

PREFACE

I started the research work presented in this thesis entitled “**SOLUTION BEHAVIOUR OF SOME FOOD ADDITIVES AND DRUGS IN DIFFERENT AQUEOUS MEDIA: A PHYSICO-CHEMICAL STUDY**” in 2009 under the supervision of Dr. Biswajit Sinha at the Department of Chemistry, University of North Bengal, India with the aim to investigate on the solution properties of some food additives and drugs in different aqueous media.

Food is one of the basic requirements of human being. The shelf life of food stuff mainly depends upon the water activity. Therefore, removal of water from food or binding it by increasing the concentrations of common salt or sugar retards many reactions and inhibits growth of microorganism, thus improving the shelf lives of a number of foods. This is the reason for uses of food additives. Food additives also serve a large number of purposes. Again the mechanism of action of food additives is quite complex and this needs the knowledge about molecular interactions in different aqueous media for understanding. Partial molar volumes and isentropic compressibilities, viscosity B-coefficients are very useful in the elucidation of solute-solvent and solute-solute interactions. So thermodynamic and transport properties of aqueous solutions of such solutes or other food additives are of great help in understanding their mechanism of actions.

Drugs are biologically important compounds used to cure or prevent diseases. Action of drug is the consequence of physico-chemical interaction between the drug and the functionally important molecule in the living organism. For drug transport, solute-solvent and ion-solvent interactions are the controlling factor. Density and viscosity both influence the absorption rate of the drug in the body. Therefore information regarding volumetric and transport properties are very important to understand the drug activity in body.

Hence it is expected that this research work will definitely provide valuable results for the enrichment of present knowledge about solution properties of food additives and drugs in different aqueous media.