PREFACE

Modern biophysics and biochemistry have made great advances in the explanation of a number of biological phenomena and it has now been realised that the electrical properties of biomolecules play an important role in various biological phenomena. In recent years this extremely important field of study of electrical behaviour of biomolecules has attracted the attention of a number of researchers.

The state of persistent polarization i.e. electret state has been proposed to play a fundamental role in life processes and the term "bioelectret" has been proposed to indicate the biological and biophysical importance of the concept. The persistent polarization state has been demonstrated in a number of biomolecules and seems to be a universal property of biomolecules; continuous experimental evidence is needed in a variety of biomaterials.

This thesis presents the results of the investigation on persistent polarization in a polysaccharide Dextrin and a vitamin Folic acid. The thesis consists of six chapters. Chapter-1 aims to give a general introduction to the field of electrets and bioelectrets, extending from physical principles to a brief review of the work done on biomaterials in recent years. Chapter-2 discusses in detail the characteristic features of the biomaterials chosen for the present study.

The results of the dc conductivity measurements, dielectric constant/loss factor measurements and TSDC measurements are presented in chapter-3, chapter-4 and chapter-5, respectively. Chapter-6 presents a summary of various inferences drawn from the present experimental investigation and attempts to correlate them to draw some definite conclusions.

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