

Preface

The metal complexes generally and organotin(IV) compounds especially are used in several biomedical and commercial applications like agricultural biocides, disinfectants, antitumor agents, wood preservatives, antioxidants, stabilizers for polyvinylchloride, marine antifouling coating, anti-herpes agents, flame retardants, smoke suppressants, anti-wear agents, homogenous catalysts and recycling agents. A number of organotin compounds have been shown to be toxic, and there is increasing concern regarding their widespread use in environmental and biological systems. Among organotin compounds, organotin carboxylates and amides are highly important for their biomedical point of view.

The present investigation **“Studies on Synthetic, Biological and Agricultural Importance of some new Fluorine based Organic Derivatives of Tin”** was started in June 2008 and continued till date. During this period considerable known and unknown organotin amides and carboxylates were synthesized and characterized by their melting point, elemental analysis along with their I.R., NMR and mass spectra. The objective of present work is to make an indepth biological evaluation of organotin which have been rather scanty studied.

The work in the present investigation discussed in **seven chapters**.

The **first chapter** deals with the general introduction covering the definition of the organometallics, possible types of organometallic derivatives, commercial-industrial development and also brings out major works published in the form of books and monographs.

The **second chapter** deals the brief outline of physico-chemical properties of group 14 elements which are related with the study of this work.

The **third chapter** deals the literature survey relevant to present study and discussed in details in two sections; section A and section B: In section A, the recent literature reported for the synthetic aspects of organotin compounds discussed. The section B of this chapter deals the biomedical and pharmacological aspects of organotin compounds.

Chapter four of the present work compiled in two sections, section A deals the synthesis of various novel triorganotin (IV) amides along with their characterization using different experimental techniques. Section B of this chapter describes the various biomedical studies along with toxicological studies on insects which damage the Indian agricultural crops.

The **Chapter five** of the present work also compiled in two sections, section A deals the synthesis of diorganotin (IV) diamides and their characterization using different experimental techniques. Section B of this chapter describes various biomedical studies along with toxicological studies on insects.

Chapter six of the present work also compiled in two sections, section A deals the synthesis of various novel triorganotin (IV) carboxylates which are scanty studied earlier along with their characterization using different experimental techniques. Section B of this chapter compiled the various biomedical studies with toxicological studies on insects.

The **Chapter seven** also compiled in two sections, section A deals the synthesis of various novel diorganotin (IV) dicarboxylates along with their characterization using different experimental techniques. Section B of this chapter describes the various biomedical studies along with toxicological studies on insects.

The last chapter eight contains **conclusion** of the present work and **list of publications**.