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Synthesis and anti cancer activity of Schiff base metal complexes

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Mixed ligand complexes of Ni(II) with 1,10-phenanthroline (1,10-Phen) and Schiff bases L1(MIIMP); L2(CMIIMP); L3(EMIIMP); L4(MIIMNP); L5(MEMIIIMP); L6(BMIIMP); L7(MMIIMP); L8(MIIBD) have been synthesized. These metal chelates have been characterized by elemental analysis, IR, ¹H-NMR, ¹³C-NMR, Mass, UV-Vis, magnetic moments and thermogravimetric (TG&DTA) analysis. Spectral data showed that the 1,10-phenanthroline act as neutral bidentate ligand coordinating to the metal ion through two nitrogen donor atoms and Schiff bases acts as monobasic bidentate coordinating through NO donor atoms. All Ni (II) complexes appear to have an octahedral geometry. The antimicrobial activity of mixed ligand complexes has been studied by screening against various microorganisms, it is observed that the activity enhances upon coordination. The DNA binding studies have been investigated by UV-Vis spectroscopy, and the experimental results indicate that these complexes bind to CT DNA with the intrinsic binding constant $M-1$. MTT is used to test the anticancer effect of the complexes with HL60 tumor cell. The inhibition ratio was accelerated by increasing the dosage, and it had significant positive correlation with the medication dosage.

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