

## Occurrence and abundance of insect enemies of honey bees in Karnataka

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The investigation was carried out on the insect enemies of different species of honey bees viz., Indian bee, Rock bee, Little bee, Italian bee. During the study 25 species of insect enemies were recorded on four species of honey bees. Among insect enemies greater waxmoth *Galleria mellonella*, ants *Camponotus compressus* and *Oecophylla smaragdina*, yellow banded wasp *Vespa tropica* were predominant, observed in large scale and caused higher infestation to all the four species of honey bees.

Key words : Insect enemies, Honey bees

### INTRODUCTION

In addition to production of honey and wax, bees also help in increasing the yields of many agricultural and horticultural crops and the same time help in the maintenance of ecological balance. In recent times due to fast modes of transport and movement of bees and their product have aggravated the problem of bee pests and diseases. The honey bee enemies create serious problem, which must be met not only by the bee keeper but also by the bees. Honey bees are affected by several insect enemies like waxmoths, wasps, ants, robber flies, dragonflies, preying mantis, death headed moth, termites, cockroaches. Of these, waxmoths are the most devastating pests of honey bees. Several species of waxmoths are found as pests on honey bee combs of all species. Among the several species of waxmoths, the greater waxmoth *Galleria mellonella*, is considered as a notorious pest of honey bee colonies (Kapil and Sihag, 1983).

### MATERIALS AND METHODS

The survey was conducted to record the occurrence and incidence of various natural enemies of honey bees in different districts of Karnataka, coming under various climatic zones. The honey bee colonies were examined for the presence of natural enemies by carefully taking out three frames randomly from each of the colonies. The number of healthy and infested colonies were recorded in different bee keeping areas. Observations on the number of colonies infested, number of combs present, the number of combs damaged, pest population, per cent

colony infestation and number of deserted colonies were recorded. The different enemies that occurred on honey bees were collected, preserved and identified.

### RESULTS AND DISCUSSION

As many as 25 species of insect enemies of honey bees were recorded during the course of investigation (Table 1).

*Order: Hemiptera :*

*Acanthaspis siva* Distant is a black medium sized bug with three whitish round patches on the basal, middle and apical portion of the wings. Adults and nymphs were observed to suck the body fluid from the adult honey bees. Subbiah and Mahadevan (1957) also reported the incidence of this predatory bug in the bee hives.

*Order : Lepidoptera :*

*Galleria mellonella* is a serious pest on the combs of all species of honey bees and was found active throughout the year. The incidence was observed in almost all the districts of Karnataka. The larvae of waxmoth cause no direct damage to bees at any living stage, but are very destructive to the combs. They eat the wax of the comb and other associated materials viz., Pollen, Propolis, Dead bees and Pupal cases of bees. The larvae of waxmoth bore in to the combs and make tunnels in the middle of the comb. Later black excreta can also be noticed in the web. As a result of serious infestation, weak bee colonies abscond, while in strong colonies bee population quickly reduced and complete destruction of colonies have also been recorded. The combs were completely destroyed in