. Korozyona karşı katyonik koruma, boyama ve bu yöntemlerin kombine kullanımı en etkili yöntemlerdir. Ancak korozyonun yavaşlatılması veya önüne geçilebilmesini sağlayacak yeni yöntemlerin araştırılması gerekmektedir. Böylelikle kombine geliştirilecek çözümlerle korozyon kayıplarını en aza indirebilmek mümkün olacaktır. Bu çalışmanın amacı gemilerdeki korozyona karşı mevcut etkin yöntemlere ek farklı yeni bakış açıları incelemektir. Yeni geliştirilmiş yöntemlerle ülkemizde korozyondan kaynaklanan kayıpları en aza indirilmesi için kurumlar, üniversiteler ve endüstri işbirliğiyle ortak bir çalışma ortamı oluşturmalıdır.

Anahtar Kelimeler: Korozyon, korozyondan korunma, katodik koruma.

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➢ **POSTER PRESENTATION**

Cytotoxic and Antimicrobial Activity of the Extract of *Trametes versicolor*

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Abstract

In this study, *T. versicolor* isolated from Hatay was used. The cytotoxic effect of the extract from this fungus against human lung cancer cells (A549) and human lung epithelial cells (BEAS-2B) was investigated using trypan blue and MTT methods. The IC50 of the extract was 98.1 µg/mL for A549 cells at 48 h. On the other hand, this value was 32.8 for BEAS-2B. Caspase-3 activity analysis showed that extract treatment resulted in an approximately 3-fold increase in caspase-3 activity. Microdilution method was used to determine the MIK values. Antimicrobial activity studies showed that fungal extract had antimicrobial activity on *B. cereus*, *B. subtilis*, *S. typhi*, *C. albicans* and *C. tropicalis*. The MIC values of the extract were determined as 12.5 mg/mL, 12.5 mg/mL, 12.5 mg/mL, 6.25 mg/mL and 6.25 mg/mL on *B. cereus*, *B. subtilis*, *S. typhi C. albicans* and *C. tropicalis*, respectively.

Keywords: Antimicrobial, A549, BEAS-2B, caspase, cytotoxic, *Trametes versicolor*

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➢ **POSTER PRESENTATION**

Synthesis and characterization of poly(Styrene-co-methylmethacyrlate)/ halloysite nanocomposites in a semi-batch reactor

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Abstract

Polymer materials have advantages such as ease of production, light-weight, insulating properties and economic compatibility, as well as they have disadvantages such as low hardness, strength and thermal strength. Composites have emerged as a new type of material with superior properties to remove these disadvantages and improve materials. Due to thermal, mechanical and surface properties are superior to polymer, polymer/clay nanocomposites are preferred in the industry.

The aim of this study is investigate the effects of synthesis methods of nanocomposites with different ratios of HNT on the properties of nanocomposites and the advantages of synthesized nanocomposites over polymer. In the first step of the study, the reinforcing material halloysite (HNT) was modified with dimethyl sulfoxide (DMSO). In the second step, the poly (Styrene-co-Methylmethacrylate) copolymers [P (St-co-MMA)] synthesized with emulsion polymerization in a semi-batch reactor; Poly (Styrene-co-Methylmethacrylate) / halloysite [P (St-co-MMA) / HNT] nanocomposites were synthesized by in-situ emulsion polymerization and solution blending methods. Both P (St-co-MMA) copolymers and P (St-co-MMA) / HNT nanocomposites' percent monomer conversion, viscosity average molecular weight and Shore D hardness analysis were performed. TGA characterization for determining the thermal properties of prepared nanocomposite materials; SEM and TEM characterizations for determination of surface behaviour and structure, FTIR and XRD characterizations were also seen for the structural properties of modified HNTs. When the synthesis methods were compared, it was observed that the thermal strength and hardness of the nanocomposites produced by the in situ method were more superior than copolymers and produced by the solution blending method nanocomposites.

Keywords: Poly(Styrene-co-Methylmetacyrlate), Nanocomposite, Semi-batch reactor, Halloysite

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➢ **POSTER PRESENTATION**

Manyetik biyopolimerik partiküllerin sentezi ve karakterizasyonu

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Özet

Bu çalışmada, nano boyutta manyetik özellikteki kitosan-aşı-poli(glisidil metakrilat) kopolimer partikülleri radikal polimerizasyon yöntemi ile sentezlendi. Kopolimer yapısındaki fonksiyonel epoksi grubu, 1,6-diamino hekzan ile modifiye edilerek, amin gruplarına dönüştürüldü. Kitosan temelli manyetik kopolimer partiküllerinin yapısal özellikleri, FTIR, TGA, SEM, VSM analizleri kullanılarak gerçekleştirildi. Manyetik kitosan-aşı-kopolimer partiküllerinin partikül boyutunun 200 nm civarında olduğu, aşılama ve modifikasyon işlemlerinin başarılı bir şekilde gerçekleştiği belirlendi. Sentezlenen ve özellikleri belirlenen nanopartiküllerin, sulu çözeltilerden RR-120 boyar maddesinin uzaklaştırılmasında kullanılabilirliği araştırıldı.

Anahtar Kelimeler: Manyetik nanopartikül, Kitosan, Aşı kopolimer

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➢ **POSTER PRESENTATION**

Tiyollerin alkinlere radikalik katılma tepkimelerinin kuramsal incelenmesi

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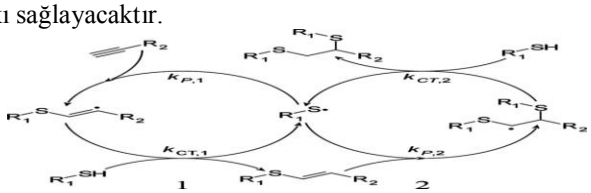
Özet

Tiyol-in reaksiyonu, tiyol ile üç bağ içeren alkin arasında gerçekleşen ve reaksiyon ürünü alkenil sülfid olan organik reaksiyondur.[1]İlk reaksiyonlar 1949 yılında tiyoasetik asit kullanılarak gerçekleştirilmiş; 2009 yılında mukavemeti, çapraz bağ yoğunluğu ve camsı geçiş sıcaklığı(T_g) yüksek ürünler elde edilmesi sebebiyle tekrar keşfedilmiş ve klik reaksiyonlarda kullanılmaya başlanmıştır.[1,2,3]Çift bağ içeren alken grubu ile tiyolun alkil sülfid oluşturmak üzere reaksiyona girdiği ve geç jelleşme noktası gösterme, oksijen inhibisyonunun minimize edilmiş olması gibi özellikleriyle aranan bir yöntem olan tiyol-en reaksiyonuna göre üstünlük sağlaması; tiyol-in reaksiyonunun en önemli avantajlarındandır.[2,3] Bu çalışmada, seçili monomerlerle karbon ve kükürt merkezli radikallerin tiyol-in tepkime mekanizması, kuantum kimyasal yöntemlerle ilk defa incelenmiş olup yapı-reaktivite ilişkisi hız sabitleri hesaplanarak anlaşılmaya çalışılmıştır. Tüm geometri optimizasyonları Yoğunluk Fonksiyonel Teorisi(DFT) içinde 6-31+G(d) düzeyinde B3LYP ve M062X fonksiyonu kullanarak 298K'de gerçekleştirilmiş; enerji iyileştirmeleri de B3LYP/6-311+G(3df,2p) ve M062X/6-311+G(3df,2p) düzeylerinde hesaplanmıştır. Daha sonra bulunan bu enerji verileri geçiş konumu teorisinde yerine konularak tepkime hızları elde edilmiştir. Yapılan çalışmalar sonucu ancak M062X fonksiyonu kullanılarak 6-31+G(d) ve 6-31++G(d,p) düzeyindeki hız sabiti değerlerinin deneysel değerlerle paralellik gösterdiği bulunmuştur. Kuramsal hesaplamalardan elde edilen bilgi ve tecrübe, tiyol-in mekanizmasını anlamamıza büyük ölçüde katkı sağlayacaktır.



Şekil 1: Tiyol-in mekanizması

Anahtar Kelimeler: Tiyol-in polimerizasyonu, yoğunluk fonksiyonel teorisi, karbon ve kükürt merkezli radikaller
Teşekkür: Ondokuz Mayıs Üniversitesi Mühendislik Fakültesine Gaussian programını kullanmamızı sağladığı için teşekkür ederiz.

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2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

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➢ **POSTER PRESENTATION**

Enzymatic applications of magnetic nanoparticles

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Abstract

Recently, there is lots of biotechnological applications which needs nanoparticles such as biomaterials, biosensors, nanomedicine, diagnostic kits, enzyme immobilization and purification (Cao et. al., 2012). The main purposes of enzyme immobilization by magnetic nanoparticles are provide protection from advers environmental conditions, combine different types of enzyme for simplify processes that require complex operations, increase reaction yield by large surface area and ensure re-use of enzyme for subsequent applications (Arsalan and Younus, 2018). This particles can be used also for purification of enzymes by nonspecific or specific binding. Because they easily seperate by magnetic field, they provide saving of time without complicated operation such as centrifugation and filtration. Fe, Co and Ni and their oxidized forms are the most commonly used magnetic nanoparticles. Magnetic nanoparticles has some advantages like relatively cheap production methods, large surface area, simply seperation by magnetic field and low toxicity (Ma et. al., 2019). This particles could be commonly synthesed by physical, chemical and biological methods. Each methods can be divided into specific techniques according to equipments, chemical components and physical/chemical/biological environmental conditions (Fatima and Kim, 2017). It's not enough the succesfully synthesis of the nanoparticles for directly using. The surface of this nanoparticles should be modified for stabilization and functionalization. By this way, nanoparticles can be used for long time and more specifically interract with enzymes (Lu et. al.,2007). We aimed to introduce synthesis, modification and enzmatic applications of magnetic nanoparticles by this presentation.

Keywords: Magnetic nanoparticles, functionalization, enzyme, immobilization, purification.

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➢ **POSTER PRESENTATION**

PEM yakıt hücrelerinde kullanılmak üzere PVC bazlı kompozit membran sentezi ve karakterizasyonu

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Özet

Bu çalışmada PEM yakıt hücrelerinin en önemli bileşeni olan membran için ticari membranlara alternatif olabilecek ucuz, yüksek proton iletkenliğine sahip, kimyasal ve mekanik dayanıklılığı yüksek membran sentezi amaçlanmıştır. PVC membranlar argon ve oksijen plasma ortamı altında tutularak aktif gruplar olan sülfonik asit ve fosfonik asit grupların bağlanması sağlanmıştır. Argon ile oksijen plasma ortamlarının iletkenlik ve su tutma kapasitesine etkisi incelenmiştir. Oksijen plasması ortamında tutulduktan sonra sülfolanan membranların oda sıcaklığında 0,02 S/cm proton iletkenliğine ve %3,9 su tutma kapasitesine sahip olduğu gözlenmiştir. Bu membranın proton iletimini ve su tutma kapasitesini arttırmak için katkı maddesi olarak farklı oranlarda agar kullanılmıştır. Sentezlenen membranlarda su tutma, şişme, empedans analizi, FT-IR ve TGA analizleri yapılmıştır.

Anahtar Kelimeler: PEMFC, proton değişimli membran

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➢ **POSTER PRESENTATION**

Saç boyalarında ve boyalı saçlarda ağır metal içeriklerinin belirlenmesi

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Özet

Bu çalışmada, saç boyalarının içeriğindeki ağır metal miktarının tespit edilmesi ve bu değerlerin Türkiye'deki yasal sınır değerlerle karşılaştırılması ile bu boyalarla boyanan saç örneklerindeki ağır metallerin tayini amaçlanmıştır. İnternetten satın alınan, üç farklı üreticiye ait Siyah, Kahve, Açık Kahve, Sarı, Kızıl olarak 6 renkten toplam 15 adet saç boyasının ağır metal içerikleri belirlenmiştir. Boyama işlemi görmemiş 15 adet saç örneği bu boyalarla boyanmıştır. Boyanan saçların ve boyanmamış saçın da ağır metal içerikleri belirlenmiştir. Saç boyaları klasik yaş yakma yöntemiyle çözeltiye geçirilmiştir. Boyanmış saç örnekleri ise, CEM Marka Mars 6 Model Mikro Dalga Cihazıyla yaş yakmaya tabii tutularak çözeltiye geçirilmiştir. Cihaz kalibrasyonunda kullanmak üzere, 1000 ppm derişime sahip Merck Marka Pb, Cd, Sb, Ni, Cr, Co ağır metal standart çözeltilerinden, 1000 ppb mix stok çözelti hazırlanmıştır. Stok çözeltiden seri seyreltme yöntemi ile 10, 20, 40, 75 ppb mix standart çözeltiler hazırlanmıştır. Ağır metallere ait kalibrasyon grafiklerinin R^2 değerlerinin ortalaması ~0.9990'tür. Geri kazanım oranları kabul edilebilir aralıktadır. 30 adet örnekteki ağır metallerin tayini THERMO Marka X Series Model İndüktif Eşleşmiş Plazma Kütle Spektrometresiyle (ICP-MS) yapılmıştır. Analizler sonunda 15 adet saç boyasında ortalama ağır metal derişimi, Pb 6.20 ppm, Cd 0.23 ppm, Sb TSA ppm, Ni 0.55 ppm, Cr 0.28 ppm, Co 0.02 ppm olduğu ve bu değerlerin yasal sınır değerlerin altında kaldığı tespit edilmiştir. 15 adet saç örneğinde boyama sonrasında kalan ağır metal ortalama derişimi ise, Pb 1.57 ppm, Cd TSA ppm, Sb TSA ppm, Ni 7.74 ppm, Cr 4.16 ppm, Co TSA ppm olarak bulunmuştur (TSA: Tayin Sınırının Altında). Boyalı saçta Ni ve Cr fazlalığının nedeni, bu iki elementin boyasız saçta yüksek değerde olmasıdır.

Ağır metal zehirlenmelerinin tespitinde saçın önemli bir parametre olduğu göz önüne alınırsa, ilk kez boyama işlemine tabii tutulan saçlardaki ağır metal oranlarının bilinmesinin öneminin çalışmanın değerini arttırdığı düşünülmektedir.

Anahtar Kelimeler: Kozmetik, Saç Boyası, Ağır Metaller, Toksikoloji.

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➢ **POSTER PRESENTATION**

Polimer esaslı hibrit köpük gidericilerin sentezi ve karakterizasyonu

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Özet.

Pek çok endüstriyel ürün ve işlemde köpük oluşumunun kontrolü önemli bir parametredir. Sistemde oluşan köpüklenmenin üretim kalitesini ve ürünlerin kullanılabilirliğini sınırladığı bilinmektedir. Köpükler, sürekli bir sıvı film ile sarılmış gaz hücrelerinden (kabarcıklar) oluşan üç boyutlu bir yapıya sahip termodinamik olarak dengesiz sistemlerdir. Araştırmacılar son yıllarda endüstri için önemli ve çözüm bulunması gereken bir konu olan makro ve mikro köpüklenmeleri engellemek için farklı uygulamalar geliştirmeye çalışmaktadırlar. Bu amaçla, pek çok polimer, mineral yağ ve silikon temelli köpük kesici ürünler üretilmiştir. Bu noktadan hareketle, yeni nesil polimer tabanlı PVA/SiO_2 köpük kesicisi sentezlenmiştir. PVA sahip olduğu kimyasal yapısı, suda kolay çözünebilmesi ve viskozite arttırıcı özelliği ile seçilmiştir. Hazırlanan PVA/SiO_2 hibrit köpük kesici sistemin farklı kompozisyonlarda yapılan çalışmalarda köpüğün oda sıcaklığında ortalama 240 sn'de 40˚C sıcaklıkta ise 120 s gibi oldukça kısa bir sürede etkili bir şekilde sönümlendiği gözlenmiştir. Bu sonuçlar ışığında, hazırlanan polimer-tabanlı hibrit köpük kesici sistemin umut vaat eden bir sistem olduğu söylenebilmektedir.

Anahtar Kelimeler: Köpük Önleyici, PVA, Silika, Polimer

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➢ **POSTER PRESENTATION**

Endüstriyel ölçekte su şartlandırmada silika inhibitörü olarak kullanılan fonksiyonel polimerlerin sentezi

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Özet

Büyük miktar su kullanılan birçok proses için silika, en önemli birikim problemlerinden biridir. Yüzeylerde biriken silika; polimerik silika, kalsiyum ve magnezyum silikatlar ve diğer inorganik bileşiklerin kompleks karışımlarından oluşmaktadır. Endüstride kullanılan kaynatma kazanları, soğutma kuleleri ve su saflaştırma sistemlerinde oluşan silika birikimi, ısı transferi yanında sıvı akış hızını da etkilemektedir. Silikanın çözünürlüğü endüstriyel su sistemlerinin etkili işleyişi için önemlidir. pH 7'nin üzerinde monomerik silika, kolloidal ya da oligomerik silika oluşturmak üzere polimerizasyona eğilimlidir. Bu çalışmanın amacı, su sistemlerinde oluşan silika polimerizasyonunu inhibe ederek yüzeylerde tortu oluşmasını engelleyen suda çözünür akrilik terpolimerlerin radikalik polimerizasyon yöntemi kullanılarak sentezlenmesidir. Polimerizasyonlarda, akrilik asit monomeri, polaritesi yüksek monomer ve noniyonik yapılı bir monomer kullanılmış, farklı başlatıcı ve indirgeyici ajanlar kullanılarak polimerizasyon verimi ve molekül ağırlığı dağılımı optimize edilmiştir. Ayrıca polimerizasyon sırasında katalizörler kullanılarak polimerizasyon verimi üzerine etkileri incelenmiştir. Elde edilen polimerlerin GPC ile molekül ağırlığı, polimerizasyon verimi ve molekül ağırlığı dağılımları analiz edilmiştir. FTIR analizleri gerçekleştirilmiş, termal ve pH stabiliteleri değerlendirilmiştir. Polimerlerin silika birikim inhibisyonu performansının belirlenmesi amacıyla, endüstride kullanılan performans testi gerçekleştirilmiştir. Farklı sıcaklık ve pH ortamlarında iyon tutma performanslarına bakılmıştır. Aktif karbon dispersiyon kabiliyeti ayrıca incelenmiştir. 4500 molekül ağırlığına sahip polimerin 12000 ppm'in üzerinde kalsiyum tutma kabiliyetine sahip olduğu belirlenmiştir. Geliştirilen polimerlerin endüstriyel boyutta denemeleri gerçekleştirilerek, su sistemleri üzerine etkileri incelenmiştir. Geliştirilen ürün mevcut endüstrilerde oldukça etkili ve ekonomik bir kullanım alternatifi sunmaktadır.

Anahtar Kelimeler: Silikat, polimer, soğutma sistemleri, su saflaştırma sistemleri, silika inhibitörü

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➢ **POSTER PRESENTATION**

Synthesis of silica particles using aqueous polymeric solution templates

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Abstract

Silica is one of the most widely used materials in industrial applications because of its properties such as biocompatibility, low toxicity, thermal stability, high reactivity, small size and high surface area, porous structure and inertness of the high temperature. It is used in cosmetics, surface coatings, catalytic processes, biomedical applications and high performance cement. Silica can be produced from organic silicates (tetraethyl orthosilicate (TEOS) or tetramethyl orthosilicate (TMOS)) and agricultural wastes such as rice husk, sugar cane, groundnut shell etc. In this study, silica nanoparticles were synthesized by using tetraethyl orthosilicate (TEOS) as silica source. Sol-gel method was used in the synthesis of silica to get well-dispersed particle distribution by the help of homo-poly acrylic acid (homo-PAA) as template to obtain regular shaped particles and to increase their light permeability. In the experiments, hydrogen ions of carboxylic acids existing in homo-PAA molecules were replaced with ammonium ions in ethanol medium. TEOS added to this medium was hydrolysed by the ammonia ions to produce silica sols. The effect of stirring rate on silica sol synthesis was investigated, then silica sols synthesized were analysed by dynamic light scattering technique (DLS) to find particle size distribution and Fourier transform infrared spectrophotometer (FTIR) to elucidate chemical bond structures in the sols. Silica sols produced were coated on glass surfaces as a thin film by dip coating method in different withdrawal speeds and number of coatings. The properties of coated films were determined with the analysis of scanning electron microscopy (SEM) for the surface morphology and UV-visible spectrophotometer including the integrated sphere for the transmittance of the coatings.

Keywords: silica, sol-gel, coating, template, polymer

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➢ **POSTER PRESENTATION**

Formation of flavour compounds by thermal process of green lentils (*Lens Culinaris* Medik), kidney beans (*Phaseolus Vulgaris* L.) hydrolysates

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Abstract

Green lentil (*Lens culinaris* Medik) and kidney bean (*Phaseolus vulgaris* L.), were used as a legume because of their rich content of carbohydrate, protein and lipid to get natural flavour by thermal processed. Firstly, pulse's hydrolysate that contain flavour precursors were obtained, enzymatically. As a term of mono- and di-saccharide, glucose was occured mostly in kidney bean hydrolysate than in green lentil hydrolysate. Fructose and sucrose were also detected in green lentil hydrolysate slightly but these saccharides could not be detected in kidney bean hydrolysate. The amount and the diversity of amino acid were much more in green lentil hydrolysate than that of kidney bean hydrolysate. L-alanine, L-isoleucine, L-valin, L-leucine, L-methionine, L-phenylalanine, L-lysin and L-threonine as amino acid were occured in both hydrolysates but mostly in green lentil hydrolysate. As a flavour precursor, palmitic acid occurred the most, then oleic acid, lauric acid in both hydrolysate, respectively. Linoleic acid, stearic acid occured in different proportion in both hydrolsates. Later, both hydrolysates were reacted thermally at different conditions by itself, individually. Lipid/terpene oxidation products like alcohols, aldehydes, ketones, maillard/caramelization reactions products like thiazoles, furfural, ester compounds, terpene/terpenoids were occurred in all thermally processed studying. More flavor compounds occurred in these reactions, which carried out at hydrolysates, own pH degree the thermal reactions were also carried out by addition amino acid, monosaccharide into the hydrolysates. Cacao/chocolate flavouring was obtained in the reaction using kidney bean hydrolysate and glucose. When the same reaction repeated using raisin (*Vitis vinifera* L.) extract instead of glucose, cacao/chocolate flavouring was also obtained. When both reactions were evaluated organoleptically, milkier chocolate notes was noted due to the occurring more caramelic notes from the reaction carried out using raisin extract. The obtained all results clarify that hydrolysates could be used as an alternative source of natural flavour enhancement.

Keywords: enzymatically hydrolysis, thermal reaction, natural flavour

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➢ **POSTER PRESENTATION**

Çevre dostu uygulamayla sentezlenen altın nanopartiküllerin antimikrobiyal ve sitotoksik etkileri

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Özet

Metalik nanopartiküller 1-100 nm arasında boyutlarda olan materyallerdir. Çeşitli uygulamaları nedeniyle tıpta oldukça önemlidirler. Metalik nanopartiküller kimyasal ve fiziksel yöntemlerle üretilebilir. Bu yöntemlerin çeşitli dezavantajları olduğundan biyolojik metotlarla metalik nanopartikül üretimi test edilmektedir. Bu çalışmada *Funalia trogii* kullanılarak üretilen altın nanopartiküllerin sitotoksik ve antimikrobiyal aktiviteleri araştırılmıştır. Nanopartiküller HCT-116 ve Hep3B kanser hücre hatları üzerine doza bağlı sitotoksik aktivite göstermişlerdir. Antimikrobiyal aktivite mikrodilisyon yöntemiyle minimum inhibe edici konsantrasyonunun (MİK) saptanmasına bağlı olarak değerlendirilmiştir. Bu nanopartiküller *Escherichia coli* (ATCC 25922), *Pseudomonas aeruginosa* (ATCC 27853), *Staphylococcus aureus* (ATCC 29213) ve *Candida albicans* (ATCC 90028) ve *Candida tropicalis* üzerine düşük düzeyde antimikrobiyal aktivite göstermiştir. Saptanan antimikrobiyal aktivitenin standart antibiyotiklerden daha düşük olduğu gözlenmiştir. Çalışma sonuçları bu fungal kaynakla sitotoksik ve antimikrobiyal aktiviteye sahip altın nanopartikül üretilebileceğini göstermiştir.
Bu çalışmayı 116Z336 nolu proje olarak destekleyen TÜBİTAK'a teşekkür ederiz.

Anahtar Kelimeler: Altın nanopartikül, Antimikrobiyal, Antikanser, *Funalia trogii*

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➢ **POSTER PRESENTATION**

Anatomical study on the genus *Iberis* L. (Brassicaceae) in Turkey

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Abstract

Iberis taxa natively found in Turkey are represented by 8 species and are annual and/or perennial herbs or subshrubs. In this study we show an anatomical description of Turkish Iberis taxa for the first time and try to solve the complexity of taxonomical uncertainties of the genus. Root, stem and leaf anatomies are investigated and stomatal index of Iberis is indicated. I. sempervirens is the only species without indumentum which has also a subshrub habit. There are two types of leaf anatomy as bilateral and isolateral. Iberis taxa found in Turkey are amphistomatic. Myrosine cells that are the characteristic of the tribe Brassicales are observed in all examined species. Anatomical results supported the separation of the two Mediterranean species as separate taxa. Anatomical features of the genus help to understand some taxonomical problems and solve doubtful results.

Keywords: Anatomy, taxonomy, *Iberis*, Brassicaceae, Turkey

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➢ **POSTER PRESENTATION**

Laurus Nobilis leaf extract mediated biosynthesis of copper oxide nanoparticles: characterization, antioxidant and antibacterial activity studies

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Abstract

The biosynthesis of metal oxide nanoparticles has attracted much attention in recent years due to its increasing demand in industries and medical fields as fillers, opacifiers, disinfectants, antimicrobial agents, catalysts, drug delivery materials etc. [1,2]. The compoundsin some plant and fruit extracts acts as a reductant of the metal oxide nanoparticles biogenic synthesis. CuO nanoparticles are highly potent antimicrobial agents because they exhibit biocidal effect against various pathogens that are resistant to many commercial antimicrobial agents [3]. Bay leaf (*Laurus nobilis*) belongs to the family Lauraceae, is one of the most widely used culinary spices in all Western countries and Asian countries [4]. In this study, the CuO nanoparticles were synthesized as simple, cost effective and eco-friendly using a *Laurus Nobilis* extract. For this purpose; collected *Laurus Nobilis* leaves were thoroughly washed with tap water and dried at room temperature in dust free condition. Dried leaves were crushed into finest powder. 20 g of the powder was boiled with 200 ml of water for 20 min. After the aqueous leaf powder has cooled to room temperature, it is were extracted by filtration (Whatman No.1) filter paper. 0,1 M copper sulfate solution at different ratios and the mixture was incubated on a water bath at 50 ^{o}C. The colour of the solution turned from light blue to blackish brown after two hours, indicating the formation of CuO NPs. The obtained CuO NPs were centrifuged at 10,000 rpm for 15 min, followed by the pellet re-dispersibility in the sterile distilled water to remove impurities. The obtained nanoparticles were characterized by UV-visible spectroscopy (UV–vis), X-ray diffractometer (XRD), Fourier transform infrared spectroscopy (FT-IR), Scanning electron microscopy (SEM), Energy dispersive analysis of x-ray (EDAX), Dynamic light scattering (DLS). The antimicrobial and antioxidant activities of all the samples obtained were studied and the results were discussed in detail.

Keywords: Biosynthesis, CuO Nanoparticles, Laurus Nobilis, Antimicrobial activity

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➢ **POSTER PRESENTATION**

In vitro study of mTOR gene expression in plasma based microrna-7 / chitosan complexes in hepatocellular carcinoma cell lines

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Abstract

MikroRNAs are small, endogenous and non-coding RNA molecules which regulate gene expression. Recent studies show that deregulation of miRNAs have been associated with different diseases including cancer. Therefore, miRNAs are important therapeutic target in cancer. However, major obstacles of usage miRNAs in therapy are stability, rapid clearance and internalization. For this reason, it is important in terms of therapy with appropriate carrier system to the cells. Aim of this study is to investigate efficacy (invasion, apoptosis and cell proliferation) and usability in hepatocellular carcinoma (HCC) cancer cell lines (Hep3B and HepG2) of polyplexes forms of chitosan and miR-7 mimic. miR-7 mimic and chitosan complex was prepared. In vitro characterisation of these complex was done. With these dosage have used to investigate mTOR protein levels by using ELISA assays and invasion, apoptosis and cell proliferation assays have done. Our studies show that chitosan/miR-7 complex was internalized stably to cancer cells, thus deregulated miRNA levels repaired. Invasiveness of cancer cells was reduced. Chitosan complexes were shown to be safe and efficient delivery system for miRNA.

Keywords: chitosan, chitosan/miR-7 complex, hepatocellular carcinoma, miR-7, miRNA delivery system.

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➢ **POSTER PRESENTATION**

Effect of different catalyst use in silica aerogel synthesis

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Abstract

Solid materials having different sizes, regular or irregular, sometimes quite complex structures, sometimes having interrelated or unrelated voids are called porous materials. Aerogels, a type of porous material, are generally transparent solids in which the liquid in the pores is replaced with air. Although aerogels have species such as organic aerogel, inorganic aerogel and carbon aerogel, silica aerogel, which is included in the inorganic group, is the most widely used aerogel type due to its many qualified properties. In this study, the effect of different catalyst use on silica aerogel synthesis was investigated. In the experimental study, in the first stage of hydrophobic silica aerogel synthesis by sol-gel method, TEOS (tetraethylorthosilicate) was used as the precursor of silica source, HCl (hydrochloric acid) catalyst was kept constant and different base catalysts were used. NH_4OH (ammonium hydroxide), KOH (potassium hydroxide), NaOH (sodium hydroxide). The base catalyst of the acid-base pair which was obtained the best yield was also kept constant and the synthesis of silica air with different acid catalysts HF (hydrofluoric acid), H_2O_2 (hydrogen peroxide) was performed. In this part of the experimental step the best results were obtained with the HCl-KOH acid base pair. In the other study, composite silica aerogel was obtained by adding different proportions of graphene oxide to silica aerogels synthesized with HCl catalyst. The adsorption capacity of the obtained silica aerogel composites against methylene blue was measured. It has been observed that as the amount of additive increases to the graphene oxide added samples, the capacity value increases. The highest adsorption capacity value was found to be 2483.61 mg/g.

Keywords: Silica aerogel, acid catalyst, base catalyst, hydrophobic

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➢ **POSTER PRESENTATION**

Sülfanilamid taşıyan yeni *N*-karboksamit ve bazı metal komplekslerinin sentezi

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Özet

Sülfonamitler, ilk modern antibiyotiklerden olup insanlar üzerinde 1930'larda kullanılmaya başlanmıştır. 1935 ve 1948 yılları arasında 4500 sülfonamit türevi sentezlenmiş ve antimikrobiyal aktiflikleri incelenmiştir, ancak bu bileşiklerden %0,5'i ilaç olarak kullanılmıştır. Sülfa ilaçlarının antimikrobiyal olarak ilk keşfedileni sülfanilamittir [1]. Sülfadiazine de antibakteriyel maddeler olarak hem de bir anti-sıtma ilaç olarak kullanılan bir sülfanilamid olup antimalarial olarak kullanılmaktadır. Sülfonamit ve sülfa ilaçlarından sentezlenen Schiff bazları ve bunların metal kompleksleri de biyolojik aktiflik göstermektedir [2,3]

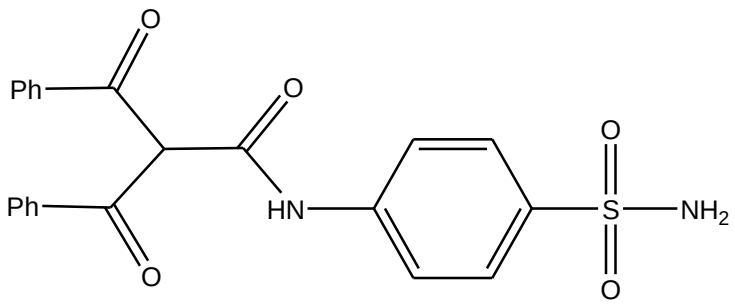

Fig. 1. *N*-karboksamit ligandın Yapısı

Anahtar Kelimeler: N-karboksamit, metal kompleks, sülfonilamid

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➢ **POSTER PRESENTATION**

Antepfıstığı psillidi olarak bilinen *Agonoscena pistasciae* Burckhardt & Lauterer (Hemiptera: Psyllidae)'nin biyolojisi ve biyolojik mücadele ajanlarının araştırılması

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Özet

Antepfıstığı psillidi *(Agonoscena pistasciae)* Hemiptera takımı Psyllidae familyasına bağlı bir tür olup 1 - 1,85 mm boylarında ve 5 nimf dönemi geçiren bir zararlıdır. Bir dişi birey yaşam süresi boyunca 100 - 150 yumurta bırakmaktadır. Zararlının kışlık formları kahverengi renkli, yazlık formları ise açık sarı ve beyazımsı renklidir. Dişi bireyler erkek bireylere oranla daha büyüktür. Zararlı, genellikle antepfıstığında emgi yapmak suretiyle zarar vermesinin yanında ender olarak populasyonun yoğun olduğu bahçelerde meyve ve genç sürgünlerde de emgi yapmak suretiyle zarar vermektedir. Zararlının nimfleri aşırı beslenme sonucu şekerimsi bir beslenme atığı ile yaprak yüzeyini kaplar ve yaprakta yaşamsal faaliyetleri olumsuz bir şekilde etkilemesine bağlı olarak yapraklar erken sararıp dökülür. Yaprak dökülmelerini karagöz (meyve gözü) dökümleri izler ve ağaçlarda ertesi yılın meyve verimini düşürür.

Bu çalışma Gaziantep ili Barak Ovası olarak bilinen Nizip ve Oğuzeli ilçeleri sınırlarında yer alan antepfıstıstığı bahçelerinde, bahar ve yaz aylarında 2015-2018 yılları arasında yürütülmüştür. Çalışmada antepfıstığı psillidi (*Agonoscena pistasciae*) olarak bilinen türün yumurta nimf, ergin, dönemleri belirlenerek ağaçlarda meydana getirdikleri zarar şekilleri tespit edilmiştir. Ayrıca bu türün bilinen doğal düşmanları arazi ortamlarında tespit edilerek toplanmıştır. Toplanan örnekler Sterio Mikroskop ortamında incelenmiş olup tür teşhisleri yapılmıştır. Araştırma alanı içerisinde antepfıstığı psillidi *(Agonoscena pistasciae)'*nin doğal düşmanları olarak *Anthocoris nemoralis, Piocoris luridus, Pharoscymnus pharoides, Oenopia conglobata, Harmonia quadripunctata, Psyllaephagus pistaciae, Hippodomia variegata, Chysoperla carnea, Deraeocoris pallens, Hyperaspis quadrimaculata* türleri tespit edilmiştir.

Anahtar Kelimeler: Antepfıstığı psillidi, *Agonoscena pistasciae*, biyolojik mücadele

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➢ **POSTER PRESENTATION**

The effect of whey concentration on *Spirulina platensis* under mixotrophic cultivation

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Abstract

Spirulina platensis, planktonic blue–green algae, gets attention because of its high protein and carotenoid content. The phototrophic cultivation is most abundant method that used in microalgae production. *Spirulina* sp. can utilize organic carbon substrates in heterotrophic and mixotrophic cultivations. Due to mixotrophic growth stimulate two metabolic processes, as photosynthesis and aerobic respiration, *S. platensis* showed different metabolic activity than photoautotrophic culture. Mixotrophic growth offers increasing microbial cell concentration in addition to protein, carbohydrate and lipid productivity. Additionally, lower light energy costs have been required in mixotrophic cultivation in comparison with photoautotrophic cultures. Some of carbohydrates and carbohydrate rich wastes have been used for mixotrophic cultivation of microalgae and different transport and assimilation mechanisms may be effective for each carbon source. In this present study the effect of different concentrations (1-30 %, v/v) of whey on the growth of *S. platensis* (Gamont) Geitler 1952 under mixotrophic cultivation was investigated. The maximum specific growth rate was detected as 0.11 day^{-1} with 1% (v/v) whey and also the highest protein content (1.5 mg/ g cell) was determined in the same medium. The concentration of chlorophyll was lower than phototrophic culture as expected. While the highest lipid content (3.76 mg/ g cell) was detected with 10% (v/v) whey, the total carbohydrate content did not show significant changes with different whey concentration. This result is an indication that various carbohydrate rich wastes can also be used as a carbon source in the production medium of *S. platensis.*

Keywords: *Spirulina platensis***,** mixotrophic culture, whey.

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➢ **POSTER PRESENTATION**

Nutrasötik bir gıda: Noni meyvesi ve özellikleri

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Özet

FDA'ya göre Fonksiyonel gıdalar, insan vücuduna alındığında kendi besleyici değerlerinin yanı sıra içerdiği maddelerin kombinasyonu sebebiyle sağlığa birçok yararlı etkisi bulunan gıdalardır. Tükettiğimiz gıdaların sağlık üzerine olumlu etkileri eskiden beri bilinmekle beraber fonksiyonel gıda kavramı son zamanlarda gündeme gelen ve oldukça rağbet gören bir konudur. Bunun sebepleri arasında insanların daha bilinçli tüketiciler haline gelmeleri, doğru bir beslenme ile birçok hastalığın hafifletilmesi hatta önüne geçilebilmesi ihtimalinin ümit verici olması, ilaçların yan etkilerinin fazlalığı, medikal tedavilerin güven kaybetmesi sayılabilir. Nutrasötikler ise fonksiyonel gıdaların kapsül, hap formuna getirilebilen kısmını temsil eder. Fonksiyonel gıdaların değerinin anlaşılması beraberinde ginseng, ekinezya, gingko biloba, sarımsak, sarı kantaron, nane, zencefil, soya, papatya, kava ve noni gibi gıdaların tüketiminde hızlı bir artış meydana getirmiştir. Latince ismi *Morinda citrifolia* olan noni meyvesi; hint dutu, tanrıların meyvesi, kumsal dutu, eskilerin aspirini isimleriyle de anılmaktadır. Noni, Pasifik Adaları, Güneydoğu Asya, Avustralya ve Hindistan'da lav suları arasında büyüyen her yıl yeşil kalan bodur bir ağaçtır. Meyveleri, yaprakları, kökleri, tohumları ve kabukları tüketilebilir. Meyvesinin suyu da içilebilmesine rağmen, tadı ve kokusu çoğu insanın damak zevkine hitap etmemektedir. Noni; ligan, oligosakkarit, polisakkarit, flavonoid, iridoit, yağ asitleri, kateşin gibi fitokimyasalları içermektedir. Ayrıca içerdiği kseronin ve prokseronin ile antidepresiftir, endorfin üretimini artırır. Antioksidan kaynağıdır, iltihapla savaşta başarılıdır, hücresel onarıma yardımcı olduğu için kanserle mücadelede de faydalıdır. Gıda sanayiinde meyvesinin ve suyunun tüketilmesinin yanı sıra besin takviyesi olarak piyasada yer almaktadır. Ayrıca noniden şampuan, nemlendirici, boya maddesi ve ilaç yapımında ingredient olarak yararlanılmaktadır.Sağlık etkileri ve geniş kullanım alanı sayesinde tanınırlığı ve tüketimi artan noni meyvesi günümüzde bir süper gıda olarak anılmaktadır. Bu çalışmanın amacı; fonksiyonel, nutrasötik bir gıda olan noni meyvesinin ülkemizdeki tanınırlığına katkı sağlamak; ayrıca yapısındaki biyoaktif bileşiklerin ve sağlık üzerine etkilerinin irdelenmesi ile yeni kullanım alanlarına kapı açmaktır.

Anahtar Kelimeler: nutrasötik gıda, süper gıda, noni meyvesi

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➢ **POSTER PRESENTATION**

Topraktan İzole Edilen Bakterilerin Herbisit Degredasyon Potansiyellerinin Belirlenmesi Ve Moleküler Düzeyde Tanımlanması

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Özet

N-(fosfonometil) glisin (glifosat), kararlı karbon-fosfat (C-P) bağlı, sentetik ve seçici olmayan bir herbisit bileşiği iken 2,4-diklorofenoksi asetik asit (2,4-D), fenoksi asitler grubuna dahil olan, seçici bir herbisittir. 2,4-D'nin teratojenik, mutajenik ve karsinojenik etkileri olduğu bilinen kalıntıları geri dönüşümsüz sorunlara neden olabilmektedir. Öte yandan, glifosatın kanseronojenik etkiler gösterdiği ve memeli olmayan türlerde oksidatif stres ve asetilkolinesteraz inhibisyonu ile organ hasarına neden olduğu bildirilmiştir. Yapılan önceki çalışmalarda, bazı toprak bakterilerinin glifosat ve 2,4-D'yi parçalayabildikleri tespit edilmiştir. Glifosatı degrede edebilen canlılar arasında *Achromobacter* sp., *Comamonas odontotermitis*, ve *Pseudomonas sp*. sayılabilirken; 2,4-D parçalayıcı olarak *Achromobacter*, *Arthrobacter*, *Corynebacterium*, *Cupriavidus* cinsleri örnek olarak verilebilir. Bu çalışmada, Kahramanmaraş ve Balıkesir bölgelerinde sırasıyla glifosat ve 2,4-D ile mumamele edilmiş iki tarım arazisinden izole edilen bakterilerin adı geçen herbisitleri degrede etme potansiyellerinin spektrofotometrik testler yardımıyla belirlenmesi ve bu bakterilerin gen sekanslama ve protein analizi yöntemiyle moleküler düzeyde tanımlanması amaçlanmıştır. Bu amaç doğrultusunda; seri seçilimlerle elde edilen bakteri kolonilerinin, izole edildikleri araziye bağlı olarak üç farklı derişimde (0,1g/L, 0,5g/L ve 1g/L) glifosat ya da 2,4-D dışında herhangi bir karbon kaynağı içermeyen besiyerinde yetiştirilmeleri sağlanmıştır. Yetiştirilen bakterilerin büyüme hızları 14. günde takip edilmiş ve degredasyon yeteneklerini anlamak için bakterilerin yetiştirildiği sıvı ortamında kalan miktarlar aynı süre sonunda ölçülmüştür. Elde edilen sonuçlara göre; izole edilen bakterilerden hiçbiri glifosatı degrede edememekte hatta bazılarında glifosat bakteri büyümesini olumsuz yönde etkilemektedir. Yine de, bu ortamda en iyi büyüme gösteren bakteriler *Klebsiella variicola* ve *Klebsiella pneumoniae* olarak tanımlanmıştır. Öte yandan, 2,4-D'yi degrede edebilen bir koloni bulunmuş ve bunun bir *Acinetobacter baumannii* kolonisi olduğu tespit edilmiştir. Çalışmanın devamında, daha fazla seçilen koloni üzerinde tanımlama yapılacak ve degredasyon seviyeleri HPLC kullanılarak tayin edilecektir.

Anahtar Kelimeler: glifosat, 2,4-D, toprak bakterileri, moleküler tanımlama.

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➢ **POSTER PRESENTATION**

Voltammetric pathway for the analysis of desmedipham herbicide on modified hematite (α-Fe_2O_3 nanoparticles) carbon paste electrode

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Abstract

Desmedipham (ethyl 3-phenylcarbamoyloxycarbanilate) is a post-emergence herbicide used to control undesirable broadleaf weed during the cultivation of sugar beets. Desmedipham is a family of phenyl-carbamates, commonly called as a carbanilate. There are few analytical methods in desmedipham determination and the most commonly used are chromatographic methods up to now. However, no studies have been reported by investigated voltammetric methods for the analysis of desmedipham herbicide. The aim of this study is to determine the desmedipham herbicide that was not previously analyzed by voltammetric methods by square wave stripping voltammetry (SWSV) on a modified electrode as α-Fe_2O_3-CPE. The modified α- Fe_2O_3–CPE prepared by hematite (α- Fe_2O_3 nanoparticles) is very sensitive to carbon paste electrode (CPE) and glassy carbon electrode (GCE). Morphology of electrode surface was investigated by scanning electron microscopy (SEM) and energy dispersive X-ray analysis (EDX). The oxidation of desmedipham created irreversible well-done two peaks at nearly +1.1 and +1.3 V potentials. In order to obtain the best calibration graph, various important parameters such as pH, accumulation time, accumulation potential, step potential, puls amplitude and frequency were investigated. Under the optimum conditions, electrochemical behavior of desmedipham presented two linear working ranges at 0.15–1.20 mg/L and 1.20–4.50 mg/L. The limits of detection (LOD) for the desmedipham were calculated as 41.00 and 50.00 µg/L for the peak I and II, respectively. Moreover, desmedipham herbicide was analyzed at high recovery in the presence of some pesticides such as rizolex, fluometuron, teflubenzuron and some heavy metal ions like Fe (III) and Cu (II) ions. Consequently, the developed SWSV was successfully applied to evaluate desmedipham in spiked commercial strawberry juices at recoveries of 96.00–104.00% with lower relative standard deviations.

Key Words: Desmedipham, Voltammetry, Determination, Modified electrode

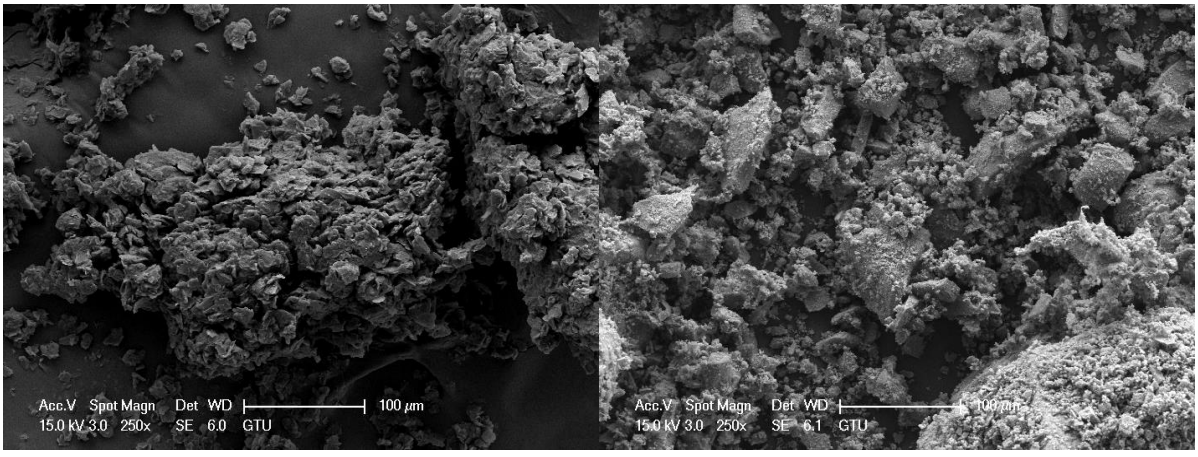

Figure 1. SEM images of bare CPE and modified α-Fe_2O_3-CPE

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➢ **POSTER PRESENTATION**

Identification of Molecular Targets and Signatures in Rheumatoid arthritis Using Human Protein İnteraction Network

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Abstract

Rheumatoid arthritis (RA) is an autoimmune disease and frequently seen that causes chronic synovial inflammation, eventually leading to joint destruction, chronic disability and reduced life expectancy. The pathogenesis of RA is not completely understood, therefore in the present study high-dimensional functional genomic data were integrated with system biology tools and the molecular targets and signatures in RA were determined. We analysed three and two independent transcriptome datasets including synovial tissues and synovial macrophage tissues from RA patients, respectively. Differential expressed genes (DEGs) were obtained from each dataset by using Limma in R language by comparing diseased and healthy samples. Afterwards, the protein- protein interaction (PPI) network was reconstructed using differential gene expression and enrichment analysis of DEGs were executes. It was identified 110 and 1240 mutual differential expressed transcripts from synovial tissues and synovial macrophage tissues, respectively. Whereas PPI network reconstruction for synovial tissues were achieved via first neighbour enriched genes, other PPI was reconstructed among mutual DEGs. According to degree and betweenness centrality analysis results of PPI network, CCR5, PTPRC, EGFR,STAT1, BCL6 and CRYAB for synovial tissues, SUMO1, CEBPA, GRB2, UBC, CDC5L and STAT1 for synovial macrophages tissues were identified as hub proteins. These group genes give crucial information about RA pathogenesis because of overall network of genes with higher degree in the PPI network. To determine the biological role and pathway annotations of each gene in detailed, we manually searched GeneCards Human Gene Database. Among these proteins, STAT1 was found to be a mutual molecular target for synovial and synovial macrophage tissues. It is predicted that these molecular targets can be used in the diagnosis and treatment strategies of RA. However, it is necessary to perform experimental studies with real time-PCR.

Keywords: systems biology, transcriptome, biomarkers.

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➢ **POSTER PRESENTATION**

Enhancing a sorbet formulation enriched with medicinal and aromatic plants

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Abstract

Beverages are liquids obtained from various plants and fruits and prepared by the addition of some aromatic components. Sherbet is a traditional drink that is important in our culture. Sorbets were very widely consumed beverages before fruit juices and sodas became widespread use in Turkey. The medicinal and aromatic herbs used in the preparation of sorbet contain bioactive components that help in the treatment of many diseases. The therapeutic use of plants is as old as human history. They are still used from past to present with their medical and aromatic properties. Medicinal and aromatic plants have antioxidant and immune system enhancing effects because of the phenolic compounds they contain. Suppression of the immune system causes many diseases and reduces the quality of life. Antioxidants are effective in strengthening the immune system, thus preventing disease or reducing the risk of disease.

In this study, it was purposed to develop new sorbet formulations (ingredients: rosehip, hibiscus, clove, cinnamon, ginger, turmeric, lemon, honey) by the use of medicinal and/or aromatic plants known to have immune system support properties in the literature, and besides the sensory properties the phenolic substances and antioxidant activities of the obtained functional sorbets were investigated. The total phenolic contents, DPPH radical clearing activities, and the FRAP antioxidant activities of the sorbet samples, produced by new formulations, were compared with the control honey sorbet. As a result, although there was no statistically significant difference in terms of sensory properties, the phenolic substance contents and antioxidant activity values of the sorbets enhanced were found significantly higher than the control. When the formulation contents were compared, it was found that the contribution of the amount of hibiscus to the formulation of the used in sorbet production was the highest in terms of the phenolic substance content and antioxidant activity.

Keywords: Functional beverage, sorbet, antioxidant activity, phenolic substance, sensory analysis.

➢ **POSTER PRESENTATION**

Farklı Ambalaj Materyallerinde Muhafaza Edilen Zeytinyağlarında Kalite Parametrelerinin Karşılaştırılması

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Özet

Çalışmamızda Gemlik ve Memecik çeşitlerinden erken hasat dönemindeelde edilen zeytinyağlarınkalite parametrelerininzamana bağlı olarak değişiminefarklı ambalaj materyallerinin etkisinin araştırılması amaçlanmıştır. Bu amaçla açık ve koyu renk cam, açık ve koyu renk polietilen ve metalambalaj materyalleri kullanılmıştır.Bornova Zeytincilik Araştırma Enstitüsünden temin edilen zeytinyağları Gıda ve Yem Kontrol Merkez Araştırma Enstitüsü Bitkisel Ürünler Bölümü Yağ Laboratuvarında, 25±3°C' de muhafaza edilmiştir.1 yıl boyunca 2 aylık periyotlarda, serbest yağ asitliği, peroksit değeri, özgül soğurma analizleri yapılarak ambalaj materyalinin etkisi ve çeşitler arasındaki farklılıklarincelenmiştir.Elde edilen sonuçlar Jump istatistiki analiz programında değerlendirilmiştir.

Anahtar Kelimeler: zeytinyağı, peroksit, serbest yağ asitliği, özgül soğurma

2nd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2019)

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➢ **POSTER PRESENTATION**

The effect of some supramolecules on activity of *Candida rugosa* lipase

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Abstract

Lipases constitute one of the most important group of biocatalysts for biotechnological applications because they can catalyze different reaction types including hydrolysis, transesterification, alcoholysis, acidolysis, esterification, and aminolysis. In fact, lipases are endowed with a very wide substrate specificity that could lead to a potential boundless application of these enzymes.

As many other lipases, *Candida rugosa* lipase (CRL) is a versatile biocatalyst and numerous strategies have been adopted for its use in non-conventional media. It is widely used for the catalysis in organic solvents in a free-form, or in a surfactant-coated enzyme form both in organic solvents and in organic-aqueous two-phase systems. The presence of amphiphiles might be responsible for the conformational changes of the protein that induce enzyme activation. In fact, lipases having a lid, like CRL, showed interfacial activation; surfactants can induce those conformational changes in enzyme that open the lid and give access to its active site.

In this study, some supramolecules were first time used as a surfactant to see effect on the hydrolytic activity of *Candida rugosa* lipase. The hydrolysis of p-nitrophenyl palmitate as probe reaction was investigated and the dependence of reaction rates on surfactant concentrations and pH was studied.

Keywords: Candida rugosa lipase, surfactant, activity, supramolecules

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➢ **POSTER PRESENTATION**

Studies on anticholinesterase and antioxidant effects of samples from *Iris* L. genus of Turkish origin

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Abstract

The genus *Iris* L. (Iridaceae) is a member of geophytes with attractive flowers. There are about 56 *Iris* taxa growing in Turkey, 24 of which are endemic. A survey of the literature indicates that the research carried out on *Iris* species are focused on the flavonoid and volatile compounds of the plant.

In present study, the dichloromethane and methanol extracts prepared from the bulbs of 47 *Iris* taxa growing in Turkey were investigated for their *in vitro* cholinesterase inhibitory effects against acetylcholinesterase (AChE) and butyrylcholinesterase (BuChE) which the enzymes linked to Alzheimer's diseases and also antioxidant capacities using 2,2-Diphenyl-1-picrylhydrazyl (DPPH) radical scavenging test.

The *Iris* extracts studied have been found more active against BuChE than AChE. Compared with 100 µg/ml galantamine (89.29 ± 0.96 %) as reference, *Iris kerneriana* (coded as Y122) and *Iris pseudacorus* (coded as Y131) methanol extracts had significant BuChE inhibition effect (respectively, 80.22 ± 1.04 % and 53.06 ± 1.13 %) at concentration of 200 µg/ml. Among tested samples, methanol extracts of *I. kerneriana*, *I. lazica*, *I. pseudacorus* and *I. suaveolens* have shown remarkable antioxidant activity at concentration of 2 mg/ml for DPPH compared with gallic asid.

Keywords: *Iris*, Anticholinesterase, Antioxidant

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➢ **POSTER PRESENTATION**

Green synthesis of *Rhododendron ponticum* and its antibacterial and antibiofilm activity

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Abstract

Nanotechnology is contemporarily being used in many areas. Nanopartciles also are one of the most crucial and effective nanomaterials. Moreover, silver nanoparticles (AgNPs) have a significant role in nanotechnology, nanomedicine which are include in biomedical applications. AgNPs mostly use in antibacterial and antiseptic applications due to its toxic effect against microorganisms. *Rhododendron ponticum* is a shrubby plant that is a forest waste. In present study, AgNPs synthesized from *R. ponticum* water and ethanol extract using green synthesis method. Also AgNPs were analyzed and characterized by UV-vis spectrophotometer, scanning electron microscope (SEM) and X-Ray Diffactometer (XRD). The antibacterial activity of of AgNPs was practiced using minimum inhibition concentration (MIC) assay. The highest antibacterial activity was obtained from AgNPs prepared with dH_2O plant extraction. It showed the antibacterial feature against fourteen bacteria from eighteen tested bacteria. Besides the biofilm inhibition test for two AgNPs was performed and both of them demonstrated a strong biofilm inhibition effect.

Keywords: Silver nanoparticles; Green synthesis, *Rhododendron ponticum*, biofilm, antibacterial activity

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➢ **POSTER PRESENTATION**

Isolation and identification of cholinesterase inhibitors from the bulbs of *Iris pseudacorus* L.

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Abstract

Most of the bulbous plants are known for their medicinal purposes in addition to their ornamental value. Turkey is one of the home country of many beautiful bulbous plants. In continuation of our extensive studies on finding new natural cholinesterase inhibitors from Turkish medicinal plants, *Iris* L. species were investigated for their *in vitro* cholinesterase inhibitory effects designed to assess cholinesterase inhibitor activities on both acetylcholinesterase (AChE) and butyrylcholinesterase (BuChE) and antioxidant capacities with respect to their neuroprotective potential in this study.

The dichloromethane and methanol extracts prepared from the bulbs of 47 *Iris* taxa were screened by using modified Ellmann method and the highest butyrylcholinesterase inhibitory effect was found in the methanol extract of the bulbs of *Iris pseudacorus* L. The dichloromethane subextract, which is obtained bioactivity-guided fractionation of methanol extract of *I. pseudacorus* L., was exhibited significant butyrylcholinesterase inhibitory activity (73.65 ± 2.06 %). These active subextract was subjected to fractionation on column chromatography and obtained six fractions. Among the fractions, coded as N5 was shown the significant butyrylcholinesterase inhibitory activity (93.78 ± 1.49 %) compared with galanthamine (80.02 ± 0.12 %). Fractionation of N5 on flash chromatography the highest butyrylcholinesterase inhibitory activity of subfraction coded as DS-5 was determined as 94.00 ± 1.03 %. The responsible compound from the activity of this subfraction was detected as irisolidon glucopyranoside based on its mass data by using LC-ESI-Q/TOF-MS-MS technique.

Keywords: *Iris pseudacorus* L., Activity, Anticholinesterase

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➢ **POSTER PRESENTATION**

Quantum dot nanoparticle size effects on electro-optical and dielectric characteristic of nematic liquid crystals

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Abstract

Liquid crystals and quantum dot nanoparticles have been studied intensively in science and technology to develop various optoelectronic devices. This study reports that quantum dot nanoparticle size effect on electro-optical and dielectric characteristic of nematic liquid crystals. Some important electro-optical and dielectric parameters such as, threshold voltage, response time, relaxation frequency and relaxation time have been determined for the composites by using electro-optical and dielectric experimental data. Results show that quantum dot nanoparticle size significantly influenced the electro-optical and dielectric properties of liquid crystals.

Keywords: Nematic liquid crystals, quantum dot nanoparticle, dielectric properties.

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➢ **POSTER PRESENTATION**

The comparison of ZnO nanoparticle removal by *Myriophyllum spicatum* in tap and pond water

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Abstract

Nanotechnology is one of the fastest growing technologies using nanoscale materials to produce smart and stronger structures, devices, etc. Inevitably high amount of nanoparticles is released into aquatic environment. Although, the toxic effects of nanoparticles on aquatic organisms including fish, plankton etc. are known, the removal of nanoparticles using biological techniques is still under investigation. Aquatic macrophytes are considered as promising organisms for the removal of nanoparticles.

In the present study we aimed to evaluate the removal rates of *Myriophyllum spicatum* which was exposed to 0.8 and 2 ppm ZnO nanoparticles (NP). We also compared the removal rates of nanoparticles dissolved in tap water and pond water. The plants were harvested on 1, 4 and 7th days and the amount of Zn nanoparticles in bioassay medium was measured by ICP-MS. The removal percentages were calculated and compared for significant differences.

The maximum removal percentage in both groups was observed at 0.8 ppm ZnO NP, however, the removal percentage was slightly higher in pond water. The differences between the removal rates in tap and pond water groups might be due to the nutrient availability, the physico-chemical features and/or aquatic organisms including plankton and bacteria.

Keywords: Nanotechnology, ZnO, phytoremediation, *Myriophyllum*.

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➢ **POSTER PRESENTATION**

Microbiological, biochemical and sensory properties of white cheese collected from Kastamonu region

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Abstract

Turkish white cheese is the most popular cheese variety in Turkey, representing approximately 60% of the country's total cheese production. However, some types are still produced in only limited areas and most of them are forgotten depending on the changes of socioeconomic status. These cheeses differentiated from each other in time depending on the specific demands of the people and climate. In this study, three samples of white cheese were collected from an open market at the centre of Kastamonu city. White cheese was produced from cow milk in different villages of Kastamonu and also sold without any further process. The experiment was designed to monitor the shelf life of the white cheese samples, which were stored at a recommended temperature (5ºC) and elevated temperatures (15ºC and 25ºC), during their shelf life study. Microbiological, chemical and sensory tests were performed according to a plan, which included the test of the first day and conducting the same tests in seven day intervals for 5ºC, 15ºC and 25ºC. As a result of the study it was observed that the shelf life of the cheese samples were ended at the 7th day for all samples and all temperatures. The pH values were observed to be high in all samples and showed no significant pH decrease during the storage at different temperatures. On the other hand, the salt content was observed to be decreased in all samples for all temperatures. The results for the microbiological tests showed that numbers of microorganisms, which were indicators of the hygienic quality, such as Coliforms, Salmonella and Staphylococci were present in cheese at relatively high levels after storage process. On the other hand, elevated storage temperatures caused an increase in the total bacteria count, mainly accompanied by a change of sensory properties.

Keywords: White cheese; microbiological; chemical properties; sensory characteristics evaluation.

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➢ **POSTER PRESENTATION**

H_2S gas sensing properties of the V_2O_5 sensor with nanowire structure deposited by hydrothermal method

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Abstract

V_2O_5 nanowire structure was successfully deposited on glass substrates by hydrothermal method at 90 ^oC for the deposition time of 4 h. The structural, morphological, compositional and H_2S gas sensing properties of the nanowire structure were investigated by XRD, SEM, EDAX and gas measurement system, respectively. The XRD and SEM studies indicated that the nanowire structure exhibited polycrystalline nature with monoclinic phase of V_2O_5 and was covered well on glass substrates. H_2S gas sensing measurements were carried out as a function of temperature and gas concentrations. The sensing response of the V_2O_5 nanowire structure sensor increased with operating temperature and reached to the maximum value at below the operating temperature of 50 °C. The V_2O_5 nanowire structure sensor exhibited high sensing response when exposed to H_2S gas concentration in the range of 2-50 ppm at operating temperature.

Keywords: V_2O_5, Gas Sensor, Hydrothermal Method, Nanowire

Acknowledgements: This study was supported by TUBITAK with Project No: 216M387.

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➢ **POSTER PRESENTATION**

Yenilenebilir enerji kaynakları

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Özet

Bilim ve teknolojinin hızla gelişmesi enerji ihtiyacını her geçen gün arttırmaktadır. Son yıllarda, kömür, petrol ve doğalgaz gibi fosil yakıtların çevresel ve ekonomik olumsuz etkileri nedeniyle alternatif enerji kaynakları aranmaya başlanmıştır. Bu durum insanları, hidroelektrik enerji, jeotermal enerji, güneş enerjisi ve rüzgar enerjisi gibi doğal süreçlerde var olan ve durmaksızın devam eden enerji akışından sağlanan enerji kaynaklarına, yani yenilenebilir enerjiye yöneltmiştir. Yenilenebilir enerji kaynağı; enerji kaynağından alınan enerjiye eşit oranda veya kaynağın tükenme hızından daha çabuk bir şekilde kendini yenileyebilmesi ile tanımlanır. Güneş enerjisi, yenilenebilir enerji kaynakları arasında oldukça önemli bir yere sahiptir. Elektrik üretimindeki payı gün geçtikçe arttığından, bu alanda yapılan çalışmalar oldukça önem kazanmış ve giderek yoğunlaşmıştır. Bu yoğun çalışmaların başında güneş panelleri üretimi gelmektedir. Güneş panelleri, güneş enerjisinden elektrik elde etmek için kullanılan en önemli malzemelerden biridir ve çalışma prensibi olarak, üzerine gelen ışığı doğrudan elektrik enerjisine dönüştüren araçtır. İnce Film Güneş Paneli'nin ortaya çıkmasının en büyük amacı, maliyeti düşürmesidir ve alışageldik panellerden değişik şekilde diğer hücrelerle bağlantı gerektirmeyen bir şekilde dizayn edilmesidir. Güneş panellerinde, ucuz imal edilen panellerin kullanımı için daha geniş bir alana ihtiyaç duyulur. Bu alana daha fazla panel yerleştirilerek istenilen enerji üretiminin gerçekleşmesi planlanır. Günümüzde sıkça kullanılan ince film güneş panelleri, Amorf Silisyum olarak küçük cihazların çalıştırılmasında ve binaların dış cephelerinde tercih edilirler. Milimetrenin binde biri ya da milyonda birinden elde edilen incelikte olan bu ürünler oldukça ekonomiktir.

Anahtar Kelimeler: Enerji, Yenilenebilir Enerji, Güneş Panelleri, İnce Film.

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➢ **POSTER PRESENTATION**

Yetişkin bireylerin meyve suyu satın alma ve tüketim alışkanlarının değerlendirilmesi

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Özet

Bu araştırma, yetişkin bireylerin meyve suyu satın alma ve tüketim alışkanlıklarının değerlendirilmesi amacıyla yürütülmüştür. Araştırma 18-64 yaş arası 128'i erkek 118'i kadın olmak üzere toplam 246 yetişkin birey üzerinde yapılmıştır. Bireylerin meyve suyu satın alma ve tüketim alışkanlıklarının belirlenbilmesi amacıyla yüz yüze görüşme tekniği ile bir anket formu uygulanmıştır. Bireylerin %87.0'si en az haftada 1 kez meyve suyu çeşitlerini tüketmektedir. Bireylerin meyve suyu çeşitlerini satın alırken dikkat ettikleri unsurlar ise sırasıyla; üretim ve son kullanma tarihi (%86.5), içindekiler (%76.4), fiyat (%59.3) ve besin değeri (%45.1) bilgisidir. Bireylerin %77.8'inin meyve suyu çeşitlerini satın alırken ambalajlarına dikkat ettikleri saptanmıştır. Satın alırken en sık cam (%63.0) ve karton (%19.1); en az ise plastik (%2) ambalajın tercih edildiği belirlenmiştir. Bireylerin en sık tükettikleri meyve suyu çeşitleri sırasıyla; taze sıkılmış meyve suları (%84.9), %100 meyve suları (%60.9), meyve nektarları (%39.0) ve aromalı meyve sularıdır (%30.9). Meyvesine/aromasına göre en sık tüketilen meyve suyu çeşitleri ise sırasıyla; portakal suyu (%77.6), vişne suyu (%58.9), karışık meyve suyu (%54.0), şeftali suyu (%51.2), nar suyu (%36.1), elma suyu (%32.5), ananas suyu (%24.3) ve mango suyudur (%19.9). Bireyler meyve sularını en sık marketlerden temin ettiklerini (%51.6), %36.6'sı ise meyve suyu çeşitlerini evde kendi imkanları ile hazırladıklarını belirtmiştir. Bireylerin meyve suyu çeşitlerini en sık tükettikleri yerler ise; ev(%84.5), kafeler(%48.3) ve pastanelerdir(%24.8). Yüzde 74.7'si tadını sevdikleri, %58.9'u sağlıklı olduğu, %53.6'sı vitamin içeriği yüksek olduğu ve %17.4'ü ise maliyeti düşük olduğu için meyve suyu çeşitlerini tükettiklerini ifade etmişlerdir. Yüzde 65.4'ü ise özellikle taze sıkılmış meyve sularının; taze(%69.4) ve doğal(%77.6) olması, eklenmiş şeker içermemesi(%49.4), C vitamini içeriğinin yüksek olması(%44.7) nedenleriyle daha sağlıklı olduğunu düşündükleri belirtmiştir. Bu çalışmanın sonucunda; bireylerin büyük çoğunluğunun meyve suyu çeşitlerini satın aldıkları/tükettikleri ve özellikle taze sıkılmış çeşitlere bir yönelim olduğu bulunmuştur. Meyve suyu tüketimlerinde ise doğallığın/tazeliğin, lezzet algılarının ve sağlık üzerine olumlu etkileri olduğu düşüncesinin ana motivasyon unsurları olduğu belirlenmiştir.

Anahtar Kelimeler: Meyve suyu, Taze sıkılmış meyve suyu, Sağlık, Ambalaj

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➢ **POSTER PRESENTATION**

Morphological,Morphometrical and Biometrical study on Bat (Chiroptera: Megachiroptera, Microchiroptera) fauna in Hamadan province

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Abstract

This dissertation was conducted for morphological, morphometric and biometric studies of bat fauna in Hamedan province during 2016-2017. In this study, based on geographical and climatic location of the province, 19 regions around 8 cities (Razan, Kabudarahang, Hamedan, Bahar, Asadabad, Malayer, Tuyserkan, and Nahavand) across the province were selected as research stations. In different seasons of the year (spring, summer and autumn), sampling was done from caves, aqueducts, wall gaps, bridges and parks using the mist net in the nighttime and from tombs ceiling, temples ceiling, gable roof of old places and caves gaps using the handmade net in the daytime. A total of 251 live samples (170 male and 81 female bats) were collected. The collected samples were put in special cages and gradually transferred to Animal Bio-Systematic Laboratory of Zanjan University. The biometric method was used to identify the species. The results of the study showed that four species of rats with four genera including *Rhinolophus ferrumequinum*, *Myotis.blythii*, *Miniopterus schreibersil*, *Pipistrellus kuhlii* from 2 families of Rhinolophidae and Vespertilionidae are distributed in these areas of Hamedan province.

Keywords: Bat, Morphology, Morphometric, Biometric, Hamedan province, Iran

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➢ **POSTER PRESENTATION**

Determination of anastomosis groups, characteristic traits and pathogenicities of *Rhizoctonia* groups fungi isolated from the red head cabbage growing area in Samsun province*

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Abstract

A total of 85 isolates of *Rhizoctonia* spp. from 3 different anastomosis groups (AG) were recovered from diseased red head cabbage plants, collected from Samsun provinces in the Black Sea region, Turkey. The isolates of *Rhizoctonia* spp. associated with root rot of red head cabbage were examined for their cultural characteristics, anastomosis groups and pathogenicity. Of these, 88.23% were multinucleate (MN) *Rhizoctonia solani* (AG 4 and AG 5) and 11.76% were binucleate (BN) *Rhizoctonia* (AG A). Sixty four of the isolates belonged to AG 4 which was the most frequent group (75.29%) in all fields surveyed. Other isolates of MN *R. solani* were determined as AG 5 (12.94%). Ten isolates from BN *Rhizoctonia* were found, and the all were identified as AG A (11.76%). All isolates of *Rhizoctonia* spp. tested for growth rates grew at temperatures of 10, 15, 20, 25, 30 and 35°C, whereas they were completely inhibited at 5°C. The results of pathogenicity tests showed that the differences in virulence among isolates of *Rhizoctonia* spp. were statistically significant ($P<0.05$). In pathogenicity assay, all isolates of MN *R. solani* AG 4 and AG 5 tested on red head cabbage (cv Rondale F1) seedlings had the highest virulence level (Disease Severity Index (DSI): 3.0). Additionally, DSI of isolates of BN *Rhizoctonia* AG A ranged from 1.50-2.16. As a result, MN *Rhizoctonia* spp. was found to be widespread in the red head cabbage production areas that were cultivated in the Bafra district of Samsun province of Black Sea region. To our knowledge, this is the first report of MN *R. solani* AG 4, AG 5 and BN *Rhizoctonia* AG A occurring on red head cabbage, one of the most important brassicae species, in Turkey.

Key words: Anastomosis group, *Rhizoctonia* spp., red head cabbage, root rot, pathogenicity.

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➢ **POSTER PRESENTATION**

The raphignathoid mites (Acari: Raphignathoidea) from Zigana, Turkey

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Abstract

The mites (Acari), a group within the arachnids (Arachnida), have a wide distribution in the world. The superfamily Raphignathoidea belongs to the mite order Trombidiformes. The members of superfamily live in soil, litter, moss, tree bark and stored products. The superfamily comprises 11 families, 8 of which have been recorded from Turkey. Zigana, a gate in Turkey, is located between Trabzon and Gümüşhane provinces. This paper reports 7 species belonging to 4 families Caligonellidae Grandjean, Cryptognathidae Oudemans, Raphignathidae Kramer and Stigmaeidae Oudemans: *Raphignathus gracilis* (Rack), *Eustigmaeus anauniensis* (Canestrini), *Eustigmaeus segnis* (Koch), *Stigmaeus longipilis* (Canestrini), *Storchia robusta* (Berlese), *Cryptognathus lagena* Kramer and *Caligonella humilis* (Koch). These species already known from Turkey and were newly recorded from Zigana. The mite specimens were extracted Berlese funnels, cleared in 60% lactic acid and mounted on microscopic slides in Hoyer's medium. The short descriptions, habitats and the distributions of all determined species were given. With study, we aimed to contribute to the distribution of raphignathoid mites in Turkey.

Keywords: Acari, Zigana, Record, Turkey.

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➢ **POSTER PRESENTATION**

Biyoaktif bileşiklerin oleojel dağıtım sistemleriyle hazırlanması ve uygulamaları

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Özet

Oleojel, yemeklik likit yağların uygun organojelatörlerle karıştırılması ve işlenmesiyle hazırlanmış, oda sıcaklığında yarı katı/katı kıvamda olan, çoğunlukla termo geri dönüşümlü, üç boyutlu ağ yapıdaki jellerdir. Gıda sektöründe katı yağ ihtiyacını karşılamak için kullanılmaktadır. Ancak ilgi çekici yapısal özellikleri (kolay hazırlanma, yenebilir ve güvenli olma, ucuz olma, uzun raf ömür, termo geri dönüşümlülük vb.) nedeniyle birçok biyo-aktif bileşenin enkapsülasyonunda ve dağıtım sistemlerinin hazırlanmasında da büyük bir potansiyel bulunmaktadır. Özellikle biyo-aktif ve farmakolojik maddelerin oral ve dermal dağıtım ve kontrollü salım sistemleri için araştırmalar yapılmaktadır. Bileşenlerin çözünürlük sorununun giderilmesi, korunması, kontrollü salınım, kolay erişebilirlik, kolay hazırlanma, ucuz olma gibi avantajlar sunmaktadır. Bu derlemede konu ana hatlarıyla incelenmiş ve gelecek için araştırma ihtiyaçları tartışılmıştır.

Anahtar Kelimeler: oleojel, biyo-aktif, ilaç, enkapsülasyon, dağıtım, kontrollü salınım

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➢ **POSTER PRESENTATION**

DFT theoretical analysis of structural, electronic, optical and dynamic properties of $Al_{1-x-y}In_xGa_yN$ alloys

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Abstract

Using the GGA function, the functional properties of AlInGaN alloys calculated with DFT for the alloy different In and Al alloy ratios and also the structural properties obtained from the xrd measurements and using quasi-experimental equations were compared. According to these calculations, $Al_{1-x-y}In_xGa_yN$ alloys have a semiconductor property in direct band transmission, Band gaps have values of 2.21 eV, 1.72 eV and 1.54 eV in the red colour spectrum of white light for x, y = (0.25, 0.50); x, y =(0.25, 0.25) and x, y = (0.50, 0.25). The alloys have 6 elastic constants since they all have a tetragonal structure. Compressibility changes according to increasing values of Invegard values and this properties is the higher value, (0.0068 1 / GPa) for x, y = (0.50, 0.25) rations of the alloy. Reel parts of refraction indices and dielectric constant show similar properties. The main peak of lose function reached in 18.82 eV value for x,y=(0.25, 0.25) that is the highest Plasmon frequency.As the Al value increases, Dulong-Petit value increases and the Dulong-Petit value of $Al_{0.25}In_{0.50}Ga_{0.25}N$alloy is 45.5 cal / cell. Finally, $Al_{1-x-y}In_xGa_y$Nalloys with large band gap are suitable semiconductors optoelectronic devices such as diod and laser.

Keywords: Optical properties, Refractive index, Lattice parameters

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➢ **POSTER PRESENTATION**

Basic physical properties calculations of $Zn_{1-x-y-}Cd_xBe_yMg_zx$(X=Te, Se, S) alloys with methods based on density functional theory

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Abstract

In this, study some of the structural, Electronic, Optical, elastic, thermodynamically and vibrational properties of $Zn_{1-x-y-z}Cd_xBe_yMg_zX$(X=Te, Se, S) alloys are calculated using ab-initio methods within norm-conserving and Norm-conserving pseudo potential. Specifically, Lattice parameters, band structures, dielectric functions, refractive index, extinction coefficients, loss function, elastic constants, Debye temperatures, sound velocities and phonon dispersion curves are calculated. Our findings are compared with available experimental and theoretical data, and good results are obtained.

Keywords: Optical properties, Refractive index, Lattice parameters

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➢ **POSTER PRESENTATION**

The effect of extraction method used in vegetable oil process on the aflatoxin content in the final product: a model study for peanuts

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Abstract

Vegetable oils are important ingredients of the diet, generally regarded as more healthy alternatives to animal based fats. Major crops used in culinary practice for this purpose are canola (rape seed), corn, cotton, sunflower, peanuts and soy. The presence of impurities and contaminants that may vary depending on the type of raw material and the external factors such as climate, soil, harvest, storage and processing conditions being effected the oils obtained from them.Among these pollutants that can be found in natural products are as mycotoxins, pesticides and radiation. Aflatoxins, one of the mycotoxins produced by molds are common contaminants, highly regulated in both domestic and export markets, of tree nuts, cotton, corn, pistachio and peanuts and much less so in soybeans. In our study it was examined that solvent extraction in oil process of peanut the effect on aflatoxin contamination. Peanuts, which were found to be clean in terms of aflatoxin, were inoculated with 5 µg/kg and oil extraction was performed. As a result of the analysis; the amounts of aflatoxin in the oil obtained from 5 µg/kg inoculated peanuts obtained by solvent extraction were found to be 0.66 µg/kg. This result showed that if the aflatoxin presence in the natural product it could pass to the final product even albeit decreasing.

Keywords: aflatoxin, oil, peanut, solvent extraction

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➢ **POSTER PRESENTATION**

Effect of solvent extraction on aflatoxin concentration for sunflower oil: First Report

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Abstract

Sunflower seeds are a good substrate for aflatoxin production. Aflatoxins are also found in nuts, peanuts, corn, cottonseed, and other oil seeds. They affect not only the health of humans and animals but also the economics of agriculture and food. The high contamination of oilseeds by aflatoxins generates a concern on a global scale due to the high consumption of these products. Experimental studies have shown that aflatoxins present in the oleaginous material can be transferred to the final oil product. However, depending on the type processing (extraction and purification) of the crude oil, the levels of these contaminants can be reduced. In this study, ıt was examined the effect of the solvent extraction in oil process of sunflower on the amount of aflatoxin in the final product. Sunflower seeds, which were found to be clean in terms of aflatoxin, were inoculated 5 µg/kg and oil extraction was performed. Aflatoxin analysis in obtained oil was performed with HPLC-FLD apparatus. As a result of the analysis; the amounts of aflatoxin in the oil obtained from 5 µg/kg inoculated sunflowers obtained by solvent extraction were found to be 0.43 µg/kg. At the same time the cakes of the oil were also examined and it was observed that the majority of aflatoxin in the oil processing remains in the cake and the amounts passed to the oil were found to be very low.

Keywords: aflatoxin, oil, sunflower, solvent extraction

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➢ **POSTER PRESENTATION**

Drug substance quantification and validation in granisetron film coated tablets

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Abstract

The 5-HT_3 antagonists, informally known as "setrons", are a class of drugs that act as receptor antagonists at the 5-HT_3 receptor, a subtype of serotonin receptor found in terminals of the vagus nerve and in certain areas of the brain. They are particularly effective in controlling the nausea and vomiting produced by cancer chemotherapy and are considered the gold standard for this purpose. The molecules in this group are Granisetron, Tropisetron and Ondansetron. Granisetron is a serotonin 5-HT_3 receptor antagonist used as an antiemetic to tret nausea and vomiting following chemotherapy and radiotherapy. Its main effect is to reduce the activity of the vagus nerve, wich is a nerve that activates the vomiting center in the medulla oblongata. Granisetron was developed by chemists working at the british drug company Beecham around 1988 and is available as a generic. In this study, a Reverse Phase-HPLC method was developed and validated for the quantitation of Granisetron drug substance contained in the commercially produced Emetril 1,00 mg Film Tablet. In order to determine granisetron drug substance from the pharmaceutical preparation in solvent medium, analytical method was developed by using Reverse Phase-HPLC method. By applying all validation parameters to the developed analytical method, the reliability of the method was tested and the results were found to be within the validation limits. As a result, an accurate, sensitive, reliable and reproducible method was developed and validated with HPLC method for Emetril Film Tablet containing Granisetron drug substance.

Keywords: Granisetron, Emetril Film Tablet, Reverse Phase-HPLC Method, Validation

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➢ **POSTER PRESENTATION**

The importance of weld (*Reseda luteola* L.) plant in natural dyeing

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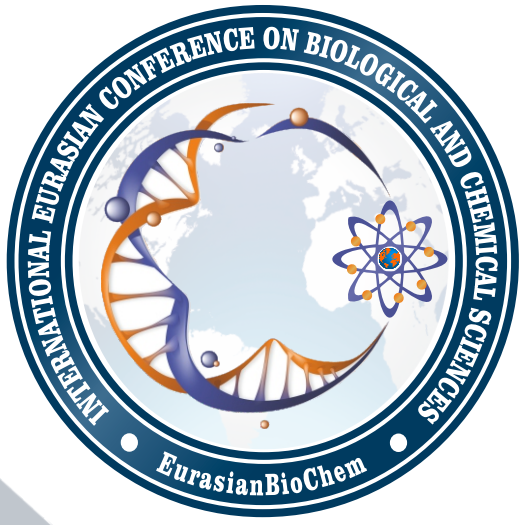
Abstract

In this study, weld (*Reseda luteola* L.) plant which is a natural yellow dye source was examined in terms of natural dyeing and pigment. The whole of weld plant is used for the dyeing of wool and silk. In the Ottoman Empire, it was a popular plant to dye wool and silk. It was mostly used to obtain yellow and green colours in the historical textiles. The alum-mordanted silk fabrics dyed with weld show a rather good brightness compared to the dyeings with walloon oak (*Quercus ithaburensis* Decaisne) and weld (*Reseda luteola* L.) or only walloon oak plant as specified in our previously work. If alum is used to mordant before the dyeing with weld plant, it generates bright and fast colours due to luteolin as a main component in the plant. Probably, luteolin is the oldest European dye. In this study, some samples belonging to weld plant used in the historical textiles were given. At the same time, weld plant was also used as a pigment in paintings, murals and icons in the past. The pigments from this plant have been obtained by means of Al(III), Fe(II) and Sn(II) mordants and they have been analysed to detect dyes with HPLC-DAD nowadays.

Keywords: *Reseda luteola* L., natural dye, wool, silk, pigment, yellow.



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