

CHAPTER 47

APPLIED SCIENCES & HUMANITIES

Doctoral Theses

01. YADAV (Priti)
Synthesis Characterization and Different Biological Activities of Schiff Base Metal Complexes.
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Abstract

The thesis entitled “Synthesis, Characterization and Different Biological Activities of Schiff Base Metal Complexes” deals with the study of various efficient Schiff base metal complexes and their biological performance by employing different techniques. Schiff bases or azomethines are recognized as privileged ligands in coordination chemistry as they readily form stable complexes with most transition metal complexes. In this paper, a novel Schiff base ligand obtained from benzaldehyde and hydrazide moieties and its transition metal Mn(II), Co(II), Ni(II) complexes were synthesized. FT-IR, UV-Vis, NMR, Mass, TGA, XPS and ESR spectral techniques were used to confirm the structures of the ligand and metal chelates. The Schiff base acts as tridentate ligand with O and N donors and coordinates to metal ion along with phenolic oxygen and azomethine nitrogen. The compositions of the ligand and its metal complexes have been established by elemental analysis. Spectral studies suggested that the octahedral geometry arrangement for all metal (II) complexes, having 2:1 ratio (L:M) stoichiometric ratio. The Schiff base ligand and their metal complexes have been screened for antimicrobial activities towards some clinically important microorganism. Also, antioxidant activities of Schiff base metal complexes were studied by using DPPH and Phosphomolybdenum reagents and other biological activities. The result of the biological activities shows that complexes are more active and shows excellent results as compared to Schiff base ligand.

Contents

1. Introduction 2. Characterization techniques 3. Synthesis and characterization of Schiff base ligand HL1 and its metal complexes 4. Synthesis characterization of Schiff base ligand (HL2) and its Co (II), Ni(II) and Mn(II) complexes 5. Various biological application of Schiff bases and their Co (II), Ni(II) and Mn(II) complexes 6. Summary and Conclusion. References.