PREFACE

Preparation of new ligands is perhaps the most important step in the development of metal complexes that exhibit unique desired properties and novel reactivity. The chemistry of metal complexes with tailor-made Schiff base ligands and their applications have aroused considerable interest, mainly because of their preparative feasibility and structural variability. Metal complexes of Schiff bases have played central role in the development of coordination chemistry, analytical chemistry and industries; in biochemical front, they serve as model compounds of several vitamins and enzymes and in agriculture as fungicides, pesticides and bactericides Partaking interest in this regard, we report, herein, the synthesis and characterization of metal complexes of some novel schiff bases derived from 4-aminobenzenesulfonamide has been condensed with 2-hydroxybenzaldehyde (HBABS), furan-2-carbaldehyde (FMABS) and thiophene-2-carbaldehyde(TMABS); pyridine-4-carbohydrazide with thiophene-2-carbaldehyde (TMPCH) and pyrazine-2-carboxamide with thiophene-2-carbaldehyde (TMPCA) and their Fe(III), Ru(III), Co(II), Ni(II), Cu(II), Pd(II), Zn(II), Cd(II) and Hg(II) complexes.

The systematic study of the above Schiff base ligands and their metal complexes has been carried out and incorporated in this thesis. The thesis consists of six chapters.

Chapter-1 describes the introduction, which begins with a brief account of the general aspects of the ligand systems highlighting their importance.

Chapter-2 describes survey of the literature on the synthesis and characterization of the metal complexes of substituted sulfonamide, hydrazide and pyrazinamide derivatives.

Chapter-3 contains the objectives of the present work and the systems investigated.

Chapter-4 gives the procedural details concerning the preparation of the ligands and their metal complexes and a brief description of the instruments employed in the present investigations and the experimental details.

Chapter-5 deals with the characterization of the ligand systems, and the structural investigations of the metal complexes. The results obtained from the techniques employed are discussed to arrive at the bonding characteristics and the probable structures of the complexes. The discussion of the results is preceded, wherever necessary, by a brief introduction to the techniques employed.

Chapter-6 incorporates the results of investigations on the biological activity of the ligands: TMABS, TMPCA and FMABS and their Fe, Ru, Cu, Pd, Zn and Hg complexes against two gram positive bacterial strains *Staphylococcus Aurus*, *Basillus Subtillus* and two gram negative bacterial strains *Salmonella typhi*, *Escherichia coli* and two fungal strains *Aspergillus niger and Penicillium rubrum.* The results obtained in this connection are discussed.

At the end is given summary of the present investigations followed by appendix.