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Sailesh ChattopadhyayDepartment of Forest Biology
and Tree Improvement, Faculty
of Forestry, Birsa Agricultural
University, Kanke, Ranchi,
Jharkhand, India

New record of lygaeid bugs of genus *Graptostethus* Stal (Hemiptera: Heteroptera: Lygaeidae) on *Dalbergia sissoo* from Jharkhand, India

Sailesh ChattopadhyayDOI: <https://doi.org/10.22271/j.ento.2022.v10.i6b.9112>

Abstract

Two Lygaeid bugs *Graptostethus nigriceps* Stal and *Graptostethus quadrisignatus* Distant were noticed to cause considerable damage by sucking the sap of tender shoot, pod and leaves of *Dalbergia sissoo* in nursery and young plantation in the Birsa Agricultural University, Ranchi, Jharkhand and this finding documents a new record of host plant (*Dalbergia sissoo*) of these hemipteran bugs of Jharkhand.

Keywords: *Lygaeid bugs*, *Graptostethus nigriceps*, *Graptostethus quadrisignatus*, new record, *Dalbergia sissoo*

Introduction

Lygaeidae is an extensive family of brilliantly coloured sap sucking hemipteran insects which are commonly called as seed bugs, ground bugs or milkweed bugs and several members of this insect family are of great economic importance due to their status of pest of agricultural crop and other vegetation [1, 16, 15]. Lygaeids are phytophagous, mostly occur on herbs and shrubs and characterized by short head, four segmented antennae and inserted either on or below a line drawn from middle of eyes, devoid of cuneus impressed line across the calli, y - shaped pattern on the scutellum and evident thoracic gland openings [8,12]. Lygaeidae is the second largest family amongst Heteroptera, having more than 110 genera and genus *Graptostethus* Stal is recognized by unarmed femore, absence of central carina, straight posterior margin of pronotum and clavus sub-amplified posteriorly and these bugs are sapsuckers and usually feed on leaves, seed pods of native legumes, grasses or weeds [9, 12]. Shisham (*Dalbergia sissoo* Roxb.) is the timber yielding leguminous tree species usually planted in different states of India including Jharkhand [3] and a few record of infestation of hemipteran sap sucking bugs on *Dalbergia sissoo* are there in the literature from Jharkhand [14,2,4,5,6]. But there is no record host plant (*Dalbergia sissoo*) of sap sucking bugs of family Lygaeidae of class Insecta. An endeavour has been made to document a new record of host plant (*Dalbergia sissoo*) of two species of lygaeid bugs viz. *Graptostethus nigriceps* Stal and *Graptostethus quadrisignatus* Distant from Jharkhand, India.

Materials and Methods

During the field study for recording the insect pest diversity on shisham (*Dalbergia sissoo*) in the campus nursery and plantation in Faculty of Forestry, Birsa Agricultural University, Ranchi (23.18° N, 85.19° E, alt. 625m MSL), Jharkhand, quite a good number of hemipteran bugs were found to suck sap from the apical soft tender shoots and leaves of shisham (*Dalbergia sissoo*) of seedlings, saplings and young plantations last couple of years. Bug samples were collected with the help of insect catching net and killed in the insect killing bottle by using ethyl acetate. The killed specimen were properly pinned and identified as *Graptostethus nigriceps* Stal and *Graptostethus quadrisignatus* Distant with the help of available literature [7, 13, 11, 9].

Properly pinned specimens of both the bug species are kept in the collection of insects (BAUFENT) and will be deposited in the National Zoological Collections at Zoological Survey of India, Kolkata, West Bengal in course of time.

Corresponding Author:**Sailesh Chattopadhyay**Department of Forest Biology
and Tree Improvement, Faculty
of Forestry, Birsa Agricultural
University, Kanke, Ranchi,
Jharkhand, India

Results and Discussion

The present study documents the incidence of two Lygaeid bug species viz. *Graptostethus nigriceps* Stal (Fig. 1.) and *Graptostethus quadrisignatus* Distant (Fig. 2) on the shisham foliage during February – April, 2022 and found sucking the sap from the tender shoots and leaves of shisham (*Dalbergia sissoo*) and members of *Graptostethus nigriceps* were noticed more abundant than *Graptostethus quadrisignatus*. The adults of *Graptostethus nigriceps* is characterized by short stemmed paramere, pronotum with red anterior margin, ventro posterior margin of abdominal sternite VII concave and very long spermathecal duct and bulb with rounded apex whereas the identifying characters of *Graptostethus quadrisignatus* are long stemmed paramere, pronotum with black anterior margin, ventro posterior margin of abdominal sternite VII truncate shaped, legs clothed with whitish piles and short spermathecal duct and bulb with straight apex. Host plant of both these *Graptostethus* species have been recorded as wild vegetation^[10] and milkweed plants^[9]. However, the report of above two bug species associated with shisham is the first record from Jharkhand state of India.

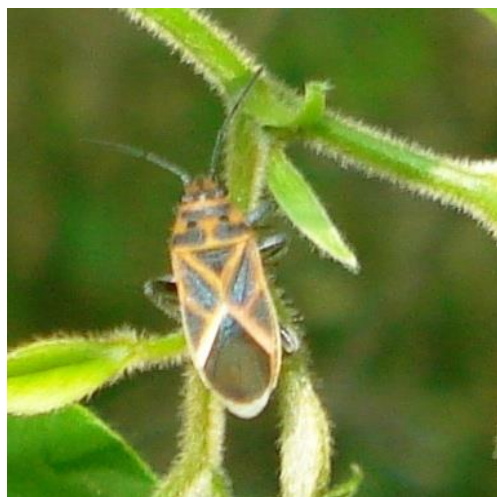


Fig 1: *Graptostethus nigriceps*

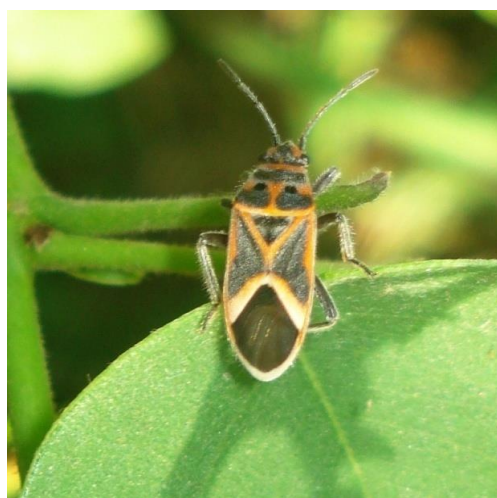


Fig 2: *Graptostethus quadrisignatus*

Conclusion

The present information is the additional record of sap sucking hemipteran insect species of genus *Graptostethus* on the timber yielding tree species (*Dalbergia sissoo*) and

detailed study of sap sucking behaviour and damage potentiality of these two Lygaeid bug species in relation to meteorological parameters have been taken into account.

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