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PREFACE

Nuclear Magnetic Resonance technique is a sensitive tool in determining the structural, functional, dynamical and stereochemical characteristics of molecules of various scientific interest. The application of this technique has been extended to almost all branches of science including biomedicine. The study of several NMR parameters such as chemical shift and relaxation times provide vital information on the nature of molecular interactions in liquids and liquid mixtures.

The investigations reported in this thesis are carried out by the author during the years 1987-91 in the NMR Research Laboratory of the Raman School of Physics, Pondicherry University, JIMPER Campus, Pondicherry, India.

The thesis consists of eight chapters. The first two chapters deal with the theoretical background, review of literature and experimental techniques. in chapter three, Proton Magnetic Relaxation studies in normal and cancerous tissue samples of Human and Animal models are reported. Chapter four deals with the relaxation studies on aqueous solutions of amino acids and proteins. Chapter five deals the relaxation studies in aqueous solutions of sugars with alkali halides. PMR relaxation studies on Glycerine-Water and Dioxan-Water with the addition of paramagnetic ions are reported in chapter six. Chapter seven deals with the

chemical shift and relaxation studies of carbolic acids in dioxan. The summary and conclusions are given in chapter eight