



GENUS *ANOMOSTOMUS* LAFERTÈ-SÉNECTÈRE (COLEOPTERA: CARABIDAE: HARPALINAE): ADDITION OF A NEW SUBGENUS AND NEW SPECIES FROM SOUTH INDIA

K NIJISHA¹, K THOMAS SABU^{2,*} AND P ASWATHI¹

¹Entomology Research Unit, Post Graduate & Research Department of Zoology,
College Research Centre Affiliated to University of Calicut,
St. Joseph's College (Autonomous), Devagiri, Calicut 673008, Kerala, India

²Department of Zoology, University of Calicut, Thenhipalam 673635, Kerala, India

*Email: sabukthomas@gmail.com (corresponding author); ORCID ID 0000-0002-8701-0484

ABSTRACT

Genus *Anomostomus* LaFertè-Sénectère is represented by three species globally with two species known from Afrotropical region and one species, *Anomostomus orientalis* Andrewes from the Indian subcontinent (India, Sri Lanka and Indo-Pakistan border). A new subgenus, *Tnaei* subgen. nov. within the genus *Anomostomus* is described with a new species *Anomostomus (Tnaei) devagiriensis* sp. nov. from the Malabar coast region of Kerala in South India.

Key words: *Anomostomus (Tnaei) devagiriensis* sp. nov., *Tnaei* subgen. nov., *A. orientalis*, Afrotropical region, Indian subcontinent, Harpalini, Amblystomina, southern India, Kerala, distribution

Harpalinae is a species rich subfamily of Carabidae with four tribes (Anisodactylini Lacordaire 1854, Harpalini Bonelli 1810, Stenolophini Kirby 1837 and Pelmatellini Bates 1882) at global level (Lorenz 2022). Among the four tribes, tribe Pelmatellini is not reported from India. Tribe Harpalini represented by three subtribes- Amblystomina Fauvel 1889, Ditomina Bonelli, 1810 and Harpalina Bonelli 1810 (Lorenz 2022) with three, two and 20 genera respectively in India. Genus *Anomostomus* of subtribe Amblystomina of the tribe Harpalini (Lorenz 2022) is known from Oriental and Afrotropical regions. Genus *Anomostomus* is represented by three species globally (Lorenz 2022) with two species; *Anomostomus laevigatus* (Kuntzen) and *A. torridus* LaFertè-Sénectère known from the Afrotropical region (LaFertè-Sénectère, 1853; Chaudoir, 1854; Kuntzen, 1919; Jeannel, 1948; Aistleitner and Baehr, 2016; and one species, *A. orientalis* Andrewes 1923 from the Oriental region (Andrewes 1923; Azadbakhsh and Rafi, 2017). Present study describes a new subgenus *Tnaei* subgen. nov. within the genus *Anomostomus* with a new species *Anomostomus (Tnaei) devagiriensis* sp. nov. from South India with a key to the species of the genus *Anomostomus*. The holotype and paratype of the new species are females and no male could be located. The specimens of *A. orientalis* are all females including the holotype and the gender of the other two species in the genus are not defined in their descriptions. In this study attention is given to

morphological diagnostic features and remove the over dependence on sexually dimorphic characters.

MATERIALS AND METHODS

Specimens were collected with light traps from a paddy field at Chalode (11°55'47.6"N 75°30'06.3"E) from Kannur district in the Malabar coast region of Kerala. Tribe and subtribe level identification was done using Habu (1973). Genus key to the subtribe Amblystomina and species key to the genus *Anomostomus* were prepared. Images were taken using Leica M205C Stereozoom microscope fitted with Leica MC 170 HD digital camera and were enhanced with the help of Leica Application Suite (LAS) version 4.12. Studied specimens were deposited in the National Insect Collections of Zoological Survey of India Western Ghats Regional Centre, Kozhikode (ZSIK). Abbreviations used- TLA: body length from apex of mandibles to pygidium; TLB: body length from apex of labrum to apex of elytra; PL: length of pronotum along median line; PW: maximum width of pronotum; EL: maximum length of closed elytra; EW: maximum width of elytra.

RESULTS AND DISCUSSION

A. Key to the subgenera and species of the genus *Anomostomus* LaFertè-Sénectère 1853

1. Ligula bisetose.....subgenus

Anomostomus s. str. 2

- Ligula quadrisetose.....*Anomostomus (Tnaei) devagiriensis* sp. nov.
- 2. Pronotum greatly narrowed at the base; elytra reddish brown.....*A. torridus* LaFertè-Sénectère 1853
- Pronotum slightly narrowed at the base; elytra greenish.....3
- 3. Elytral striae smooth, without punctures; length 5.5–6.5 mm.....*A. laevigatus* (Kuntzen 1919)
- Elytral striae finely crenulate; length 6–8 mm.*A. orientalis* Andrewes 1923

B. *Tnaei* subgen. nov.

Type species *Anomostomus (Tnaei) devagiriensis* sp. nov.

Diagnosis: *Tnaei* subgen. nov. is very similar to the Oriental species, *Anomostomus orientalis* of the nominotypical subgenus *Anomostomus* s. str. It is distinguished from the members of the subgenus *Anomostomus* s. str in having ligula with four setae.

Description: Head: Large and wide. Labrum asymmetrical, left lobe slightly larger than right lobe, deeply emarginate at apex with six setae. Clypeus deeply emarginate at apex exposing the basal portion of labrum. Mentum without median tooth. Mentum and submentum separated by complete transverse suture and submentum with large single seta on each side. Ligula quadrisetose, with two small and two large setae; ligula not widening towards apex and surrounded by wide and membranous paraglossae. Antennae pubescent from 3rd segment; second segment a little shorter than the other segments. Pronotum: Transverse. Widest at middle with single seta on each side placed just before middle. Median line clearly visible only at disc and not reaching anterior and posterior borders. Hind wings well developed Ventral side: Shiny. Prosternal process round, not bordered and with fine setae. Metepisterna elongate and strongly narrowing towards posterior side. Last abdominal segment rounded at apex with a pair of widely placed setae on each side. Legs: Small with triangular tarsomeres. Tibiae with spines. Metatarsomere 1 is nearly equal to the 2nd, 3rd and 4th combined. Elytra: Parallel. Shoulders square. Scutellar striae present between elytral suture and first striae. Third interval with single pore near apex adjoining stria 2. Subapical sinuation fine. Interval 10 and apex of all intervals densely pubescent.

Etymology: Named in honour of late Prof. T N Ananthakrishnan, doyen of Indian entomology.

C. *Anomostomus (Tnaei) devagiriensis* sp. nov. (Fig. 1A-C)

Type: Holotype (♀) labelled: ‘India: Kerala: Chalode, paddy field (11°55’47.6”N 75°30’06.3”E), ‘Light trap’, 09.x.2020, coll. K. Nijisha’ deposited in ZSIK; Paratype (n=1) 1 ex. (♀) Labelled: ‘India: Kerala: Chalode, paddy field (11°55’47.6”N 75°30’06.3”E), ‘Light trap’, 09.x.2020, coll. K. Nijisha’ deposited in ZSIK.

Description: Length (TLA). Holotype, 8.29 mm. Colour: Dorsal side black, shiny with greenish tinge. First two segments of antennae, palpi and basal portion of labrum yellowish. Antennal segments 3–11, lateral margins of pronotum and legs brownish yellow. Labrum except basal portion, anterior angles of clypeus, mandibles except apex and apex of scutellum reddish brown. Apex of mandibles black. Genae and gula blackish brown. Middle portion of pro, meso and metasternum and apex of abdominal ventrites 4–7 reddish brown. Head: Large and wide with fine punctures, convex behind. Labrum asymmetrical; left lobe slightly larger than right lobe; deeply emarginate at apex with six setae; several small setae are present in lateral and anterior margins of labrum. Clypeus deeply emarginate at apex exposing the basal portion of labrum; anterior angles rounded with single seta on each side. Fronto-clypeal suture distinct with a pore behind each extremity. Mandibles short. Eyes not prominent. Mentum without median tooth. Mentum and submentum separated by complete transverse suture and submentum with large single seta on each side. Ligula short and narrow, quadrisetose, with two small and two large setae; not widening towards apex and surrounded by wide and membranous paraglossae. Last segments of palpi acuminate but truncate at apex. Antennae pubescent from 3rd segment; second segment a little shorter than the other segments. Anterior portion of genae with fine and few coarse punctures on each side. Labrum with isodiametric meshes and head without any microsculpture. Pronotum: Transverse with fine punctures. Widest at middle with single seta on each side placed just before middle. Sides evenly rounded and marginal channels slightly crenulate. Median line clearly visible only at disc and not reaching anterior and posterior borders. Transverse impressions faint. Basal foveae small and distinct with punctures. Anterior angles rounded and posterior angles widely rounded. Pronotum without any microsculpture.

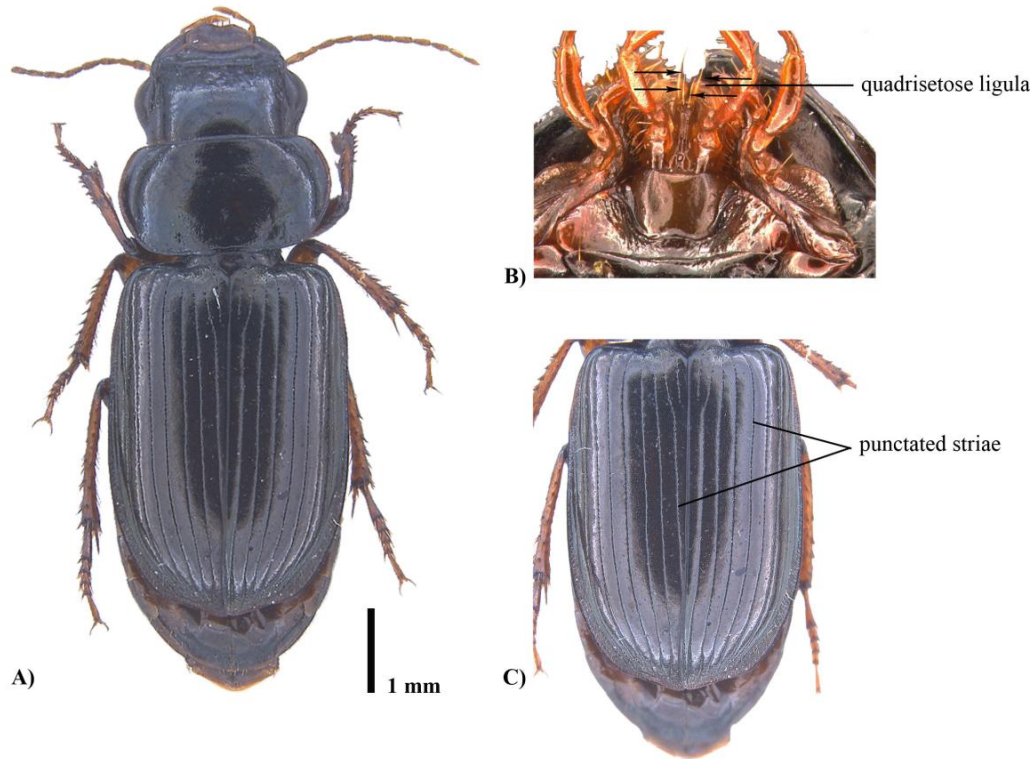


Fig. 1. A-C. *Anomostomus (Tnaei) devagiriensis* sp.nov. A) dorsal habitus; B) ligula with four setae; C) elytra with punctated striae

Elytra: Parallel, widest just behind middle. Shoulders square. Scutellar striole present between elytral suture and first striae. Intervals flat with fine punctures. Third interval with single pore near apex adjoining stria 2. Striae punctated. Subapical sinuation fine. Interval 10 and apex of all intervals densely pubescent. Elytra without any microsculpture. Hind wings well developed
Ventral side: Shiny with scattered coarse punctures. Prosternal process round, not bordered and with fine setae. Metepisterna elongate and strongly narrowing towards posterior side. Last abdominal segment rounded at apex with a pair of widely placed setae on each side. Legs: Small with triangular tarsomeres. Tibiae with spines. Metatarsomere 1 is nearly equal to the 2nd, 3rd and 4th combined. Front tarsi not dilated and without adhesive vestiture ventrally.

Measurements: Holotype (♀), TLA = 8.29 mm, TLB = 7.46 mm, PL = 1.51 mm, PW = 2.76 mm, EL = 4.37 mm, EW = 3.14 mm; Paratype (♀) (n=1), TLA = 9.02 mm, TLB = 7.42 mm, PL = 1.50 mm, PW = 2.70 mm, EL = 4.42 mm, EW = 3.08 mm

Distribution: INDIA: Kerala: Kannur: Chalode.

Diagnosis: Similar to *Anomostomus orientalis* but differs in the presence of ligula with four setae, punctated

striae and finely punctated head and pronotum.

Etymology: Named after the host institution.

Remarks: *Anomostomus (Tnaei) devagiriensis* sp. nov. is similar to *A. orientalis* but is markedly distinguished from *A. orientalis* and other two members of the genus in having ligula with four setae. *A. (Tnaei) devagiriensis* sp. nov. also differs from the closely related *A. orientalis* in having punctated striae and finely punctated head and pronotum. *A. orientalis* is the only other known species of the genus from Indian subcontinent (India, Sri Lanka and the record from Pakistan close to Indian border). Close relationship of the new species with *A. orientalis* and geographic distribution pattern indicates that it is a derivative of *A. orientalis*. Andrewes (1923) related *A. orientalis* with *A. torridus*, which was the only other known species in the genus. Analysis of the *Anomostomus* species shows that *A. orientalis* is more closely related to *A. laevigatus* (Kuntzen 1919). Wide presence of the genus *Anomostomus* in Africa with regional distribution of *A. torridus* in North Saharan Africa and of *A. laevigatus* in Madagascar and the eastern and south-eastern region of Africa, non-record of *A. orientalis* in Africa, and the close relationship of *A. orientalis* to *A. laevigatus* indicates that, *A. orientalis* was restricted to the part

of the African landmass that got separated and became the Indian Peninsula. *A. (Tnaei) devagiriensis* sp. nov. could be a derivative of *A. orientalis* or could be another species that prevailed in the African land mass that became the Indian mainland.

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AUTHOR CONTRIBUTION STATEMENT

Nijisha K, Sabu K Thomas and Aswathi P analysed the specimens, verified the review and drafted the manuscript.

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CONFLICT OF INTEREST

No conflict of interest.

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