PREFACE

The Schiff bases have derived from amino acids offer a variety of interesting possibilities of co-ordination with metal ions. Compared with the rich transition metal chemistry of such ligands, the chemistry of organotin remains almost unexplored. Furthermore, in a number of recent surveys revealed that there exists a rich structural diversity for organotin compounds where very different structures are found even though the chemical formulae may be quite similar. In view of this, the present work was undertaken as a part of a general programme aimed at the synthesis of organotin complexes of bifunctional tridentate ligands 2-{[(*E*)-1-(2-hydroxyaryl) alkylidene]amino}acetic acid. In this dissertation, I together with my supervisors have tried to conclude the results of the work with the present state of knowledge of the chemistry of tin. The dissertation is divided into four Chapters and the work is presented in the following manner:

Chapter 1: A brief review of the existing structural chemistry of metal complexes is presented.

Chapter 2: The Synthesis of Organotin(IV) derivatives of the types (i) R_3SnLH (ii) $R_2SnL.nH_2O$ and, (iii) $R_2SnL.R'_nSnCl_{4-n}$ constitute the subject matter of this Chapter. The mode of coordination, bonding has been assessed in solution by ^1H, ^{13}C, ^{119}Sn NMR and in solid state by IR, ^{119}Sn Mössbauer and, X-ray crystallography in representative cases. The mixed complexes of the type $R_2SnL.R'_nSnCl_{4-n}$ has been investigated in great detail by ^{119}Sn NMR spectroscopy at low temperature down to –95 °C to ascertain the structural behaviour (association–dissociation) in solution. Biological results for some selected complexes are also presented.

Chapter 3: A comprehensive summary of the research work is described in this Chapter.

Chapter 4: The synthetic methodology for obtaining alkali metal salts of 2-{[(*E*)-1-(2-hydroxyaryl)alkylidene]amino}acetic acid and their organotin derivatives constitute the subject matter of this Chapter. Experimental procedures for biological work concerning antitumour screening *in vivo* in Ehrlich ascites carcinoma cells is also described.