

## PREFACE

The Zoology laboratory of Shivaji University, Kolhapur (India) is engaged in extensive work on the lysosomal enzymes, their distribution in various tissues of vertebrates and invertebrates, their relation to various life processes such as digestion, reproduction, metamorphosis etc. and their biological control. Both biochemical and histochemical techniques are routinely employed for such studies. Relationship of these lysosomal enzymes and the hormones forms one of the branches in which this laboratory has taken keen interest in recent years. Behaviour of these enzymes in gonads and associated reproductive structures in both the mammalian and submammalian vertebrates and invertebrates such as molluscs, has been extensively studied. The work embodied in the present thesis forms a part of such a research project and concerns with the hormonal regulation of three important lysosomal enzymes viz.  $\beta$ -glucuronidase, acid phosphatase, esterase in the salivary glands of vertebrates and invertebrates. A nonlysosomal enzyme, alkaline phosphatase has also been selected for comparison. An outstanding feature of this work is the detailed study of these enzymes in the human saliva under varying hormonal conditions.

The thesis is divided into six chapters. The first chapter gives a detailed and critical account of the existing literature on the salivary glands and outlines the plan of the

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present work with reasons that lead us to take up this work. The second chapter describes in detail the material and the techniques employed for the work. The third chapter describes the observations along with their interpretations and discussion on white rats which was used as the experimental animal. The fourth chapter deals with the human saliva, enzymatic alterations therein in menstrual cycle, pregnancy and growth, and interpretations and discussion of the results. The fifth chapter describes these enzymes in the salivary gland of cockroach and a pulmonate slug and their possible neuroendocrine control. The sixth and last chapter deals with a general discussion of the observed facts in the light of existing literature, it also outlines possible clinical use of the present findings and also describes a number of problems which can be taken up for future research.

I assume responsibilities for the opinions 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 of my papers published in various journals of international reputation, who have expressed satisfaction and admiration for my work through their letters, will find the present thesis interesting, information and stimulatory.

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