Determination Of Anticancer Activities And Mechanism Of Action Of A New Coordination Compound Containing $Ag^{I}(CN)_2$*

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The main goals of the present study were to determine the anticancer activity of a new cyano-bridged $\{Ag^{I}(CN)_2\}$ coordination compound, coded as **AN5** ($C_{16}H_{34}Ag_2N_8NiO_5$) on some cancer cell lines *in vitro* and enlighten it's mechanism of action. The new coordination compound was synthesized using "*brick-mortar*" method[1]. The antiproliferative and cytotoxic activities of AN5 on HeLa, C6 and HT29 cancer cell lines were determined using Sulphorhodamin B (SRB) and lactate dehydrogenase assays respectively. The mechanism of action of the AN5 was clarified using DNA laddering assay. According to SRB and LDH test results, AN5 were significantly antiproliferative and cytotoxic on the tumor cell lines compared to control anticancer drug, 5-fluorouracil (5-FU). The antiproliferative activity of AN5 was higher on HeLa cells [Figure 1].

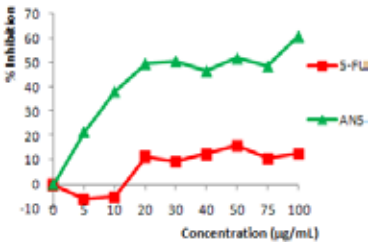

Figure 1. SRB cell proliferation test

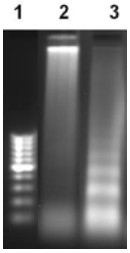

Figure 2. DNA banding test: 1. Marker, 2. HT29 control,3. HT29+**AN5**

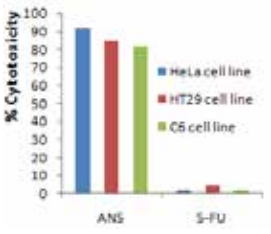

Figure 3. LDH cytotoxicity test

The LDH test results revealed that the AN5 was significantly cytotoxic than 5-FU, suggesting that AN5 may be detrimental to the cell membrane [Figure 3]. The compound AN5 caused laddering of genomic DNA, indicating that it may act through inducing apoptosis on the cells [Figure 2]. The results of the study indicate that the **AN5** is a potent anticancer molecule with drug potential.

References

1. J. Černák, M. Orendáč, I. Potočňáka, J. Chomič, A. Orendáčová, J. Skoršepa, A. Feher, *Coordination Chemistry Reviews,* **224**, (2002), 51–66.

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