

PREFACE

Department of Zoology, Yashwantrao Chavan Institute of science, Satara is approved as subcentre of M.Phil. studies in zoology in the Shivaji University, Kolhapur, Department of Zoology is actively engaged in the hydrobiological studies of the near by rivers and water reservoirs. Growing population, agricultural and industrial development of society and indiscriminate and injudicious use of toxicants is responsible for the pollution of water bodies. Man is now posed with the colossal problem of maintaining the quality of his environment as it has become a threat to the very existence of many plants and animals. The industries and municipality sewage drained into the nearby rivers making them highly polluted. Riverine fishery in this region is highly affected and even mass fish mortality was also reported. Commercially important edible fish species are on the verge of extinction. There was not comprehensive study on the water quality and causative factors posing serious threats to fishes in this area.

Critical evaluation of literature indicated that most of studies are being done on organic compounds, pesticides, synthetic fertilizers, metals, phenols etc. but comparatively less toxic phosphate which can be toxic if present in more than 2 mg/l concentration. Hence to study of phosphate as a toxicant was unique.

The work incorporated in the present thesis is related with toxicological studies and alteration in the histology showing histopathology and elaboration and distribution of some important mucosubstances in the target

organ viz. stomach, liver, kidney and gill in adult common edible fish in the river Krishna, Channa striatus (Bloch).

The quality of water in the river Krishna at Mahuli Station near Satara has been studied by observing different physico-chemical factors. The toxicity of phosphate is studied with reference to LC50, histological, histopathological and histochemical (mucin) alterations in the above mentioned important target organs.

The thesis is divided in eight chapters. The first chapter includes review of literature, phosphate in nature and importance of Channa striatus. It also describes the reasons that lead us to take up the present work and outlines the plan of present work.

The second chapter the experimental set up for toxicological and hydrological studies. Methodology used hydrological, LC50, histological and histochemical techniques is present in this chapter, Chapter III, includes the observations on hydrological tests and LC50. Chapter IV, V and VI and VII include the review of literature, observations and results and discussion after phosphate intoxication respectively for stomach, liver, kidney and gill of Channa striatus. The last chapter gives a general summary and concluding remarks. The last chapter is followed by bibliography.

I assume responsibility for the opinions, expressed in the present thesis and for omission and errors if any. I feel present thesis will be interesting, informative and stimulatory to the readers and research scholars.