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## Synthesis, Characterization and Biological Studies of Metal Complexes

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### INTRODUCTION:

All the metal properties with their biological and chemical properties have the bondings between hydrogen and proton equilibria according to Schiff's base. The applications of metal complexes in antifungal and antibacterial activities. Free radicals has been implicated in the causation of several oxidative damages diseases such as liver chirrrosis, atherosclerosis, cancer, diabetes, ageing. An antioxidant can be as any substance that can cause damages.

Metal complexes for Schiff base derived from the reactions of substituted salicylaldehydes with aliphatic group and aromatic amines groups represents a series of compounds that contains nitrogen, sulphur and oxygen ligands donor atoms that has been widely studied. Schiff base molecules are affording potential sites for biochemically active in the compounds that are related to the intermolecular hydrogen bonding and proton transferring equilibria. Metal complexes of the Schiff base ligands possess the variety of applications in the biological, analytical, clinical, and industrial areas. In recent times transition metal complexes of Schiff base ligands has gained considerable attention or not only due to the spectroscopic properties and applications but also for due to the remarkable antifungal, antibacterial and antitumor actions with respect to biological activities and physicochemical, stereochemical and electrochemical structural and catalytic properties of Schiff base metal complexes and their values

has been attracted significant attention and is also relevant for the applications for the analysis of thep harmacological constituents. Schiff base complexes have been established to form stable complexes with coordinations taking the place through the donor atoms. Biological reactions which are essential for life processes usually involve transition metals. The metals usually coordinate with O- or N- terminals from the proteins in a variety of modes and play a vital crucial role in the conformation and function of biological macromolecules. Metal-basedantioxidants was gained attention recently for their capacity to protect organisms and cells fromdamage induced by oxidative stress or scavenge free radicals. This metal complex derivatives which show the considerable biological activity may be represents some interesting approaches for the designing of new antibacterial drugs. It is worthy to note there have been extensive studies on the preparation of many symmetrical tetradentate bis-type Schiff bases of 1,2-diamines with *o*-hydroxy aldehydes/ketones.

### **Infrared Spectra**

In order to study the binding's mode of the Schiff base to the metal ion in the complexes, the IR spectrum for the free ligand has been studied and assigned on the basis of careful comparison of complex spectra with that of the free ligand. The IR spectral information has supports the suggestions of coordination of the imino nitrogen and phenolic oxygen atoms to

the transitions of metal ions.

## CONCLUSION

It is well known that reactive oxygen species are involved in the etiopathogenesis of numerous chronic diseases such as atherosclerosis, hypertension and coronary heart diseases. These free radicals are producing in some certain environmental conditions and in normal cellular functions in the body. The Antioxidants play an important role for the protection of the human body against the damage by the reactive oxygen species. The ability of the Schiff bases and their metal complexes for scavenge of free radicals is an important property. Different modes of the action like being free radical terminators, chelators of metal ions was involved in catalyzing lipid oxidation or oxygen scavengers that will react with the oxygen closed systems have been used in categorizing antioxidants.