

FOREWORD

The thesis entitled "BIOCHEMICAL STUDIES ON PROTEOLYTIC ENZYMES OF SOME INSECTIVOROUS PLANTS", is submitted herewith for the Degree of Doctor of Philosophy (Science) of the University of Calcutta. In the course of evolution some plants prove to be carnivores, and the insectivorous plants organize a core of proteolytic enzymes to hydrolyze insect-proteins. In the present investigation some proteolytic enzymes have been isolated from the insect-traps of aquatic insectivorous plants : Utricularia aurea Lour., of the family Lentibulariaceae, of indigenous origin. Moreover, investigations on activities, biochemical characteristics and partial purification of these enzymes have been done in this contexture.

CHAPTER ONE deals with the methods of extraction, homogenisation and partial purification of the proteolytic enzymes by fractionation using both pH adjustment and solid ammonium sulphate addition methods. In this chapter proteolytic activities of the prepared fractions have been determined, and investigations have been carried on to study the effects of changes of incubation conditions e.g., pH, temperature and time on proteolytic activities. Chapter One also includes studies on thermal sensitivity of the prepared fractions, effects of ions and agents on enzyme action and proteolytic activity of

the prepared fractions towards different synthetic substrates and co-substrate factors. In the SECOND CHAPTER, enzyme fractions have been purified further by fractionation, using ECTEOLA-cellulose column chromatography, and proteolytic activities of the different elutes have been assayed. In the last and THIRD CHAPTER, histochemical studies have been made at the preliminary level to localize the site of proteolytic activities inside the insect-traps of the insectivorous plants : U. aurea, by azo-dye staining method.

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