PREFACE

Solanum melongena L is a very popular vegetable in India and abroad, having the common name egg plant or brinjal. In the plain of North Bengal (Darjeeling Terai) this vegetable is grown in good quantity. However, the crop is subjected to insect pest attack from the very seedling stage to the ratoon and seed crop. Farmers use chemical pesticides for controlling the major and minor pests of brinjal in North Bengal. The environmental hazards arising out of indiscriminate and frequent use of pesticides warrant an alternative pest management measure. To undertake such a planning information on pest complex of brinjal and natural resistance in different cultivars against the pests is of utmost necessity for the agroclimatic region of Terai.

The present study unravels and evaluates some of the hitherto unknown facts and attributes relevant for contemplating IPM programme, specially for some of the key pests of brinjal from terai climate of North Bengal.

This thesis comprises eight conventional chapters. The result chapter-4 is having six articulated divisions. The division 4.1 reveals the screening of 41 germplasm of brinjal for their degree of susceptibility to major pests with special reference to the shoot and fruit borer, *Leucinodes orbonalis*. Division 4.2 deals with genetic variability, heritability and genetic advances for selection of suitable plant genotypes. 4.2 discusses the correlation and path analysis for vegetative, reproductive and susceptibility components to

L. orbonalis. 4.4. evaluates the 41 germplasm through genetic divergence study. 4.5. embodies the screening of agrochemicals, using degree of infestation of *L. orbonalis* as the index for their bioefficacy and their impact on plant growth, yield and economics. The combined effect of using low dosage of pesticides and resistant cultivars for controlling insect-pest complex of brinjal is also included. Finally, division 4.6, deals with the performance of hybrids obtained from diallele crosses of six screened cultivars with respect to vegetative, reproductive and some susceptibility components of brinjal. The thesis finally, offers a discussion on the above chapters followed by a summary and highlights on new information gathered out of the work. The present findings will give a first hand idea of any future possibility of introducing a new strategy of IPM and besides breeding resistant brinjal crop in Darjeeling Terai. The information obtained has an immense possibility for exploiting hybrid vigour in brinjal with respect to yield attributes and insect pest resistance.