

PREFACE

The ability of Schiff bases to form complexes with metal ions has been well established. This is due to the presence of lone pair of electrons on the nitrogen atom and of the general electron donating character of the double bond. They also form five or, six membered stable chelates with metals, if a functional group with a replaceable hydrogen atom, preferably an hydroxyl group is present near enough to the >C=N- group. Besides the ability to form complexes with metals, Schiff bases and their metal complexes have innumerable applications in many fields namely medicine, pharmacy, agriculture, photography, catalysis, polymer technology, paints and pigments and industries such as textiles, glass, automobile, electroplating, perfumes, filament etc., In view of the above facts, the author has prepared new Schiff base and studied its electrochemical behaviour towards Cadmium metal ion.

CHAPTER – I is concerned with theoretical principles of polarography.

It is further subdivided into three sections.

Section (i) Includes General principles of polarography

Section (ii) Represents methods for reversible electrode reaction complexes at D.M.E.

Section (iii) Deals with various methods like determination of kinetic parameters like α_n , $K_{f,h}^0$ values

CHAPTER – II Deals with detailed literature survey of Schiff bases. It is subdivided into three sections

Section (i) Includes chemistry of Schiff bases

Section (ii) Represents the Applications of Schiff Bases and their metal complexes

Section (iii) Illustrates the chemistry of AMP.

CHAPTER – III Includes Scope of the study, Synthesis and Characterisation of the following Schiff Bases derived from 2-amino-2-methyl-1-propanol (AMP)

- i) 2-hydroxy-3-methoxy benzaldehyde-AMP**
- ii) 4-hydroxy-3-methoxy benzaldehyde-AMP**
- iii) 4-hydroxy-3,5-dimethoxy benzaldehyde-AMP**
- iv) 3,4-dimethoxy benzaldehyde-AMP**
- v) 3,4,5-trimethoxy benzaldehyde-AMP**

CHAPTER –IV It is devoted to study the complexing ability of the above cited Schiff Bases towards Cadmium metal ion. This is further sub-divided into four sections

Section (i) describes the effect of hydrogen ion concentration on Cadmium- Schiff base complexes

Section (ii) furnishes the effect of ligand concentrations on wave height.

Section (iii) elucidates the experimental results pertaining to the effect of height of mercury column.

Section (iv) explains the effect of metal ion concentration of the polarograms.

CHAPTER – V illustrates the experimental data obtained for the determination of ligand number and stepwise formation constants of cadmium complexes with five new azomethines using standard methods.

CHAPTER - VI describes the detailed biological evaluation of newly prepared Schiff bases.

CHAPTER - VII high lights

Important conclusion drawn from these investigations are given under a separate heading **“SUMMARY AND CONCLUSIONS”**.