

Management of tea mosquito bug in *Moringa oleifera*

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Introduction

Moringa oleifera is one of the most important vegetable crops in many countries including India, Ethiopia, and Philippines etc. It is rich in proteins, vitamin A, B and C and some minerals. It is the most suitable annual or perennial crop for majority of the regions. Pests and diseases are major problems in crop production. Currently tea mosquito bug, *Helopeltis antonii* Signoret (Miridae: Hemiptera) is one of the important pests in *Moringa* ecosystem (Fig 1 and 2). Hence studies on its nature of damage and life cycle pave a good way to manage it.

Damage symptom

The nymphs and adults suck the sap from young shoots of *Moringa*, forming lesions on shoots. Due to continuous feeding the lesions coalesce, resulting in drying of twigs (Fig 3). Feeding also leads to exudation of gum (oozing) (Fig 4). The young instars mainly congregate on growing tips, which dry first. Later due to continuous feeding of bugs the whole twig used to dry and the leaves wither (Fig 5). Under severe infestation on the same tree, entire leaves fall-off and the plant resemble the snag.

Alternate hosts

The alternate hosts reported are tea (*Camellia sinensis*), cashew (*Anacardium occidentale*), guava (*Psidium guajava*), neem (*Azadirachta indica*), cotton (*Gossypium* spp.), cardamom (*Elettaria cardamomum*), grape vine (*Vitis vinifera*), pepper (*Piper nigrum*) (Saroj *et al.*, 2016) and some weed species such as *Terminalia paniculata* Roth, *Leea* sp. (Vanitha *et al.*, 2014)

Life cycle

The life cycle of *H. antonii* has three stages namely egg, nymph and adult. The gravid females oviposits individual eggs on the young shoots of *Moringa*. Presence of two prominent hairs on either side of egg and black colour will be visible externally. The egg period is 3-5 days. The nymphs hatched undergoes four moults and instars emerged differ in their size. Colour of nymphs varies from red to reddish brown. The young instar nymphs congregate over young shoots for feeding. The nymphal period lasts for 15-18 days. The adult will be in black colour with red thorax and scutellar horn in it. Adult lives for 2-4 days.

Management

For effective control of tea mosquito bug, all possible management practices should be integrated. Since all the stages of the bug are destructive, management of all stages is important.

Cultural and Mechanical practices

- Since many weeds act as alternate hosts, field should be kept weed-free.
- Pruning the infested shoots regularly will result in minimum damage.
- Avoid trees such as neem, guava, cashew etc. around the field, which act as alternate hosts for tea mosquito bug.
- Monitoring the field at regular intervals is the first and foremost step in managing tea mosquito bug.
- Collection and destruction of damaged twigs, reduces the hatching of the next stage.

Biological control

- There are many free living natural enemies viz. predators, parasitoids that maintain tea mosquito bug population at lower level.
- Predators like reduviids, black ant, red ant, some spiders, green lace wing, preying mantid etc. check the tea mosquito bug population.
- The successful parasitoid that is reported for tea mosquito bug is *Telenomus* sp.

- *Beauveria bassiana* at a concentration of 10^8 spores/ml has potential for managing tea mosquito bug. It is pathogenic to both nymphs and adults.

Chemical control

Spraying chemicals is the final solution for controlling any pest. For tea mosquito bug spraying chemicals on the whole plant will be effective. Spraying any one of the following chemicals will check the tea mosquito bug population.

- Clothianidin 50% WDG 120 g/ha
- Thiacloprid 21.7% SC 500 ml/ha
- Thiamethoxam 25% WG 100 g/ha

For effective control the chemicals may be sprayed three times at regular intervals from new flush emergence to pod formation.

References

- Saroj, P.L., Bhat, P.S and Srikumar, K. K. 2016. Tea mosquito bug (*Helopeltis* spp.) - A devastating pest of cashew plantations in India: A review. *Indian Journal of Agricultural Sciences*. 86 (2): 151-162.
- Vanitha, K., Srikumar, K.K and Bhat, P.S. 2014. Record of weed flora of cashew plantations as hosts of tea mosquito bug. *The Ecoscan* 8(3&4): 221-224.

Tea mosquito bug damage in annual moringa PKM-1



Fig 1. Tea mosquito bug-adult



Fig 2. Tea mosquito bug in Moringa



Fig 3. Angular lesions



Fig 4. Oozing out symptoms



Fig 5. Completely drying due to the infestation of tea mosquito bug