Entomology

First record of stink bug *Degonetus serratus* distant, 1887 (Heteroptera: Pentatomidae) with two color morphs from Goa, India

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Abstract

Genus *Degonetus* is widely distributed in India. This is a single genus in the tribe Degonetini (Azim & Shafee, 1984) and comes under subfamily Pentatominae of family Pentatomidae. In this tribe Degonetini the stink bugs are different than other stink bugs in the aspect of antennae. Stink bugs in the family Pentatomidae should have five antennal segments but species of this genus has only four segments in their antennae. There are only two described species: *Degonetus serratus* and *Degonetus sikkimensis*. In India *Degonetus serratus* was previously recorded from Bombay, Maharashtra in 1887, Nedungayam, Kerala in 1934, Bengaluru, Karnataka in 1955, Pusa, Bihar in 2011, Yekollu, Andhra Pradesh in 2016. Now, it was recorded from Goa state for the first time with two color morphs in 2018.

Keywords: *Degonetus*, stink bug, tribe, color morph, Goa

Introduction

Pentatomide Leach, 1815 is the third largest family of suborder Heteroptera and consisting about 4,722 species classified in 896 genera (Rider 2006-2012) [13]. The members of this family are commonly known as "Stink bugs". They are the most diverse group, found in all major zoogeographic regions. They produce foul smelling by means of stink glands that open in the region of the metacoxae. Some nymphs have stink glands located on the dorsum of the abdomen (Borror *et al*. 1989) [3].

The stink bugs are characterized by 5 segmented antennae; 4 segmented rostrum; three segmented tarsi; the body is somewhat shield shaped in dorsal view therefore they are also known as 'Shield bugs'. Scutellum is more or less triangular which covers the abdomen. In many stinks bugs color variation is seen, they are differently colored, few are brilliantly colored, but others are greenish, brownish ochraceous to dark or black. Therefore, they are also known for their cryptic and warning coloration. Stink bugs have piercing and sucking type of mouthparts, they feed by inserting their stylets into the food source to suck up nutrients (Panizzi et. al 2000) [12].

Most of the stink bugs of subfamily Pentatominae are phytophagous including several species which are considered as serious agricultural pests. Generally, they are polyphagous, feeding on both cultivated and uncultivated plants. They can damage the various crop plants like legumes, cereals and tree crops throughout the world and are resistant to many pesticides (Panizzi and Grazia 2001) [11]. However, some stink bugs from family Asopinae are considered highly beneficial due to their predatory nature.

Material and Methods

The monitoring of specimens of Stink Bug *D. serratus* and their nymphs was carried out in the Salem (Lat 15.686219° Long 73.947187°), North Goa district of Goa state on 5th October 2018. Adult specimens were collected by hand picking method. They were killed by using ethyl acetate and preserved in laboratory. The photography and labeling were done. Identification was done with the help of available literature Distant (1902) [7] Fauna of British India.

Results and Discussion

During present study the stink bug *D. serratus* and their nymphs were found on leaf of teak plant *Tectona grandis* in clusters for the first time. In adults colour variation was seen on their scutellum, they were brown ochraceous coloured and some were brownish with black scutellum (Image 1) while nymphs were whitish in colour (Image 2). Generally, stink bugs have five segmented antennae and their fifth instar nymphs resembles to adults. But in *D. serratus* antennae four segmented and their fifth instar nymphs are not resembling to adults.

Diagnostic Characters

Body of adult *D. serratus* is broad and somewhat short; head anteriorly narrowed, lateral lobes of head longer than the central lobe, but separate at their apices; antennae four-segmented, basal segment not reaching apex of head, second segment very long, about as long as third and fourth together; rostrum short, not reaching the posterior coxae, basal segment not quite reaching base of head; pronotum with the lateral margins serrate, the lateral angles prominently produced; scutellum longer than broad at base, the basal angles foveate; apical angle of corium slightly produced, the inner apical margin rounded; mesosternum sulcate centrally; ventral spine short, not passing posterior coxae; abdomen obtusely sulcated centrally.

Fig 1: Adults of Degonetus serratus on Tectona grandis leaf showing colour variation

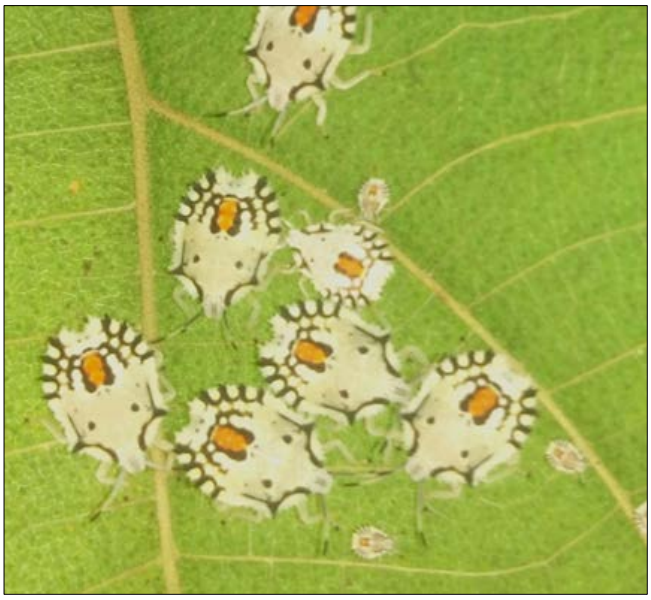

Fig 2: Nymphs of Degonetus serratus on Tectona grandis leaf showing white colour

Distant (1904) [5] placed the genus Degonetus under the division Tropicoraria and its distribution mentioned only in India. Azim & Shafee, (1984) [2] proposed the new tribe Degonetini which include only one genus *Degonetus* distributed throughout the India. There are only two described species: *D. serratus* and *D. sikkimensis*. These species belong to subfamily Pentatominae and comes under family Pentatomidae. Members of subfamily Pentatominae are quite variable in size and in colour (Salini, 2019) [14]. They are different than other stink bugs in the aspect of antennae. Generally Stink bugs in the family Pentatomidae should have five antennal segments but the species this genus has only four segments in their antennae.

In India *D. serratus* was previously recorded by Distant (1887) [6] from Bombay Maharashtra, Chatterjee (1934) [4] from Nedungayam, Kerala, Usman and Puttarudriah (1955) [18] from Bengaluru, Karnataka, Azim (2011) [1] from Coimbatore, Tamilnadu and Pusa, Bihar, Chandra *et al* (2012) [10] from Damoh, Madhya Pradesh, Salini and Viraktmath (2015) [15] from South India, Suresh Kumar (2016) [16] from Yekollu, Andhra Pradesh, Chandra and Kushwaha (2017) [9] from Bhopal, Madhya Pradesh, Tripathy and Rout (2018) [17] from coastal Odisha, Jadhav and Hegade (2018) [8] from Pune, Maharashtra. However there is no specific record or published work on this bug from Goa. Hence, the occurrence of this bug from Salem, North Goa District become a first report from Goa and represents a significant south-westerly distribution to its known range India.

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