

Schiff Bases of Heterocycles and their Metal Complexes: Synthesis, Spectral, Thermo- analytical and Biological Applications

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ABSTRACT

Series of Co(II), Ni(II) and Cu(II) metal complexes of newly synthesized Schiff bases derived from 2-hydrazino-4-(coumarin-3-yl)thiazole and isatin/ 5-chloroisatin have been studied. Schiff bases have been characterized by NMR, IR and mass spectral data. The bonding of Schiff bases to the metal ions through donor atoms has been confirmed on the basis of IR spectral study. The elemental analyses of metal complexes indicate the stoichiometry of the type $MLCl_2$. Further, this has been supported by the mass spectral data. The molar conductance values of metal complexes reveal that, all the metal complexes are non- electrolytic in nature. The thermo- analytical data indicates that, the synthesized metal complexes underwent three step decomposition. The magnetic moment values of all the metal complexes are well in agreement with the paramagnetic nature. The UV-vis spectral data along with the magnetic property confirm the octahedral geometry for all the metal complexes.

Most of the metal complexes exhibited better anti-microbial activities compared to the corresponding Schiff bases. The DNA cleavage study of metal complexes indicates that, all the metal complexes potentially cleaved the DNA of *E. Coli*.

The analytical, magnetic, spectral and thermo- analytical data indicate that, all the Co(II), Ni(II) and Cu(II) complexes exhibit coordination number six.
