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SOME CHEMICAL PROPERTIES OF CAMIYANI BLACK PINE

(Pinus nigra Am. var. *pallasiana* subsp. *pallasiana)*

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Introduction

The aim of this study was to assess some chemical properties of *Pinus nigra* Arn. var. *pallasiana* subsp. *pallasiana.* This, is one of the most valued tree species used in furniture industry in Turkey. The distribution of this relict species is the Western Black Sea Region. The most important property of this tree is its straight and uniform stem and evident-large heartwood. The large heartwood content is reached up to 62,04 % of the total cross section (Gündüz, 1999). This is the most important reason for its usage in the furniture industry. Since no research has been conducted on the factors that forms the larger heartwood of Camiyani Black Pine, some chemical properties of the heartwood of his species were determined. Therefore, some chemical properties of this large heartwood contain species were carried out and compared with values from the same tree species (P. *nigra* Arn. var. *pallasiana)* which are grown in different regions of Turkey (Table 2).

Materials and Methods

The research material were obtained from Yenice region - Zonguldak/Turkey. The test specimens were taken at 1,30m stem high in different parts of the cross section (heartwood and sapwood). The other specimens were taken from the root and branches of the tree. The test specimens were cut in small parts and prepared for evaluation related to TAPPI T11 m-45 standard. As test standards for Alcohol-Benzene Solubility - TS 4568, Holocellulose Content - Chloride procedure (Wiese and Karl, 1962), Cellulose Content - Kurschner - Hoffner procedure (Anon., 1969 and Anon., 1992), Lignin Content - TS 4497, Alfa-Cellulose Content - TAPPI T 203 cm99, Ash Content - TS 4432, Hot Water Solubility - TAPPI T 207 om 88 test standards were used.

Results and Discussion

Table 1 Chemical composition of Camiyani Black Pine (Gündüz, 1999).

Properties (%)	**Root**	**Branch**	**Heartwood**	**Sapwood**
Humidity	9.65	9.75	11.00	12.86
Alcohol-Benzene Solubility	2.21	4.73	6.46	4.73
Holocellulose Content	75.84	77.65	75.29	77.79
Lignin Content	28.12	26.04	28.95	25.83
Cellulose Content	64.08	66.53	69.40	68.38
Alfa-Cellulose	46.22	54.90	53.09	53.47
Ash Content	0.13	0.35	0.25	0.20

Table 2 Chemical composition of some pine species (Yilgör, 1999).

Tree Species	Holo Cellulose	Cellulose	Alfa Cellulose	Lignin	Ash
Pinus bansiana Lamb.	72.3	41.6	-	28.6	0.2
Pinus nigra Arnold var. *gotschensis*		49.5		27.2	0.2
Pinus radiata D.Don	-	45.5	-	26.8	0.2
Pinus sirobus L.	-	61.6	-	29.6	0.2
Pinus sylvestris L.	74.3	52.2	-	26.3	-
var. piramidata Tavsanli	86.1	66.0	63.5	24.7	0.3
var. *pallasiana* Tavsanli	83.3	63.4	61.1	27.0	0.3
var. *pallasiana* Yılanlı	83.4	63.2	59.6	24.8	0.2

The results of chemical analysis are listed in Table 1. As seen from Table 1 chemical composition of different parts of P. *nigra* Arn. var. *pallasiana* sups. *pallasiana* were determined. Humidity changing between 9,65 - 12,86%. The highest amount of humidity was determined on the stem part especially at sapwood.

Holocellulose content was determined between 75 - 77%, and the ratio of cellulose in his percentage was 64 - 69%. Percentage of lignin, which is the other main chemical compound in wood was determined as 26 - 28%.

Beside the main compounds, extrctives and ash content of Caniyani Black Pine were also determined. The percentage of alchol - benzene solubility were changing between 2,21 - 6,46%. The lowest amount was on the root part whereas the highest in heartwood. Ash content was 0,13% at roots and 0,35% in branch part. Results of Camiyani Black Pine were showing similarities with the other Pine species (Table 2).

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TAPPI, T203 cm99, Alpha-, beta and gamma cellulose in pulp.

TAPPI, T11 m-45, Sampling and Preparing Wood for Analysis.

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