



Metal Complexes of 2-Aminobenzimidazole Derived Schiff Base: Preparation, Characterization and Biological Evaluation

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ABSTRACT

A new series of vanadium and copper complexes of tridentate Schiff base derived from the condensation of 1H-Benzimidazol-2-amine with 2-hydroxybenzaldehyde were prepared and characterized. Physical (molar conductance, magnetic moment, thermal), spectral (IR, UV-Vis, mass) and analytical data have established the structures of synthesized Schiff base and its complexes. From the elemental analyses data, the complexes are proposed to have the general formulae $[M(HL)_2]$; $[M = V(III)]$ and $[M(HL)Cl].2H_2O$; $[M = Cu(II)]$. The molar conductance data reveal that all the metal chelates are non-electrolytes. IR spectra show that the Schiff base is coordinated to the metal ions in a neutral tridentate manner with NNO donor sites of the imidazole nitrogen of the benzimidazole ring, nitrogen of the azomethine group and oxygen of the deprotonated hydroxyl group. From the magnetic and electronic spectra, octahedral and square planar geometry is proposed for V(III) and Cu(II) complexes respectively. The thermal behavior of these complexes is studied using thermogravimetric analysis (TGA) technique. The results obtained show that the hydrated complexes lose water molecules of hydration immediately followed by decomposition of the anions and the ligand molecules in the successive unseparated steps. The pure compound, its Schiff base and the metal complexes have been screened invitro for their antifungal activity against Candida albicans and Aspergillus niger fungal strains by agar well-diffusion method.

Keywords: Schiff base, complex, spectroscopy, non-electrolyte, Thermal analysis.
