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Journal of Agriculture and Ecology

ISSN: 2456-9410

Volume: 13

Journal of Agriculture and Ecology (2022) 13: 60-64
<http://doi.org/10.53911/JAE.2022.13106>



Research Article

Open Access

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Article Info

Article history

Received: 01 May 2022
Accepted: 30 May 2022
Available online: 15 June 2022

Key Words: White rot, Pentatomid bug, *Degonetus serratus*, *Tectona grandis*.

Abstract

Pentatomidae are usually considered as minor and occasional pests feed on large number of cultivated crops as well as wild plants. During field visit, pentatomid bug, *Degonetus serratus* (Distance) (Hemiptera: Pentatomidae) was observed on teak plants in forest areas of Tapi district. The infestation was found sporadic along the river side teak plantation. This paper presents the first report of the occurrence of *D. serratus* and its sporadic infestation on teak which hitherto was not reported on teak from Gujarat.

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Preferred citation: Chavan SM. 2022. Occurrence of pentatomid bug, *Degonetus serratus* (Distance) (Hemiptera: Pentatomidae) feeding on teak in Gujarat. *Journal of Agriculture and Ecology*, 13: 60-64; <http://doi.org/10.53911/JAE.2022.13106>

Introduction

Insects and plants share ancient association that dates from the Carboniferous, some 300 million years ago and among insects, many species of plant-feeding Hemiptera are considered serious pest of agricultural and horticultural crops and also the forest plants (Gullan & Cranston 2010). Teak, *Tectona grandis* (Linnaeus) is one of the preferred timber species of Gujarat as well as India. In India, it grows naturally in 9 million hectare of area and considered as one of the top five tropical plantation species of the world. Teak is always under a serious threat of insects, because this potential tree species has a rich complex of insect fauna and suffers assiduously from insect damage, from seed to mature trees, continues till the harvest and persist even beyond (Beeson 1941; Mathur & Singh 1960; Tewari 1992; Sudheendrakumar 1994; Shukla et al. 2001). Hutacharearn & Tubtim (1995) reported that

about 187 insect species have been found feeding on living teak tree in India which includes 78 species from order Lepidoptera, 40 species from order Coleoptera and 18 species from order Orthoptera. In fact, the total number of insect pests infesting this plant might be more because of report of additional species by several workers around the country after the base line report. Out of total 294 insects identified on teak, about 196 species reported to be associated with living teak in India and its neighboring countries (Roychoudhury et al. 2002).

The family Pentatomidae is one of the largest families within the Heteroptera. Of the estimated 36,096 described species of Heteroptera, more than 4700 species belong to Pentatomidae (Panizzi et al. 2000). Pentatomid bugs, commonly known as stink bugs, are the most diverse among Pentatomomorpha, and are found in all major zoogeographic regions. The majority of

pentatomids are phytophagous, with the exception of Asopinae, which are predatory. Though Pentatomidae are usually considered as minor and occasional pests, on several occasions, these bugs attain pest status, especially when attacking economically important plant parts like developing grains and immature fruits of cultivated crops. They feed on large number of cultivated crops as well as wild plants (Panizzi & Lucini 2017). This paper reports the sporadic infestation of a pentatomid bug, *Degonetus serratus* (Distance) (Hemiptera: Pentatomidae) on teak which hitherto was not reported on teak from Gujarat.

Material and Methods

The present finding was noted during the ongoing extension activity at farmers field in Tapi district of South Gujarat. During field visit, different life stages of insect-pentatomid bug was observed on teak plants along river side in forest areas of Tapi district. Regular fortnightly monitoring was also carried out for the confirmation of the teak as host plants of this insect. Moreover, different life stages observed were collected and brought to the laboratory for further study. Observations on colour, size, shape and measurements of different life stages were also taken. The average linear measurements of various body parts of male and female bugs were obtained under microscope. The terminology used to denote different parts of the body of the bug as followed by Haldhar (2012) and Haldhar & Singh (2014). Based on the

photographs and literature available on internet, the insect was identified as *Degonetus serratus* (Distance) (Hemiptera: Pentatomidae). Further, identification was also confirmed by Dr H.V.Ghate, Retired Zoologist, Modern College of Arts, Science and Commerce, Shivajinagar, Pune, Maharashtra, India.

Results and Discussion

The genus *Degonetus* was originally erected by Distant (1902) with *D. serratus* (Distant, 1887) as the type species. Two species are known to occur in *Degonetus* from India namely, *D. serratus* Distant and *D. sikkimensis* Mathew. Of these, *D. serratus* is the only species known from south India (Salini & Viraktamath 2015). The species *serratus* was initially described under *Abeona?* Distant (1887) and later, Distant (1902) described this species under *Degonetus*. Eggs of *D. serratus* are barrel-shaped with an operculum and laid in clusters (5 to 20) on leaf (Figure A). Size of the egg ranged between 1.0 mm to 1.2 mm with an average of 1.03 mm. Soon after hatching, the nymphs cluster over the egg shell for some time to later disperse and begin sucking sap from tender parts of host plants. This pentatomid bug also called as white stink bug due to its white colour at nymphal stage. Nymphs were seen on a ventral surface of leaf with many other nymphs nearby. Length and width of male adult ranged between 12 to 13 mm and 2 to 3 mm with average of 12.26 mm and 8.07 mm, respectively.

Table 1. Linear measurements of eggs and adults of *D.serratus*

Stage	Length (mm)		Width (mm)	
	Mean \pm SE	Range	Mean \pm SE	Range
Egg	1.03 \pm 0.13	1.0 -1.2	0.60 \pm 0.08	0.5-0.7
Male	12.26 \pm 0.21	12-13	8.07 \pm 0.12	7-8
Female	13.22 \pm 0.24	13-14	9.12 \pm 0.15	8-9

(Average of 10 specimens)

Likewise, length and width of female adults ranged between 13 to 14 mm and 8 to 9 mm with average of 13.22 mm and 9.12 mm, respectively (Table 1). Both, nymphs and adults were found congregating on ventral surface of leaf for feeding (Fig. B, C & D). The pentatomid bug also called shield bug. The term shield bug refers to the generalized

body shape of adult bugs in these families which resembles a heraldic shield when viewed from above. Nymphs and adults found in large numbers towards the top of large plants as well as seedlings and feeds on the cell sap by sucking. It causes minor damage and extent of loss is not established so far.

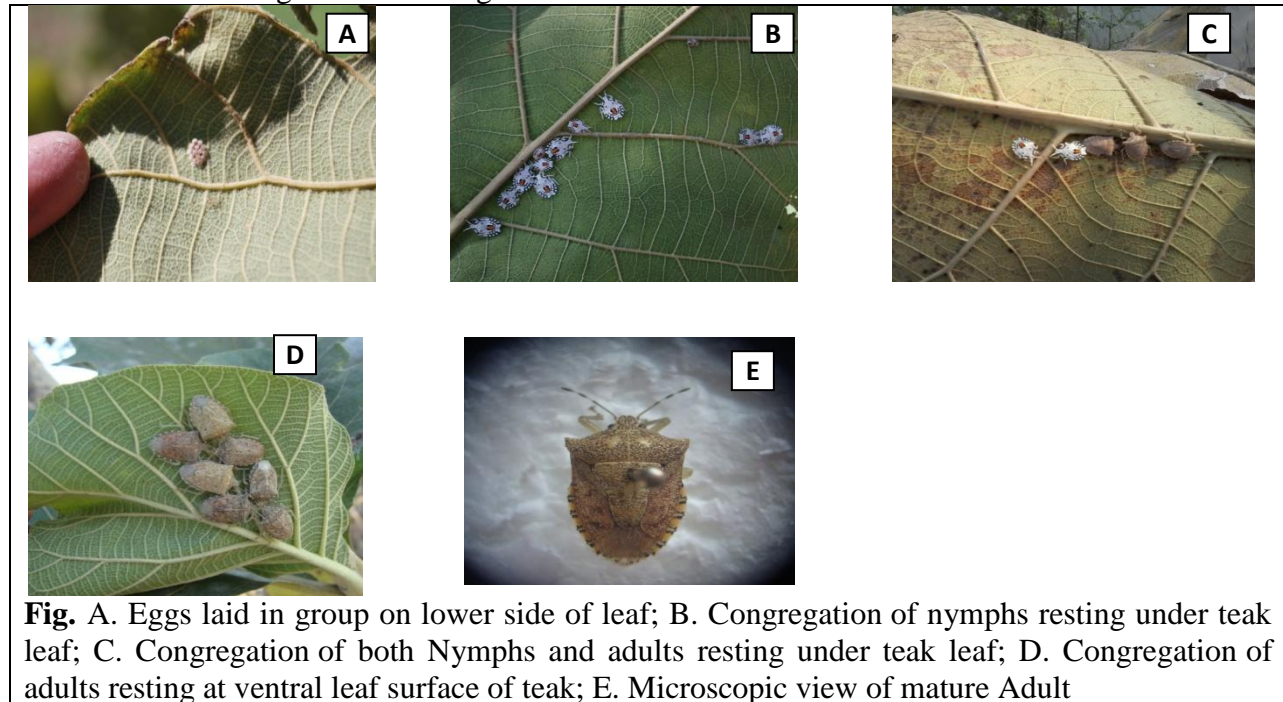


Fig. A. Eggs laid in group on lower side of leaf; B. Congregation of nymphs resting under teak leaf; C. Congregation of both Nymphs and adults resting under teak leaf; D. Congregation of adults resting at ventral leaf surface of teak; E. Microscopic view of mature Adult

Roychoudhury & Subhash Chandra (2011) recorded first time occurrence of pentatomid bug, *D. serratus* feeding on teak in Madhya Pradesh. Kailash Chandra et al. (2012) studied distribution and diversity of Hemiptera fauna of Veerangana Durgavati Wildlife Sanctuary, Damoh, Jabalpur, Madhya Pradesh and recorded the presence of *D. serratus*. Similarly, Gaikwad & Waghmare (2018) also reported *T. grandis* is the host plant of *D. serratus* in from Kolhapur district of Northern Western Ghats. Moreover, Tripathy & Rout (2018) studied diversity of insect pests and their natural enemies infesting teak in coastal Odisha and reported that *D. serratus* was found throughout the year except in high summer. This is the first report of

occurrence of pentatomid bug, *D. serratus* feeding on teak in South Gujarat and perhaps in Gujarat.

Acknowledgement

We thank Dr H.V. Ghate, Retired Zoologist, Modern College of Arts Science and Commerce, Shivajinagar, Pune, Maharashtra, India for correct identification of the specimen.

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