



Cashew tea mosquito bug and its management

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Cashew (*Anacardium occidentale*) is native of Brazil and has attained an important position among plantation crops in India. It is a very important foreign exchange earning crop of India. It was considered as a suitable crop for soil conservation, a forestation and also wasteland development. The estimated area under cashew in India is 8.55 lakh hectares and the production is around 5.73 lakh tons. The national average productivity is 815 kg per hectare (Maruthadurai *et al.*, 2012). In India, it is mainly cultivated in Maharashtra, Goa, Karnataka and Kerala along the West coast and Tamil Nadu, Pondicherry, Andhra Pradesh, Orissa and West Bengal along the East coast. It is also grown to a limited extent in non traditional areas such as Bastar region of Chhattisgarh and Kolar region of Karnataka and in Gujarat. Pest infestation is a major constraint in cashew production. It is attacked by a number of insect pests during different stages of its growth and development. Insect pests limit the production to a great extent as cashew is infested by nearly 200 insect pests at different phenological stages of the crop. A tea mosquito bug responsible to cause 30% yield loss (Devasahayam and Nair, 1986 and Maruthadurai *et al.*, 2012).

Tea mosquito bug (TMB) : Tea mosquito bug *Helopeltis antoni* (TMB) is one of the major pests of cashew damaging tender shoots, inflorescence, immature nuts and apple at various stages of development. In addition, *H. Bradyi*, *H. Theivora* and *Pachypeltis maesarum* are the other economic damage to cashew. The typical damage symptom is formation of necrotic lesions around the point of stylet insertion by the bug. The adjacent lesions coalesce and finally the affected shoot dries up. The infestation of inflorescence results in blossom blight.

The immature nuts infested by TMB develop characteristic eruptive spots which shrivel and dry up. The build-up of the pest commences during October–November synchronizing with emergence of new flushes and reaches its peak during January - March when the trees are in full bloom. It has got potential to cause cent percent loss in yield. It is estimated that this pest alone is responsible for damage of nearly 25% of shoots, 30% of

inflorescence and 15% of tender nuts. It causes more than 30% economic loss by inflorescence blight and immature nut fall.

Biology :

Egg: Female bug lays reniform and creamy white eggs singly by deeply inserting them into the tender tissues of new shoots, leaf petioles and veins. The presence of chorionic threads projecting outside the tissues is indicative of the presence of eggs inside. Each female bug lays, on an average, 50 eggs. The incubation period of the egg is on an average 5-7 days, at a temperature range of 24-32^o C and relative humidity of 50-100 per cent. About 60% of the eggs normally hatch out as nymphs.

Nymph: The nymphs go through 5 instars in 10-15 days. The first instar is completed in 1.9 days, second instar in 2.2 days, third in 2.8 days, fourth instar in 2.8 days and fifth instar in 3.2 days and thus nymphal period completes within 13-15 days. Nearly 60 per cent nymphs survive and moult as adults. The nymphs are wingless and smaller, but otherwise resemble the adults. The young nymphs are orange coloured and ant-like.

Adult: The female bug lives for about 7 days, while the longevity of male is 9-10 days. The adult bug is reddish-brown, about 6-8 mm long with a black head, red thorax, black and white abdomen. The pest can easily be recognized by its peculiar pin-like, knobbed process projecting on the dorsal side of its mid thorax. The adult usually feeds during early hours (6-10 am) and makes about 150 feeding punctures per day. The adults are poor flyers, generally fly below the bush and mating takes place mostly on the undersurface of cashew leaves. The life-cycle is completed in 25-32 days. The bug resembles mosquito in sitting position and hence this pest is known as 'mosquito bug'.

Damage symptoms:

– Nymphs and adults of this mirid bug suck sap from the leaves, young shoots, inflorescence, developing young nuts and apples.

– The injury made by the suctorial mouth parts of the insect results in exudation of a resinous gummy substance from the feeding punctures.

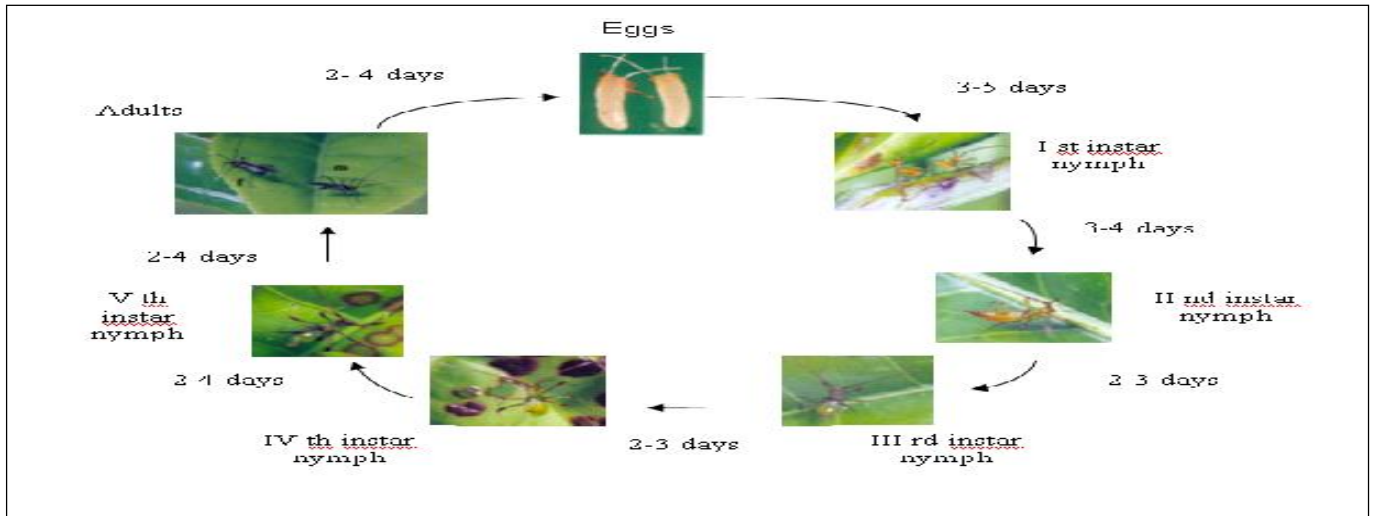


Fig. 1 : Life cycle of Tea mosquito bug

- The tissues around the point of entry of stylets become necrotised and black scab formed, due to the action of the phytotoxin present in the saliva of the bug, infesting the tender shoots / inflorescences at the time of feeding. These lesions turn pinkish brown in 24 hours and become black in 2-3 days.

- Feeding on tender leaves causes crinkling.
- Affected shoots show long black lesions and may cause die-back in severe cases.
- Infested inflorescence usually turns black and die, immature nuts may drop off.
- Heavily infested trees show scorched appearance, leading to the death of shoots and growing tips.



Damage symptoms of Tea mosquito bug



Adult of Tea mosquito bug

Natural enemies of tea mosquito bug:

Parasitoids: *Telenomus* spp., *Chaetostricha* sp., *Erythmelus helopeltidis*.

Presators: Red ant, Dragon fly, Spider, Praying mantis, Black ant, Anthocorid bug.

Cultural control:

- Remove alternate hosts such as neem, guava, cocoa, mahogany, cinchona, cotton, apples, grapes, drumstick, black pepper, jamun etc.
- Remove the volunteer (self-sown) neem plants in and around cashew plantations.
- At the out-break situation, the management programme against this pest should be launched on large scale community basis as the efforts made by an individual farmer may not be of much use.
- Monitor crop regularly for signs of damage.
- Avoid interplanting cashew with other crops which are hosts for *Helopeltis* bugs such as and cotton.

Mechanical control:

- Remove the volunteer (self-sown) neem plants and other weeds in and around cashew plantations.

Remove the communist weed around the cashew plantation in *Kharif* season.

Biological control: Several isolates of the fungus *Baeauveria bassiana* are pathogenic to both nymphs as well as adults of TMB. Field application during flushing and flowering period with concentration of 10^7 spores/ml is a potential approach for the management of TMB.

Chemical control: In the endemic areas, it is appropriate to spray the cashew crop (Three times) with Lambda - Cyhalothrin (0.003 %), profenophos (0.05%), and carbaryl (0.1%) during most vulnerable periods of crop coinciding



Egg

Nymph

Adult



with flushing, flowering and fruiting. Spraying is remunerative if the trees are giving economical nut yield (>2.0 kg/tree). Although, cashew is an insect pollinated

crop, spraying with Acetamipride 20SP @ 2g/10 lit. of water at above mention stages does not show adverse influence to fruit set.

References :

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