

Record of *Halictophagous* sp (Strepsiptera: Halictophagidae), A Parasitoid of *Proutista moesta* (Westwood) (Homoptera: Derbidae), A Vector of Phytoplasma Diseases of Palms

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Parasitism by an endoparasitoid, *Halictophagous* sp was noticed in the planthopper population of Kerala and Tamil Nadu. Population of the parasitoid is seasonal and is more during the months of December to February.

Keywords: *Proutista moesta*, *Halictophagous* sp, endoparasitoid

Proutista moesta (Westwood) (Homoptera: Derbidae) is a vector of yellow leaf disease of areca palm (Ponnamma, 1994), root (wilt) disease of coconut (Anon, 1996) and a putative vector of spear rot disease of oil palm (Kochu Babu, 1995). The planthoppers are polyphagous and sap sucking. *P. moesta* breeds on decaying wood and organic debris. The seasonal abundance of the planthoppers are governed by both biotic and abiotic factors (Ponnamma, 1994). One of the biotic agent recorded is an endoparasitoid, *Halictophagous* sp (Strepsiptera: Halictophagidae).

MATERIALS AND METHODS

Search for parasites was carried out in the planthopper population of oil palm and areca plantations of CPCRI, Palode campus at weekly intervals and at monthly intervals in the oil palm plantations of OPIL, Chithara. Surveys were made in the oil palm plantations of Kuravilangadu and Chalakkudy (Kerala) and Tamil Nadu. Breeding sites of

the planthoppers were also examined.

RESULTS AND DISCUSSION

Parasitism by *Halictophagous* sp was noticed in the planthopper population (in both sexes) of Kerala and Tamil Nadu. Male and female parasitoids occur in the same individual host. The host often nourishes several parasitoids, a maximum of five female parasitoids were obtained from a single planthopper.

The external symptom of parasitism noticed in planthoppers are hernia-like projections (yellowish brown and dark brown) on the abdomen. Projections of yellowish brown colour is the flattened disc-like sclerotised cephalothorax of the female parasitoid which is extruded out of the body of the planthopper. The rest of the body (abdomen) is sac like and occupies the entire abdominal region of the planthopper (Figure 1). The females are permanent endoparasites. Thousands of eggs are seen inside a single female parasitoid. The dark brown projections seen in the abdomen of the

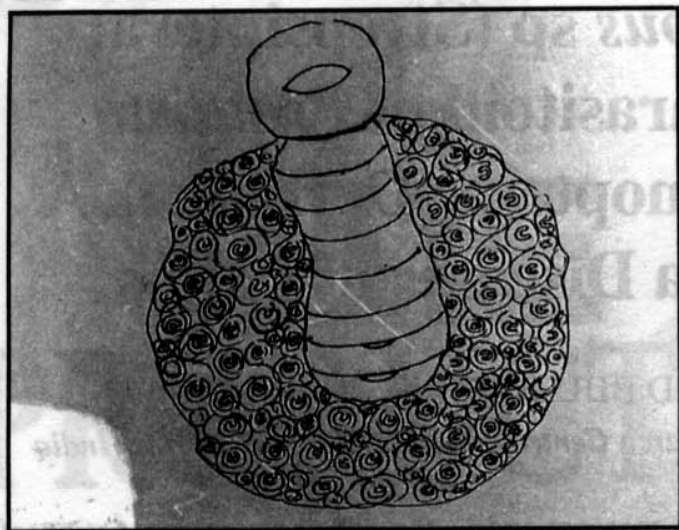


Figure 1 Female parasitoid

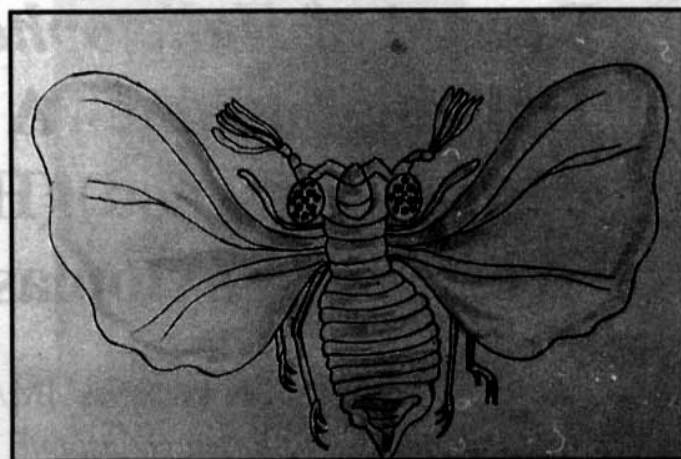


Figure 2 Male parasitoid

parasitised planthoppers are the cap of the puparium. Free living adult male parasitoids (Figure 2) emerges from the puparium pushing open an operculum. Males are black in colour. The head is big, compared to thorax and abdomen with protuberant compound eyes. Antennae are flabellate having a branched appearance. The forewings are small club like processes similar to the halteres of Diptera. The hindwings are relatively large, fan-shaped with unbranched longitudinal veins. The first instar larvae, which hatch out from the eggs inside the female parasitoid are known as "triangulins" (triungulinids). They are very tiny, with a group of ocelli and well-developed legs and paired long caudal setae (Figure 3).

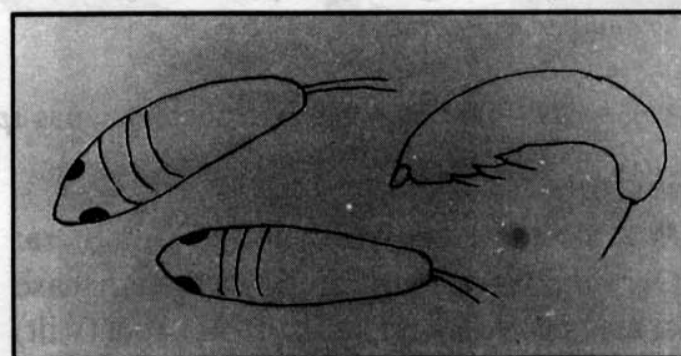


Figure 3 Triangulinid larva

Data collected for a period of four years (Ponnamma & Biju Babjan - unpublished) revealed that the strepsipteran parasitoid is seasonal. Parasitism is highest during December, January and February, the peak being during January (Table 1). Maximum field parasitisation obtained was 39.5 per cent (January, 1994).

Strepsipteran parasitoids had been reported from various Asian countries. Wan

(1972) conducted some studies on Strepsipteran parasitoids of *Nilaparvata* and *Sogatella*. The percentage of parasitism noticed was 3.11 per cent in Sarawak, Malaysia. In Sri Lanka, Otake *et al* (1976) found that parasitism of adult hoppers by dryinidae and strepsiptera attained 40 per cent. Otake and Hokyo (1976) reported 3-13 per cent parasitisation in rice plant and leafhoppers in Malaysia and Indonesia. Chandra (1987) observed that strepsiptera cause about 10 per cent parasitism, occasionally reaching upto 63 per cent in the Philippines. *Elenchus yasumatsui* (Yasumatsu *et al.*, 1975) and *E. japonicus* (Kuno, 1973) play a significant role in controlling the population of *N. lugens* in North Thailand and in Fuokuoka (Japan) respectively. Kathirithamby (1982) reported

TABLE 1
PARASITISM BY THE *HALICTOPHAGOUS* SP ON *PROUTISTA* *MOESTA*

Month	No. of <i>P. moesta</i> examined	Percentage of parasitism*
January	288	23.32
February	304	10.72
March	270	7.87
April	404	3.29
May	546	6.69
June	1 170	0.12
July	447	1.59
August	545	3.49
September	310	5.86
October	328	10.01
November	530	8.86
December	295	14.39

* Mean for four years

Elenchus sp (Strepsiptera: Elenchidae) as the parasitoid of *N. lugens* from Malaysia. Thus the strepsipteran parasitoids play a vital role in the biosuppression of leaf and planthoppers.

The present observations reveal that the strepsipteran parasitoid, *Halictophagous* sp can be utilised as abiocontrol agent for the biosuppression of *P. moesta*.

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