



E-ISSN: 2320-7078

P-ISSN: 2349-6800

www.entomoljournal.com

JEZS 2022; 10(5): 106-109

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Received: 08-04-2022

Accepted: 12-06-2022

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A new species of the genus *Kalidasa* lantern bug (Hemiptera, Fulgoridae) from *Ailanthus excelsa* Roxb. In Tamil Nadu, India

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DOI: <https://doi.org/10.22271/j.ento.2022.v10.i5b.9039>

Abstract

A new species of the Genus *Kalidasa* Kirkaldy, 1900 (Fulgoridae: Hemiptera) as *Kalidasa mythiliae* sp. Nov. Infesting *Ailanthus excelsa* trees as sucking insect pest collected from Coimbatore, Tamil Nadu is described with morphological characteristics of the other five species reported. A key to identify the species of the Genus, *Kalidasa* of India has been provided.

Keywords: Hemiptera, Fulgoridae, lantern bug, *Kalidasa*, *Ailanthus excelsa*

Introduction

Ailanthus excelsa Roxb. is a fast growing multipurpose indigenous top priority species for safety match industry in Tamil Nadu. Huge demand for *A. excelsa* wood is felt for matchwood and plywood industries which largely encourages cultivation this tree in farmland outside the forest areas which may fetch good revenue for farmers (Kumar *et al.*, 2001) ^[1]. Apart from the wood the leaf is also an excellent source of quality protein. There is a tremendous scope to develop the species as fodder tree in southern India as it has already used as fodder in Rajasthan and Gujarat. It is commonly affected by two lepidopteran insect pests *viz.*, *Atteva fabriciella* Swed. and *Eligma narcissus indica* Rothschild (Orwa *et al.*, 2009) ^[2]. However, recently there is an occurrence of a sucking insect *Kalidasa lanata* (Drury) with notable infestation on *Ailanthus triphysa* (Dennst) in Kerala (India) (Deepakkumar, 2018) ^[3]. In the year 2021, occurrence of a new sucking hemipteran bug with significant infestation on *A. excelsa* in Tamil Nadu was observed. It has been confirmed as a lantern bug of the genus *Kalidasa* Kirkaldy, 1900. However, the characteristic features of the insect are not agreed with the already known species of the genus and it has been described as a new species *Kalidasa mythiliae* sp. Nov. *Kalidasa* is a Genus of planthoppers in the Tribe Aphaenini of the Family Fulgoridae. There are five species in the genus, which are found in different parts of tropical Asia (Indo-China) (Distant, 1906) ^[4].

Materials and Methods

The adults were collected on 21.VI.2021 at 13:17:21 PM in *Ailanthus* trees at Coimbatore, Tamil Nadu (INDIA) using sweep net and by hand picking method. A minimum of 8±3.74 to the maximum of 36.75±4.27 individuals in a tree was observed. The population was quite high in a plantation of 1hc. It belongs to the Family Fulgoridae of the Order Hemiptera. The description of the new species and key to the species of the Indian *Kalidasa* Kirkaldy, 1900 are given in this paper. Specimens collected were photographed with a digital 0.3m CMOS sensor microscope and measurements (Max. 30f/s under 600 Lux brightness) were made using micro measure software. The terminology used is that of Distant (1906) ^[4], Dmitriev (2020) ^[5] and Bourgoin (2017) ^[6].

Genus KALIDASA Kirk.

The species was originally named *Cicada lanata* but the genus was changed to *Kalidasa*, by Kirkaldy in 1900, after the most celebrated Sanskrit poet who is believed to have lived during the 4th to 5th century BCE.

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Type, *K. sanguinalis*, Westw.

Distribution. Oriental Region and China.

Head emitting from the base of the face a long, slender, mobile, reflexed process (in dried specimens easily and frequently mutilated); face a little narrower as its anterior half, abruptly narrowed at base, furnished with two obtuse parallel ridges, which are often obliterated. Lateral margins slightly sinuate on posterior half; vertex truncate at base; pronotum very finely medially carinate; anterior femora distinctly amplified above near apices; posterior tibiae with four spines and with a tubercle on their upper surface at base.

Key to the Genus *Kalidasa*

1. Head triangularly produced in front of eyes -----
-----Homalocephala
Head not, or not prominently produced in front of eyes ---
----- 2
2. Anterior femora not amplified at apices ----- Lycorma
Anterior femora distinctly amplified above at apices----- 3
3. Posterior tibiae unarmed above at base, face with two or three parallel carinations -----Euphria
Posterior tibiae with a tubercle on their upper surface at base, face with two obtuse parallel ridges. ----- Kalidasa.

Kalidasa sanguinalis Westw.

Head and thorax above pale testaceous; abdomen above testaceous, thickly cretaceous tomentose; head beneath and sternum pale testaceous; legs and abdomen beneath pale sanguineous; cephalic process, lateral narrow margins of pronotum, anterior tibiae and tarsi black; tegmina above reddish-testaceous, covered with numerous black spots, which are large and more regular on costal area, outer marginal area broadly ochraceous, beneath as above, but much tomentously suffused with cretaceous; wings cretaceous-white, the apical area and some obscure, waved, discal, broken fasciae pale brownish-ochraceous; pro- and mesonota distinctly finely medially carinate; rostrum passing posterior coxae: cephalic process extending a little beyond pronotum.

Length excl. tegm. 19; exp. Tegm. 60 millim.

Hab. Ceylon (*Green*).

Kalidasa nigro-maculata Gray

Head reddish brown, cephalic process black; thorax greenish-brown; abdomen above black, segmental margins narrowly yellow and more or less cretaceous tomentose; abdomen beneath yellow; head beneath; sternum, and legs pale castaneous, anterior tibiae and tarsi black; tegmina purplish-brown, the costal, outer, and apical posterior marginal areas olivaceous, the first anteriorly margined and the other two reticulated with black; wings bluish-green, the anal and apical areas and large discal spots black; pro- and mesonota faintly medially carinate; rostrum extending considerably beyond the posterior coxae.

Length excl. tegm. 21; exp. tegm. 55 millim.

Hab. Andaman Islands (*Lnd. Mus. & Coll. Dist.*). – Cochin China.

Kalidasa paulinia Sign.

Head, thorax above, and abdomen beneath brownish-ochraceous; head beneath, sternum, and legs reddish-ochraceous or pale castaneous; narrow lateral margins of pronotum, two small rounded spots on posterior area of mesonotum, abdomen above, anterior tibiae and tarsi black;

last three segment of abdomen above cretaceous tomentose, the segmental margins narrowly ochraceous; tegmina testaceous-red, the costal, outer, and apical posterior marginal area ochraceous, the first anteriorly margined and the other two reticulated with black; wings pale fuscous, a little bluish-green near base, the anal and apical areas and large discal spots piceous; pro- and mesonota distinctly but finely medially carinate; rostrum considerably passing the posterior coxae.

Length excl. tegm. 20; exp. tegm. 56 millim.

Hab. Tanasserim (*fule Atciuson*). Cochin China.

Stal preferred to regard *K. paulinia* as a colour-variety of the preceding species. He has followed Signoret and Atkinson in treating it as distinct.

Kalidasa albiflos Walk. (Valid name of this taxon by Dmitriev, 2020) ^[5]

= *Kalidasa lanata* (Drury, 1773) Syn. *Kalidasa lanata* is a species of planthoppers in the Family Fulgoridae found in South India. Adult *K. lanata* have no snout, but instead have a single 0.5 mm thick process that projects backwards for about 4 mm from the top of the head. The true function of these protrusions is unknown.

Head above ochraceous; thorax above olivaceous; lateral margins of pronotum narrowly ochraceous and inwardly black; abdomen above black; segmental margins ochraceous, posterior segments cretaceous tomentose; body beneath and legs testaceous-red; anterior and intermediate tibiae and tarsi and sometimes the posterior tibiae (partly) black; tegmina piceous, much mottled with greyish fasciate-like spots, apical or outer area brownish-testaceous and finely reticulated, beneath this area is usually finely greyish tomentose; wings piceous, the apical posterior, and anal areas greyish-white, in some specimens very pale fuscous-brown, the piceous area mottled with bluish-grey irregular spots; pronotum subobsoletely medially carinate, the mesonotum with the carination practically obsolete; rostrum very long reaching the penultimate abdominal segments.

Length excl. tegm. 17 to 20; exp. tegm. 47 to 55 millim.

Hab. Malabar (*Brit. Mus*). Bombay (*Leith & Dixon, Coll. Dist.*).

Kalidasa dives Walk

Greatly resembling the preceding species (*K. albiflos*), but smaller, the rostrum longer and reaching the base of the abdominal appendage; sternum with piceous suffusion; tegmina with the ground – colour reversed, being pale greenish-testaceous with very numerous black spots, many of them fasciate in appearance, apical or outer area as in *K. albiflos*, and wings scarcely differing from those of that species (Bourgoin, 2017) ^[6].

Length excl. tegm. 15; exp. tegm. 42 millim.

Hab. Malabar (*Brit. Mus.*).

Kalidasa mythiliae Sp. Nov

The specimen was collected on 21.VI.2021 at 13:17:21 PM in Ailanthus plantations at Coimbatore, Tamilnadu (INDIA). A minimum of 8 ± 3.74 to the maximum of 36.75 ± 4.27 individuals in a tree was observed. The population was quite high in a plantation of 1hc. It belongs to the Family Fulgoridae of the Order Hemiptera. It has a slender and flexible stalk-like outgrowth arising from above the tip of the snout. Adult body length from apex to abdominal tip is 37-39mm; tegmina is 38-40mm; and wing span is 80-82mm. It is medium sized insect among the species of the Genus *Kalidasa*. Distal end of

pronotum extended into tegmen.

Dorsal side of the head is brownish yellow in colour (ochraceous); thorax is dusky yellowish green in colour (olivaceous); no lateral margins in pronotum; distal end of pronotum extends narrowly into the abdomen; abdomen above black; segmental margins ochraceous, posterior segments cretaceously tomentose; fore, middle and hind tibiae and tarsus are black in colour; tegmen piceous; much mottled with greyish fasciate-like spots, outer area brownish-testaceous and finely reticulated, beneath this area is usually finely greyishly tomentose; wings piceously, the apical posterior, and anal areas greyish-white or very pale fuscous-brown with spur, postero-caudal end of the abdomen white tomentose, the piceous area mottled with bluish-grey irregular spots; pronotum subobsoletely medially carinate, the mesonotum with the carination practically obsolete; rostrum very long reaching the penultimate abdominal segments.

Length excl. tegm. 25-27mm; exp. teg 36-38mm.

Hab. Tamil Nadu (India).

The *Kalidasa mythiliae* sp. nov. differs from *Kalidasa albiflos* in the fore, middle and hind tibiae and tarsus are black in colour; pronotum transverse carina with fortis sulcus; no median and lateral carinae; The last abdominal segment cretaceously tomentose, postero-caudal end of the abdomen grayish white tomentose.

Type Material. Holotype: 1 ♀, Coimbatore, Tamil Nadu, India. 21.VI.2021. Coll. Smt. B. Mythili.

Deposited in National Forest Insect Collection (NFIS) in Institute of Forest Genetics and Tree Breeding, Coimbatore (India). Accession No. IFGTB/Hem/28 (Cab2Box20).

Etymology: The name of the species derived by the collector's name.

Key to species of the Genus *Kalidasa*

1. Head, thorax and abdomen testaceous, tegmina testaceous, anterior tibiae and tarsus black.----- 2.
Head, thorax and abdomen ochraceous or olivaceous, tegmina piceous, anterior, intermediate and posterior tibiae and tarsus black or partially black----- 3.
2. Head, thorax and abdomen testaceous, tegmina reddish testaceous, black spots on tegmen, abdomen above tomentose ----- *K. sanguinalis* Westw.
Head, thorax and abdomen ochraceous, tegmina testaceous red, last three segments of abdomen above cretaceously tomentose ----- *K. paulinia* Sign.
3. Head reddish brown, thorax greenish brown, abdomen above black, tegmina purplish brown, abdominal segments above cretaceously tomentose -----
-----*K. nigro-maculata* Gray
Head, thorax olivaceous, abdomen above black, posterior segment cretaceously tomentose, anterior and intermediate tibiae and tarsus black, posterior tibiae partially black----- 4.
4. Head and thorax olivaceous, tegmen with ground colour pale greenish testaceous with black spots -----
----- *K. dives* Walk.
Head olivaceous or ochraceous, thorax olivaceous, abdomen above black, anterior, intermediate and posterior tibiae and tarsus black or partially black ----- 5.
5. Head and thorax olivaceous, abdomen posterior segments cretaceously tomentose, tegmen piceous grayish fasciate

like spots, anterior and intermediate tibiae and tarsus black, posterior tibiae and tarsus partially black. -----

----- *K. albiflos* Walk.

Head ochraceous, thorax olivaceous, abdomen last abdominal segment cretaceously tomentose, tegmen grayish black with fasciate white spots, postero-caudal end of abdomen pale white tomentose.-----

----- *K. mythiliae* sp. nov.



Fig 1: *Kalidasa mythiliae* sp. nov adult ♀



Fig 2: *K. mythiliae* sp. nov distal portion of tegmen



Fig 3: *K. mythiliae* sp. nov pronotum



Fig 3: *K. mythiliae* sp. nov ♀ postero-caudal end of abdomen
yn. *K. lanata* Dr.

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