Scope of the present study
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An overall analysis of the review of literature presented in this thesis clearly reveals that although certain basic information on the life history and chemical control of *S. bispinosus* is available, our understanding of its bioecology, host-plant interactions, biochemical changes in tea leaves due to its damage and made tea quality, natural enemies and other biocontrol strategies of this pest is rather meager. In view of these, efforts were made to investigate the following aspects.

Detailed studies were carried out to understand the bioecology of this pest. The influence of different temperature regimes and photoperiod on the life history and life table of *S. bispinosus* was studied. Observations were also made on susceptibility of different tea clones to thrips infestation. Based on the field observations three tea clones *viz.*, UPASI-17, UPASI-9 and UPASI-5 were selected for evaluating their influence on the oviposition rate, developmental period and other life table parameters.

In the fields, the population density of *S. bispinosus* is generally more on young tea shoots than on the mature leaves. Normally, the nympha instars of *S. bispinosus* frequent the lower surface (adaxial) of tea leaves. During peak seasons, they occur in small numbers on the upper surface (abaxial) and on mature leaves as well. Therefore, in the laboratory, the influence of leaf surface (abaxial and adaxial) and age of the tea leaf on the life history of *S. bispinosus* was investigated.

The seasonal fluctuations in the population of *S. bispinosus* were observed for three years and the influence of weather factors such as rainfall, maximum and minimum temperature and relative humidity on the natural build up of population was studied.

The tea plant was stratified into three levels, *viz.*, top, middle and bottom and the vertical distribution of *S. bispinosus* on the tea bush was studied. Light
spectrum at these three levels was measured and correlated with the abundance of thrips populations. Spatial distribution of *S. bispinosus* on tea shoots were also examined.

Pruning, the practice of cutting the branches at a predetermined height at a specified interval, is an important cultural operation in tea cultivation. An experiment was carried out to determine the influence of the age of the field since pruning on the incidence of tea thrips.

Tea in southern India is generally grown under regulated shade but many estates remove shade trees to increase productivity. In view of this, a study was undertaken to assess the influence of shade on the abundance of thrips population. The influence of “edge effect” on populations of *S. bispinosus* was also studied.

Considering the economic damage caused by this species to both green leaf and made tea, the biochemical changes due to thrips damage on green leaf and black tea were studied. Different biochemical constituents like polyphenols, catechins, amino acids, reducing sugars, carbohydrates and lipids were estimated in both infested and normal tea leaves. Attempts were also made to assess the impact of feeding damage on chlorophyll and carotenoid contents of tea leaves. Percentage of moisture and dry matter content were also estimated. After observing significant difference in the total catechin content, its fractions like epigallo catechin, simple catechin, epicatechin, epigallocatechin gallate and epicatechin gallate were also estimated using HPLC.

Black tea, manufactured from infested shoots was compared with the tea samples prepared from normal shoots to determine important quality parameters such as theaflavins, thearubigins, total liquor colour, caffeine content and high-polymerised substances. The other parameters like total ash, acid insoluble ash, and alkalinity of water soluble ash, water extract and crude fibre content were also analysed.
Periodically, surveys were undertaken in the tea growing areas of southern India to explore the natural enemies of tea thrips. The life history, seasonal abundance and predatory potential of three common predators viz., *Frankliniothrips vespiformis* Crawford, (Aelothripidae) *Orius* sp. (Anthocoridae) and *Amblyseius cucumeris* Oudemans (Phytoseiidae) were studied. Integrated control measures are required to reduce the incidence of *S. bispinosus*. As a part of the proposed IPM programme, coloured sticky traps and paraffinic oil were evaluated against the tea thrips in field. Efficacy of Neem kernel aqueous extract (NKAE) and vermiwash were also evaluated in the laboratory, against *S. bispinosus*.

The present investigations have led to a better understanding of the biology and ecology of *S. bispinosus* and its interaction with the tea plant. The results of these studies could be utilized for evolving an integrated pest management strategy against this important pest of tea in southern India.