

PREFACE

Armyworm, *Mythimna separata* is economically important polyphagous pest of graminaceous crops like grasses in India. Larval stage being nocturnal, it feeds voraciously at night on the green foliage of host plants leaving behind only the bare midrib. In case of wheat rice and millets the larvae cut the bases of earhead of panicles leading to great losses in yields. When the larvae feel shortage of food in the damaged area, they move together in large number like armies and further attack the crop in the nearby field hence the name armyworm. The proteins and proteases enzymes which supply the structural components during development. However, the information on the proteins and proteases activity during the development of armyworm, *Mythimna separata* is rather scanty. Therefore in the present study attempts have been made to provide information on proteins and proteases activity during embryogenesis, larval growth, metamorphosis and adult development of *Mythimna separata*.

Dissertation is presented as :

Chapter I - Introduction.

Introduction deals with general information about the armyworm, *Mythimna separate*, review of relevant literature on armyworm, work on insect proteins and proteases and aim and plan of proposed work.

Chapter II- Material and Methods.

Material and methods gives experimental schedule and methodology. It includes method of culture of *Mythimna separata* for study, chemicals used and methods used for estimation of proteins and proteases activity.

Chapter III - Protein and proteases during embryogenesis.

This chapter deals with information on insect embryogenesis, protein metabolism during insect embryogenesis, work on egg protein and proteases and changes in amount of proteins and protease activities during embryogenesis of *Mythimna separata*.

Chapter IV - Protein and proteases during larval growth.

This chapter deals with general information on insect larval growth, protein metabolism during insect larval growth, work on larval proteins and proteases and changes in amount of proteins and proteases activities during larval growth of *Mythimna separata*.

Chapter V - Protein and proteases during metamorphosis.

This chapter deals with general information on insect metamorphosis, protein metabolism during insect metamorphosis, work on pupal proteins and proteases and changes in amount of proteins and proteases activities during metamorphosis of *Mythimna separata*.

Chapter VI - Protein and proteases during adult development.

This chapter deals with general information on insect adult development, protein metabolism during insect adult development, work on adult protein and proteases and change in amount of proteins and proteases activities during adult development of *Mythimna separata*.

Chapter VII – General summary and concluding remarks.

This chapter contains review of present work, concluding remarks and plans of future work.

Chapter VIII - Bibliography.

This chapter provides the bibliography.