

Further Record of Natural Enemies on the Insect Pests of Tobacco in Andhra Pradesh

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Routine field surveys were carried out during 1984-90 in tobacco growing areas of Rajahmundry and Guntur for collection and identification of natural enemies of tobacco insect pests namely *Spodoptera litura* F., *Myzus persicae* Sulz., *Bemisia tabaci* Gen. and *Heliothis armigera* Hb. The main object of these faunal surveys was to enrich our knowledge of tobacco agro-ecosystem and its biotic elements, which subsequently will facilitate development of techniques to conserve and utilise the indigenous natural enemies of tobacco pests. Several natural enemies of tobacco pests have been collected and got identified by CIE, London during the present study, which are in addition to those that have been already recorded earlier on tobacco. (Joshi *et al.*, 1976; Rao *et al.*, 1981, 1983, 1984a, 1984b).

Natural enemies of *S.litura* *Charops obtusa* Morley
(Hymenoptera : Ichneumonidae)

S. litura larvae collected from tobacco nurseries surrounded by castor as ovipositional trap crop were observed to be parasitized by *C.obtusa* to an extent of 5-10 %.

***Apanteles africanus* Cameron**
(Hymenoptera : Braconidae, Microgasterinae)

A. africanus was collected from left over tobacco nurseries heavily infested with *S.litura*. Since this parasite is observed to be well adapted to tobacco nurseries where *S.litura* is a serious problem, it is being mass multiplied in laboratory and releases are being carried out. In the laboratory, 80% parasitisation has been observed and was highly effective in nurseries.

***Apanteles ruficrus* Halliday**
(Hymenoptera : Braconidae)

This parasite was collected from Lanka tobacco crop grown in interior Godavari delta

areas, which is heavily infested by *S. litura*. It is a gregarious polyembryonic parasite and highly amenable for mass multiplication and field releases. It is also reported as an important component in integrated pest management of *S.litura* on Taro in Samoa (Braune 1986).

Hyperparasites

The field-recovered cocoons of *Apanteles marginiventris* Cresson an exotic parasite that was mass bred and field-released during 1980-86, and *A. africanus* the native parasite, were observed to be hyperparasitised to an extent of 3-5% by *Aphanogmus fijiensis* Ferriere (Hymenoptera : Ceraphronidae), *Eurytoma* sp. (Hymenoptera : Braconid group) and *Nesolynx phaeosoma* Waterston (Hymenoptera : Eulophidae)

Natural enemies of *Myzus persicae* Sulz.
***Micromus timidus* Hagen**
(Neuroptera : Hemiptera)

Recorded on FCV tobacco heavily infested by the aphids and surrounded by vegetable crops. The predatory larva has a linear caudal tip which is used to hold the prey, while it predate, a characteristic feature of genus *Micromus* (Sweetman, 1958).

***Chrysoperla carnea* Stephen**
(Neuroptera : Chrysopidae)

Recorded in FCV tobacco field heavily infested by the aphids adjacent to cotton field in Devarapalli. Adults are highly active in bright sun light and observed to hover over tobacco plants.

***Mallada* sp.**
(Neuroptera : Chrysopidae)

Recorded in FCV tobacco fields. The adults are conspicuously larger in size than other Chrysopids.

Natural enemies of *Bemisia tabaci* Gen.

Aphelinus flavipes Foerster, *Eretmocerus mundus* Mercet, *Encarsia* sp. (Hymenoptera : Aphelinidae), *Amitus aleurolobii* Mani (Hymenoptera : Platygasteridae) and *Trimorus* sp. (Hymenoptera : Scelionidae) were recorded on glass house tobacco plants as well as on weeds like *Abutilon indicum*, *Xanthium* sp. and *Convolvulus* sp. in tobacco and cotton fields heavily infested by the white flies.

Natural enemies of *Heliothis armigera* Hb.

Campoletis chlorideae Uchida (Hymenoptera : Ichneumonidae), *Bracon* sp. (Hymenoptera : Braconidae) and *Gonioptthalmus* sp. (Diptera : Tachinidae) were recorded on *H. armigera* collected from ovipositional trap crops of *Heliothis* namely *N. rustica*, *Tagetes* sp. and Chick-pea which were raised as two border rows around FCV tobacco for trapping *Heliothis*.

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Key Words : Tobacco, *Spodoptera litura*, *Myzus persicae*, *Heliothis armigera*, natural enemies, hyper parasites

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