The Nut Crinkling Coreid Bug, *Paradasynus rostratus* Dist. (Heteroptera : Coreidae) - An Emerging Pest of Coconut Palm in India

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Introduction

Coconut palm is subject to the attack of various pests throughout its life. Insects form a major limiting factor in economic coconut cultivation. The major insect pests of coconut include three coleopteran pests *viz.* the red palm weevil, *Rhynchophorus ferrugineus* Oliv. (Curculionidae), the rhinoceros beetle, *Oryctes rhinoceros* Linn. (Scarabaeidae) and the white grub, *Leucopholis coneophora* Burm. (Melolonthinae) and one lepidopteran pest, the leaf eating caterpillar, *Opisina arenosella* Walk (Xyloractidae). In addition to these major pests there are some pests emerging in serious proportions in certain coconut growing tracts of our country. Among them the coried bug or nut crinkler, *Paradasynus rostratus* Dist. is an important sucking pest.

The coreid bugs, *Amblypelta cocophage* China, *A. lutescens* Distant and *Pseudotheraptus wayi* Brown are serious pests of coconut in the Solomon Islands, Papua New Guinea and East Africa, respectively (Lever, 1969). Coreid bug infestation on coconut in India was first reported by Kurian *et al.*, in 1972. Detailed studies on the biology and damage by this pest have been carried out (Kurian *et. al.*, 1976 : 1979).

Table 1 : Biology of Paradasynus rostratus

Life stage	Duration (in days)	Characters
Egg	8-10	Oval shape, brown colour
Nymph		
I instar	4-5	Brick red color, rostrum prominent, length of abdomen equal to length of head and thorax
II instar	5-7	Dark ferruginous red to dark reddish brown with lighter abdomen, head slightly long
III instar	4-6	Dark ferruginous red to dark reddish - brown, head as long as thorax, rostrum long, abdomen shorter than head and thorax combined.
IV instar	4-6	Colour and characters same as above, wing buds prominent
V instar	8-10	Dark reddish brown in colour, wing buds prominent, black streaks in the lateral margin of abdomen
Adult	49-53	Chocolate brown in color, wings completely cover the abdomen, head prognathous, thorax thrice as long as head, abdomen boat shaped, 15-17 mm long, male smaller than female, abdomen slightly narrow in male

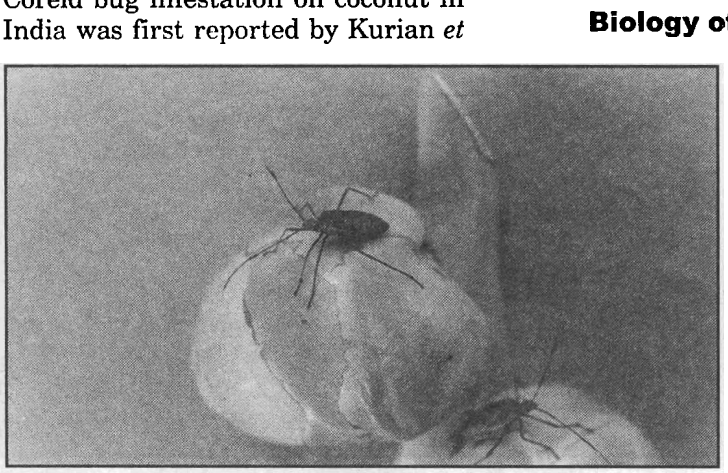

Fig. 1 : Coreid bug nymphs on tender nuts

Biology of the Pest

The adult bugs are chocolate brown in colour. The female lays eggs in clusters, the number varying from 10-58 / cluster. Freshly laid egg is oval, brown with an yellowish tinge, which turns to reddish hue with golden tinge as development advances. Eggs are deposited on the petiole, spathe, spadix or nuts. The period lasts for 8-10 days. The immature nymphal stage comprises five instars with a duration of 4-5, 4-6, 4-6 and 8-10 days, from I to V instars, respectively. The total nymphal period is completed in 25-34 days. Adult longevity lasts for 49 - 53 days. Duration and characters of different stages are given in *Table - 1.*

Nature of Damage

The nymphs as well as adults suck on tender nuts. They suck the sap from the immature button stage nuts by thrusting the long needle - like mouth part (proboscis) just below the perianth. The feeding causes characteristic permanent, deep furrows or crinkles with gummosis on the

Fig. 2 Tender nuts showing feeding marks under the perianth

Fig. 3 Coreid bug damaged nuts showing different types of symptoms

The crinkling induced by the pest gives the common name nut crinkler. The development of furrows and crinkles are due to the action of the toxins present in the saliva of the pest, which is injected into the tissue while feeding. Infestation results in button shedding. A few surviving nuts become undersized or barren with crinkles and gummosis. Shedding or retention of nuts depends on the depth of entry of the stylets and the quantity of saliva injected into the nuts. Sometimes fruit bunches with numerous nuts dry as such. Moreover, the husks of the infested nuts are not suitable for coir making and the kernel of the surviving nuts are malformed and unsuitable even for culinary purpose.

Distribution

The pest is distributed throughout Kerala in varying degrees of intensity. The incidence is severe in Trivandrum district in Kerala. The pest was also recorded from Thrithahalli in Karnataka State. Pest population is maximum during January - March and July- September.

Alternate Hosts

In addition to coconut, it is pestiferous on fruits of other crops like tamarind, guava, passion fruit and cashew.

Natural Enemies

Nair and Remamony (1964) recorded two species of egg parasitoids, *Hadrophanurus* sp. and *Anastatus* sp. as natural enemies of the pest. The red ant, *Oecophylla smaragdina* F. is known predator of this pest.

Management

Spraying the crown with 0.1 percent endosulfan / carbaryl effectively the pest. Placing phorate sachets on the base of the leaves also check infestation. Encouraging the spread of the red ant can successfully control the pest. This has been found effective in suppressing the natural population of the coreid bug, *A. cocophaga* on coconut in the Solomon Islands. Control of pests on alternate hosts with in the coconut garden is also necessary.

References

Kurian C., Pillai G. B., Abraham V.A. and Mathen K. (1972). Record of a coreid bug (nut crinkler) as a new pest of coconut in India. Curr. Sci. **41** (1) : 37.

Kurian C., Abraham V. A. and Abdulla Koya, K. M. (1976). A new enemy of coconut in India. *Indian farming* **27** (5) : 11-12.

Kurian C., Abraham V. A. and Abdulla Koya, K. M. (1979). Studies on *Paradasynus rostratus* D. (Heteroptera : Coreidae) a pest of coconut. Placrosym II 484-503

Lever, R.J.A.W. (1969). Pests of coconut palm, FAO Agricultural Studies. PP. 36-42.

*Nair, M.R.G.K. and Remamony, K.S. (1964). Souvenir of the Plant Protection Seminar, Kerala state, Trivandrum. P. 63

* *Orginal article not referred*

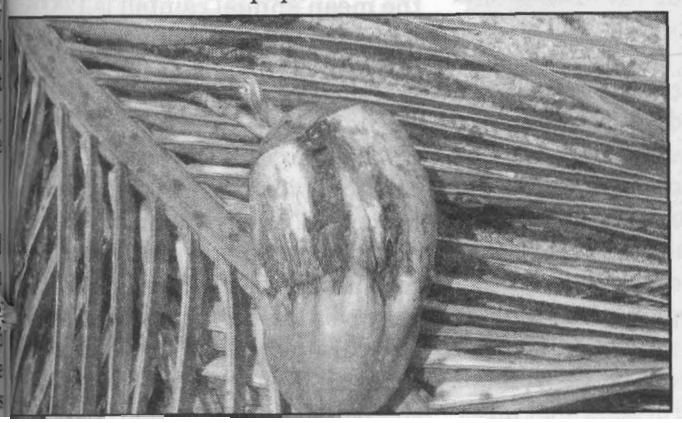

Fig. 4 :Severely damaged nut showing gummosis

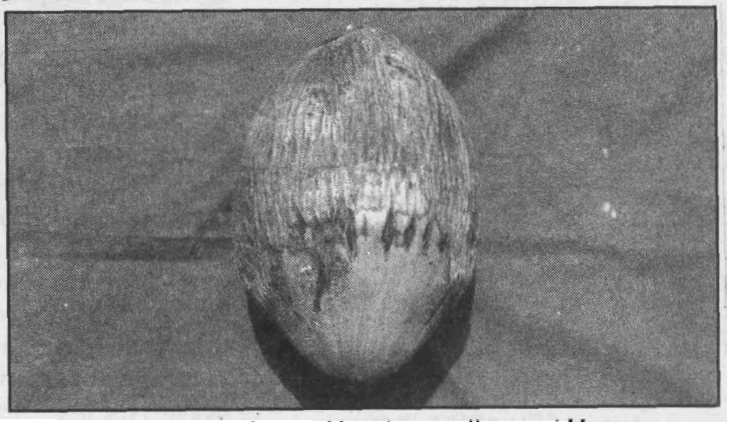

Fig. 5 : Nut damaged by mite as well as coreid bug