



## OCCURRENCE OF PENTATOMID BUG *DEGONETUS SERRATUS* (DISTANT) ON TEAK

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### ABSTRACT

**A pentatomid bug, *Degonetus serratus* (Distant) (Hemiptera: Heteroptera: Pentatomidae) was found infesting on teak plants during a field visit to forest areas of Tapi district, South Gujarat. 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 from Gujarat.**

**Key words:** Pentatomid bug, *Degonetus serratus*, Heteroptera, *Tectona grandis*, sporadic infestation, Gujarat, new report, eggs, nymphs, adult, feeding

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 and Cranston 2010). Teak, *Tectona grandis* (Linnaeus) is one of the preferred timber species in India especially in Gujarat. 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 seriously from insect damage, from seed to mature trees, continues till the harvest and persist even beyond (Beeson, 1941; Mathur and Singh, 1960; Tewari, 1992; Sudheendrakumar, 1994; Shukla et al., 2001). Hutacharern and Tubtim (1995) reported that about 187 insect species have been found feeding on live teak tree in India which includes 78, 40 and 18 species belonging to Lepidoptera, Coleoptera and Orthoptera, respectively. In fact, the total number of insect pests infesting this plant might be more because of report of additional species by several workers across the country after the base line report. Out of total 294 insects identified on teak, about 196 species reported to be associated with live teak in India and its neighbouring countries (Roychoudhury et al., 2002).

Pentatomidae is one of the largest families within the Heteroptera. Of the estimated 42,300 described species of Heteroptera (Henry, 2017), about 5000 species belong to Pentatomidae (Rider et al., 2018). Pentatomidae 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 and Lucini, 2017). This article reports the sporadic infestation of a pentatomid bug, *Degonetus serratus* (Distant) (Hemiptera: Heteroptera: Pentatomidae) on teak from Gujarat.

### MATERIALS AND METHODS

A field visit was undertaken as part of the ongoing extension activity at farmers field in Tapi district of South Gujarat. During this field visit, different life stages of a pentatomid bug was observed on teak plants along river side in forest areas of Tapi district. Different life stages observed were collected and brought to the laboratory for further study and photographed using a Knowa Getner Stereo trinocular microscope. Observations on size, and measurements of different eggs and adults were also taken. For this, ten specimen of each- egg, male and female adults were observed and noted the length and width of each in mm and mean was calculated. Based on the photographs and literature available on internet, the insect was identified as *Degonetus serratus* (Distant) (Hemiptera: Heteroptera: 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 proposed by Distant (1902) with *D. serratus* (Distant, 1887) as the type species. *D. serratus* is the only species known from south India (Salini and 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 lay in clusters (5 to 20) on leaf (Fig. A). Size of the egg ranged between 1.0 mm to 1.2 mm ( $1.03 \pm 0.13$ ) x 0.5 to 0.7 mm ( $0.6 \pm 0.08$ ). 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. Nymphs were seen on a ventral surface of leaf. Length (head to tip of abdomen) and pronotum width of male ranged between 12 to 13 mm and 7 to 8 mm ( $12.26 \pm 0.21$  and  $8.07 \pm 0.12$ ), respectively. Likewise, length and width of female ranged between 13 to 14 mm and 8 to 9 mm ( $13.22 \pm 0.24$  and  $8.9 \pm 0.15$ ), respectively. Both, nymphs and adults were found congregating on ventral surface of leaf for feeding (Fig. B, C, D). They were found in large numbers towards the top of large plants as well as seedlings and suck the cell sap. It causes minor damage and extent of loss is not established so far.

In India *D. serratus* was previously recorded by Distant (1887) from Bombay Maharashtra; Chatterjee (1934) from Nedungayam, Kerala; Usman and

Puttarudriah (1955) from Bengaluru, Karnataka; Azim (2011) from Coimbatore, Tamilnadu and Pusa, Bihar, Chandra et al. (2012) from Damoh, Madhya Pradesh; Salini and Viraktmath (2015) from South India; Suresh Kumar (2016) from Yekollu, Andhra Pradesh; Roychoudhury and Subhash Chandra (2011); Chandra and Kushwaha (2017) from Bhopal, Madhya Pradesh; Tripathy and Rout (2018) from coastal Odisha; Jadhav and Hegade (2018) from Pune, Maharashtra; Kailash Chandra et al. (2012) studied distribution and diversity of Hemiptera fauna of Veerangana Durgavati Wildlife Sanctuary, Damoh, Jabalpur, Madhya Pradesh and reported the presence of *D. serratus*. Similarly, Gaikwad and Waghmare (2018) also reported *T. grandis* is the host plant of *D. serratus* in from Kolhapur district of Northern Western Ghats. Moreover, Tripathy and 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. However there is no specific record or published work on this bug from Gujarat. Hence, this is the first report of occurrence of pentatomid bug, *D. serratus* feeding on teak in South Gujarat and perhaps in Gujarat.

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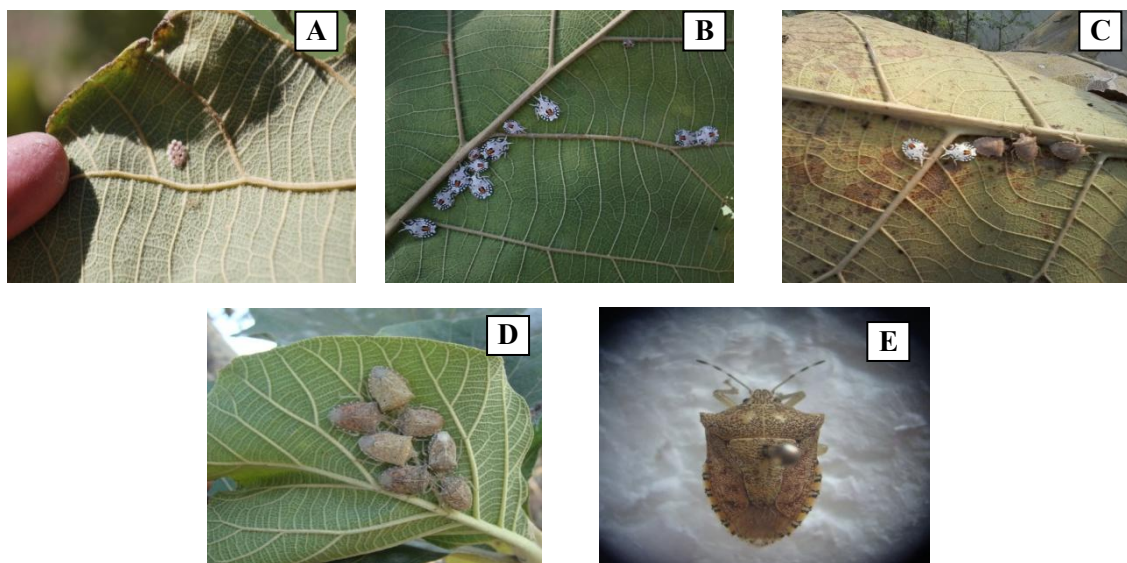


Fig. A. Eggs laid in group on lower side of leaf; B. Congregation of nymphs resting under teak leaf; C. Congregation of both Nymphs and adults resting under teak leaf; D. Congregation of adults resting at ventral leaf surface of teak; E. Microscopic view of mature adult

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### AUTHOR CONTRIBUTION STATEMENT

SSK conducted the research and carried out data.

### CONFLICT OF INTEREST

No conflict of interest.

### REFERENCES

- Azim M N. 2011. Taxonomic survey of stink bugs (Heteroptera: Pentatomidae) of India. *Halteres* 3: 1-10.
- Beeson C F C. 1941. The Ecology and control of the forest insects of India and the Neighbouring Countries. Govt. of India, New Delhi. 767 pp.
- Chandra K, Kushwaha S, Sambath S, Biswas B. 2012. Distribution and diversity of Hemiptera fauna of Veerangana Durgavati Wildlife Sanctuary, Damoh, Madhya Pradesh (India) *Biological Forum. An International Journal* 4(1): 68-74.
- Chandra K, Kushwaha S. 2017. Diversity of Hemiptera fauna of Bhoj wetland and surrounding areas (Van Vihar National Park) Bhopal, Madhya Pradesh India, *International Journal of Global Science Research* 4(1): 462-470.
- Chatterjee N C. 1934. Entomological investigations on the spike disease of sandal. *Pentatomidae (Hemipt.)*. *Indian Forest Records* 20: 1-31.
- Distant W L. 1887. Contributions to knowledge of Oriental Rhynchota. Part I. Fam. Pentatomidae. *Trans. Entomol. Soc. London* 3: 341-359.
- Distant W L. 1902. Rhynchota Vol. I, Heteroptera. In: Blanford, W. T. (Ed). *The fauna of British India Including Ceylon and Burma*. Taylor and Francis, London. pp. 307-438.
- Gaikwad S M, Waghmare S H. 2018. Stink bugs (Hemiptera: Heteroptera: Pentatomidae) and Plant association in Kolhapur district of Northern Western Ghats. *Journal of Emerging Technologies and Innovative Research* 5(12): 12-15.
- Gullan P, Cranston P. 2010. *The insects. An outline of entomology* 4th edition. Wiley-Blackwell, New York, 565 pp.
- Henry T J. 2017. Biodiversity of Heteroptera. Footitt R G, Adler P H (eds) *Insect biodiversity: science and society*, Vol I, 2nd Edn. Wiley, Hoboken. pp. 279-335.
- Hutacharern C, Tubtim N. 1995. Checklist of forest insects in Thailand, Bangkok: Office of Environmental Policy and Planning, Ministry of Science, Technology and Environment.
- Jadhav D D, Hegde V D. 2018. On a collection of stink bugs (Hemiptera: Pentatomidae) in and around Pune. Maharashtra. *Journal of Entomology and Zoology Studies* 6(4): 1504-1507.
- Kailash Chandra, Kushwaha S, Sambath S, Biswas B. 2012. Distribution and diversity of hemiptera fauna of Veerangana Durgavati Wildlife Sanctuary, Damoh, Madhya Pradesh (India). *Biological Forum - An International Journal* 4(1): 68-74.
- Mathur R N, Singh B. 1960. A list of insect pests of forest plants in India and the adjacent countries. *Indian Forest Bulletin (Entomology)* 171(9): 1-130.
- Panizzi A, Lucini T. 2017. Host plant-stink bug (Pentatomidae) relationships, pp. 31-58. In: *Stink bugs*, CRC press, New York. 276 pp.
- Rider D A, Schwertner C F, Vilímová J, Rédei D, Kment P, Thomas D B. 2018. Higher systematics of the Pentatomoidea. *Invasive Stink bugs and related species (Pentatomoidea)* J.E. McPherson (ed.) CRC Press, London. pp. 25-193.
- Roychoudhury N, Joshi K C, Shukla N P. 2002. Insect pests of *Tectona grandis* L. f. an update. *Advance Forest Research in India* 25: 196-224.
- Roychoudhury N, Subhash Chandra. 2011. *Degonetus serratus* (Distant): a new record of pentatomid bug feeding on teak. *Journal of Tropical Forestry* 27(4): 31-34.
- Salini S, Viraktamath C A. 2015. Genera of Pentatomidae (Hemiptera: Pentatomoidea) from south India - an illustrated key to genera and checklist of species. *Zootaxa* 3924(1): 1-76.
- Shukla P K, Jamaluddin, Roychoudhury N. 2001. Diseases and insect pests of teak. ICFRE Brochure No. 68, Tropical Forest Research Institute, Jabalpur. 86 pp.
- Sudheendrakumar V V. 1994. Pests of teak and their management. *Forest Entomology*. L K Jha and P K Sen-Sarma (eds.), Ashish Publishing House, New Delhi. pp. 121-140.
- Suresh Kumar A N. 2016. India Biodiversity Portal, 2016. <https://indiabiodiversity.org/observation/show/1722605>.
- Tewari D N. 1992. A monograph on teak (*Tectona grandis* Linn.f.). International Book Distributors, Dehradun, India. 479 pp.
- Tripathy M K, Rout M. 2018. Diversity of insect pests and their natural enemies infesting teak (*Tectona grandis*, Verbenaceae) in Coastal Odisha. *International Journal of current Microbiology and Applied Sciences* 7(11): 1421-1432.
- Usman S, Puttarudriah M. 1955. A list of the insects of Mysore including mites. *Entomology Series Bulletin* 16: 1-6, 1-194.

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