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Synthesis and Characterization of Cu(II), Co(II), Ni(II) and Zn(II) complexes of Schiff base Ligand Derived from 4-Nitrobenzohydrazide and 2-hydroxy Napthaldehyde

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ABSTRACT

The semicarbazone ligand Schiff base (HNNH) was synthesized by stirring at 60 ^{0}C temperature for 6hrs and used for the preparation of Cu(II),Ni(II), Co(II) and Zn(II) binary complexes. These were characterized using infrared, electronic absorption data, TGA-DTA, Mass spectroscopic data, ESR, Elemental analysis, molar conductivity and melting points. The melting points of the synthesized compounds were in the range of 280 ^{0}C to 360 ^{0}C while the conductivities measured in DMSO were in the range of 12.6 -32 μs indicates the compounds are non ionic [1]. The SEM image of the ligand and Metal complexes implies the formation of metal complexes. The infrared spectra data of these ligand and their metal complexes showed that the ligand is neutral tridentate molecules which coordinated to the metal ions through the azomethine nitrogen atom of the Schiff base, oxygen atom from napthaldehyde hydroxyl and carbonyl group of the Schiff base. From the UV visible, Magnetic susceptibility Data and ESR, the geometry has been assigned as square planar (1:1) and Octahedral (1:2.) complexes. The ligand and its metal complexes have been screened for anti microbial and anti fungal activity against the Bacteria and Fungi. The Schiff base and metal complexes showed the significant activity and further Observed that the metal complexes showed the more activity than Schiff base.

Keywords: SEM, metal complexes, tautomeric, 2-hydroxy Napthaldehyde.