

PREFACE

The Animal Physiology laboratory of Shivaji University, Kolhapur, Maharashtra (India) recently is engaged in extensive program on the bioassay guided phytochemical studies on the indigenous plants of Western Ghat region, directed towards the piscicidal properties. These studies include testing of crude powder and purified active principles for the determination of their toxicity on the different organs-systems of vital importance of different vertebrates, particularly fishes in the fresh and marine water habitat, under laboratory conditions and under natural (field) environment, suggesting a suitable doses of the plant toxins for eradication of undesirable fish species which particularly creates problems in the pisciculture and characterization of the toxins of indigenous plant species. The work embodied in the present thesis forms a part of such a research project and concerns with the studies on the indigenous plant, Lasiosiphon eriocephalus, decasine, family- Thymeleaceae, locally known as Rametha or Datpadi, meaning that which removes the teeth, and its effects on the vital organs like oral cavity, gills, liver and kidney of a fish, Tilapia mossambica. The present investigation was also incited by the increasing occurrence of killing the fish by natives in this part of the country particularly using this plant species. The high selectivity of killing a fish variety noted by the natives long back was one of the stimulatory factors in undertaking this type of study in this laboratory.

The thesis is divided into five chapters. The first chapter assimilates available literature on the indigenous plants with piscicidal effects, their actions on the vital organs of the fish (gills, liver and kidney) and

for the comparison the literature on the heavy metals and inorganic and organic chemical intoxication. It also describes the reasons that led us to take up the present problem and outlines the plan of the present work. Chapter two describes the materials and methods adopted in the present study followed by observations in chapter three. The observations are discussed in chapter four in the light of normal physiology and altered physiology of the fish and certain conclusions and general summary of the thesis have been included in the chapter five.

I assume responsibility for the opinion expressed in the present thesis and also for omissions and errors if any, in the body of the thesis. I feel and hope that many of the readers, both from India and abroad, will find the present thesis interesting, informative and stimulatory.