

**SOME OBSERVATIONS ON ARECA THRIPS,  
RHIPIPHOROTHrips CRUENTATUS HOOD**  
(THRIPIDAE: TEREBRANTIA: THYSANOPTERA).

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*Rhipiphorothrips Cruentatus* Hood has a very wide distribution on several host plants, such as grape vines, mango, pomegranate, crotons, rose, *Eugenia Jambolana*, *Anacardium occidentale*, *Caryea arborea* and *Terminalia arjuna*. As a severe pest affecting the quality of grapes

it has been well-known. This pest was first described by Hood (1919) from the specimens collected by the Government Entomologist, Punjab from grape vine leaves at Lyallapur and Ayyar (1929) from grape vine leaves at Coimbatore and Beswada and *Eugenia jambolana* leaves at Bangalore (Karney 1927). Its bionomics and control have been completely studied by Rahman and Bharadwaj (1937).

Puttarudriah and Channa Basavanna (1956) have reported this species of Thrips from areca palms at Tharikere and Bangalore in Mysore State. Recently the authors have observed them occurring in large numbers on the leaves of a few areca palms in a garden at Ochira (Quilon District, Kerala State). The adult thrips are dark brown in colour and they live in small colonies, along with their young ones, on the lower surface of the leaves. The leaves occupied by these thrips develop silvery blotches. This is due to the continuous feeding activity of the thrips. They feed by rasping the leaf surface by means of their stylets and sucking up the oozing cell sap. The injured surface is marked by a number of minute spots, thereby producing a speckled silvery effect which can be detected even from a distance (Fig. 1). Eventually, these silvery spots become brown. If the population of the pest is sufficiently heavy, the blotches may become confluent and thus the entire leaf gets blotched. Generally, *Rhipiphorothrips cruentatus* has been observed to be causing injury to areca palms of almost all ages.



**Fig. 1**

A brief description of the external morphological characters of the various stages of the thrips is given in the following paragraphs.

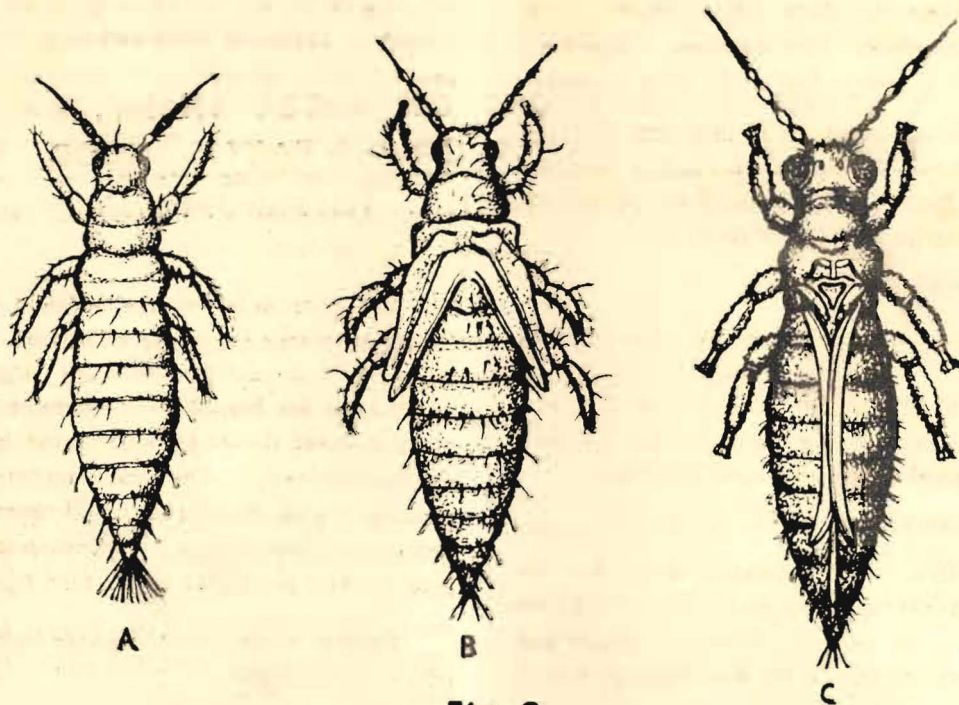


Fig. 2

#### ADULT

Female macropterous (Fig. 2 C) Length about 1.4 mm. Dorsal surface distinctly reticulate. Fully matured individuals blackish-brown in colour. Legs and antennae yellow except for darker apical one-third of the sixth, and whole of 7th and 8th segments. Head, dorsum of pterothorax laterad and caudad to scutellum median third of abdomen and apical three abdominal segments distinctly paler. Fore-wings yellowish, with costa and longitudinal veins slightly darker, and bristles, posterior margin and extreme base dark brown; hind wings yellowish, with dark brown median vein. The sides of head, thorax and abdomen suffused with blood-red hypodermal pigmentation.

Head deeply rugoso-reticulately sculptured, about 1.2 times as wide as long and slightly longer than prothorax, very slightly broadest across eyes; vertex strongly elevated and produced in front of eyes over insertion of antennae, notched anteriorly. Length of eyes almost equal to their distance from the posterior margin of the head. Ocelli bright red. Inter-ocellar distance equal to front-ocellar; anterior ocellus situated slightly in advance of the anterior orbital borders. Length of antenna 0.387 mm.

Prothorax about 1.4 times as wide as long, colour distinctly darker than that of the head. Pterothorax

one and a half times as wide as prothorax with distinct surface reticulations; scutellum rugose, bristles or spines of the forewing heavily chitinized. When the wings are at rest, they are apposed to the dorsal aspect of the body and the spines fit under the edge of the scutellum.

Abdomen almost as wide as pterothorax, side longitudinally rugoso-reticulately sculptured; 10th segment notched above; all bristles minute and scarcely visible. A dorsal pair near the apex of the 10th segment more prominent, slightly expanded and truncate at the apex.

#### MALE.

Macropterous. Length 1 mm. Colour and structure as in female except for the brown prothorax, bright yellow abdomen and sides with blood red hypodermal pigmentation. Fourth abdominal segment with a small lateral dentiform process. Antennae about 0.36 mm. long.

#### EGG.

Reniform with slightly thicker basal end. Length 0.25 mm; greatest diameter 0.11; chorion with hexagonal markings Egg, when freshly laid, greenish in

colour, but changes to dirty white when further development takes place. The duration of egg-stage varies from season to season and ranges from 3-8 days.

There are four immature instars, the first and second instars known as nymphs, the third as 'prepupa' and fourth as 'pupa'. The total duration of the immature stages varies from 11-24 days.

#### **NYMPH (1st INSTAR): Fig. 2 A.**

Freshly hatched nymph translucent; but develops a pinkish tinge after 24 hours. Head pinkish-brown, compound eyes red, prothorax reddish-brown; abdomen 10-segmented. Last abdominal segment bears sixteen long and stout apical bristles arranged in a ring.

#### **NYMPH (2nd INSTAR)**

Yellowish-white, with a reddish-stripe on the pro-thorax. Legs clothed with setae, longer than the legs of the subsequent instars. Abdomen longer and stouter as compared to that of the first instar nymph.

#### **'PREPUPA' (Fig 2 B).**

General colour and markings on the body similar to those of the first instar nymph. Head wider than long, sparingly clothed with setae. Compound eyes red. Prothorax with a number of setae and eight prominent spines. Pterothorax fairly well clothed with setae of varying sizes. Wing pads whitish-yellow; anterior pair extends nearly to the second abdominal segment and the posterior pair extends a little further back. Abdomen with caudal setae very much reduced in number and size.

#### **'PUPA'.**

Light brown with 1st to 6th abdominal segments pinkish laterally and 7th to 10th segments pink all over. Head thickly clothed with setae. Compound eyes red, larger and more prominent than those in the preceding instars. Prothorax broader than long, ornamented with crescentic markings. Pterothorax shield-shaped, divided into meso and metathorax by a conspicuous groove. Legs provided with spines. Wing pads expand to the fifth abdominal segment. Abdomen widest at the third segment, caudal setae much reduced in number and size.

During the active period, the total duration of lifecycle ranges from 14-33 days and there are about 5-8 generations in one year. Since these thrips do not possess quite satisfactory organs of flight (some species

of corn thrips are well-known exceptions which are capable of sustained flight and migration) they depend mostly upon the agency of wind for their dispersal. Strong winds carry them long distances. During sultry weather *R. cruentatus* Hood is only capable of leaping from one leaf to an adjacent one. A female thrips clears at the most a distance of 12" and a male about 9.5" in one leap.

*Rhipiphorothrips cruentatus* Hood can be successfully controlled by syringing with some contact insecticide like Tobacco decoction, or organo-phosphorus compounds like Parathion or Malathion. To be effective, spraying should be done on the lower surface of the infested leaves. This pest is reported to have been attacked by an endoparasite, *Thripoctenus maculatus* Waterston (Eulophidae: Hymenoptera). The biological method of control also is thus possible.

Further studies on the biology and control of this pest are in progress.

The authors are grateful to Dr. K. P. V. Menon, Director, Central Coconut Research Station, Kayangulam for providing necessary facilities for carrying out the investigations and for permission to publish this note. We are also indebted to Shri T. N. Ananthakrishnan, Professor of Zoology, Loyola College, Madras, for the identification of the insect material.

#### **REFERENCES**

- 1 Afzal Husain, M., 1923. Report Dept. Agric. Punjab, Pt. II
- 2 Ananthakrishnan, T. N. Private communications dated 30th December 1958 and 15th January, 1959.
- 3 Ayyar, T. V. Rama'krishnan, A contribution to our knowledge of the Thysanoptera of India. Mem. Dept. Agric. India (Ent. Series), X (VII): 217-316.
- 4 Hood, J. D., 1919. Ins. Insc. Men., VII: 94-96.
- 5 Puttarudriah, M and Channa Basavanna, G. P., 1956. Some new insects and mites on areca palm in Mysore-I. Arecanut Journall VII (1) 9-10.
- 6 Rahman, K. A., and Bharadwaj, N. K. 1937. The Grape vine Thrips, *R. cruentatus* Hood. Ind. J. Agric. Sci., VII (4): 633-651.