

DOI: 10.55278/KIFT1486

Unusual outbreak of tea mosquito bug, *Helopeltis antonii* Signoret (Hemiptera: Miridae) on mango and neem in Mysuru, India

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Abstract: Unusual necrotic lesions on new leaves and blighted appearance in new mango shoots were observed at College of Horticulture, Mysuru and Sampurna Group of Institutions, Agriculture College campus, Belekere, Channapattana (both in Karnataka, India) during November 2021. Careful field and laboratory observations revealed that the new shoot damage is due to *Helopeltis antonii* Signoret. Field observations at College of Horticulture, Mysuru revealed similar damage to new shoots of neem, guava, pomegranate, jamun, custard apple, Hanuman phal and drumstick in decreasing order. Several blighted shoots in neem trees planted on ring road median from Hinakal to Bogadi around Mysuru city during October 2021 to January 2022 ranged between 0.0 to 100 percent.

Keywords: *Helopeltis antonii*, mango, neem.

Introduction

Tea mosquito bugs, *Helopeltis* spp. (Hemiptera: Miridae) are making frequent news in peninsular India on pomegranate (Kamala Jayanthi *et al.*, 2016), cotton (Dharajothi *et al.*, 2018), drumstick (Jayanthi Mala *et al.*, 2020) and neem {Dr. Shanakara Murthy M. (Personal Communication) (UAS, Raichur)}, besides its continued damage/threat on guava, cashew, cocoa and tea (Saroj *et al.*, 2016; Thube *et al.*, 2020). Host range expansion and change in pest intensity are documented here.

Material and Methods

Routine insect pest survey during 2nd week of November 2021 in orchards with three to 50-year old mango and cashew trees at College of Horticulture (CoH), Yalachahalli Horticulture Farm, Yelawala, Mysuru (Karnataka, south India) revealed blighted leaves in mango (Figure a). Careful and detailed observations confirmed the presence of necrotic lesions followed by blighted leaves only on trees with a new flush. Whereas the trees with matured leaves were completely free from infestation. A week later, similar

observations (Figure b) were also observed at Sampurna Group of Institutions, Agriculture College campus at Belekere, Channapattana (Karnataka). Critical observations during the cool hours of the day revealed the presence of tea mosquito bugs in the 12 years old mango plantation.

Efforts were made to assess the extent of damage in mango with eight more hosts at plants at Yalachahalli (12° 22' 40" N; 76° 31' 33" E; 758 m MSL). In mango and cashew, ten random new flush shoots from ten randomly selected infested trees were observed and on other hosts 100 random new flush shoot counts per host were observed for damage with slight modifications to methodologies prescribed and used in cashew (Mahapatro, 2008; Ambika *et al.*, 1979).

Another set of observations was made in neem trees from October 2021 to January 2022 in over 350 neem trees planted at 20 feet apart on ring road median from Hinakal (12° 20' 20" N; 76° 36' 28" E; 779 m MSL) to Bogadi (12° 18' 30" N; 76° 36' 12" E; 755 m MSL), Mysuru on blighted new shoots.

Results and Discussion

The extent of blighted leaves (Figure a) were almost cent percent on new flush; besides 15 percent twig blight (Figure c) in case of mango at Yalachahalli farm. Observations for the presence of twig blight on cashew revealed it was scanty and negligible (3%) for want of

new flush compared to 18 percent inflorescence blight (only with \cong 10% trees). Other host plants of tea mosquito bug, revealed negligible to considerable damage to new flush or shoot buds in guava (16%); pomegranate (9%); jamun (8%); custard apple (8%); Hanuman Phal (8%) and drumstick (1%). The twig blight in neem was 17 percent on trees (>10 feet tall) compared to nil in seedlings from fallen seeds scattered here and there on the campus.

Adult bugs captured using a sweep net was introduced into an insect cage (18 cm³) having tender mango shoots with their cut ends wrapped with wet cotton. Observations revealed the same symptoms as in the field on mango trees. The adult specimens were examined carefully and confirmed as *Helopeltis antonii* Signoret (Hemiptera: Miridae) using established keys (Srikumar *et al.*, 2015; Stonedahl, 1991).

It is a well known fact that the tea mosquito bug is polyphagous and the extent of damage on mango foliage is unusual. It may be due to lack of tender shoots and inflorescence on its primary hosts *viz.*, cashew and guava. Observations clearly established that the damage was almost cent percent on new flush and negligible damage on other hosts as observed and presented above. Incidentally by the end of November and early December 2021 observations at many pomegranate and drumstick farms in Vijayanagara, Davanagere and Chitradurga districts revealed extensive

damage by tea mosquito bug. Drumstick plots in Hagaribommanahalli taluk of Vijayanagara district (Karnataka, India) had damage to the tune of 80 percent leading to heavy loss of plants (Figure d).

Observations on neem trees on ring road median from Hinakal to Bogadi, Mysuru ranged from nil blighted new shoots in 13 trees to all blighted new shoots in 38 trees during mid November 2021. The twig blight went on intensifying since mid-December 2021 leading to drying and defoliation (Figure e). It is too early to state the fate of 49 trees that have been completely defoliated by mid-January 2022. Similar was the damage to almost all the neem trees on the ring road median in other stretches around Mysuru. Heavy infestation or damage in these neem trees on road median may be due to lack of other hosts nearby (urbanisation) or may be because of pollution (dust and smoke) that might have favoured the pest build-up needs to be ascertained. It is also important to ascertain the tea mosquito bug species(s)

causing the twig blight on these neem trees and any plant pathogen association (primary/secondary), if any.

The unusual outbreak of tea mosquito bug in Karnataka during last quarter of 2021 may be due to congenial micro and macro climate during entire monsoon in southern Karnataka besides the synchrony of new flush with tea mosquito bug's incidence. Availability of diverse host plants and young shoots and blossoms, absence of targeted management measures (except guava and pomegranate) that too during monsoon period might have favoured this unusual outbreak. The concern being if the new flush and blossoms are affected, the productivity and quality of the produce will be affected. Thus, there is an urgent need to monitor the pest with crop phenology and weather besides evolving stage-specific crop management tools in a sustainable way without affecting the environment.



Blighted mango leaves due to tea mosquito bug

Fig a. CoH, Yalachahalli Horticulture Farm, Yelawala, Mysuru

Figure b. SGI (Agriculture) campus, Belekere, Channapattana



Fig c. Mango twig blight caused by tea mosquito bug



Fig d. Tea mosquito bug damage intensity on drumstick Vijayanagara dt.



Fig e. Tea bug damage intensity in neem trees on ring road median at Bogadi, Mysuru

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MS Received 18 December 2021

MS Accepted 23 January 2022