PREFACE

*Drosophila* is well known as “Cinderella” of genetics. Due to its short life cycle, it is used in many areas which need observation over generations. It has been shown to be the best model system for the studies to unravel and to understand various aspects of genetic variations and its role in evolution. *Drosophila* exhibits 4 stages in its life cycle such as egg, larva, pupa and adult. Larvae show many characteristic behaviors like foraging, skipping, digging, locomotion, pupation behaviour, etc.

An attempt has been made to study the inheritance of glue proteins, larval locomotory patterns and pupation site preference in hybrids by using different species belonging to *melanogaster, ananassae* and *virilis* subgroup. These studies will provide clue about the biochemical genetic analysis of larval glue proteins, larval locomotory patterns and pupation site preference. The present work has been divided into 3 chapters.

In *Drosophila* the function of the glue proteins are implicated in the process of sticking the pupa to the substratum. Salivary gland secretory proteins produced in different species and their hybrids were analyzed by quantitative and qualitative techniques, the results were presented in chapter 1.

Chapter 2 deals with the larval locomotory patterns in different species of *Drosophila*, where species and their hybrids showed variations in different locomotory patterns, the importance of behaviour in relation to their fitness has been discussed.

Pupation site preference (PSP) in different species was as well as their hybrids studied where it is an important event in *Drosophila* preadult development, because the place selected by larva can have decisive influence on their subsequent survival as pupae. The above results along with PSP have been presented in chapter 3.