



New distributional records of six Aphodiinae species (Coleoptera, Scarabaeidae) from south India

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ABSTRACT : Six species (*Platytomus indicus* (Balthasar, 1941), *P. nathani* Pittino & Mariani, 1986, *Rhyssemus karnatakaensis* Pittino, 1984, *R. procerus* Petrovitz, 1973, *R. loebli* Petrovitz, 1975 and *Neocalaphodius moestus* (Fabricius, 1801)) of the subfamily Aphodiinae (Coleoptera, Scarabaeidae) are first report from Kerala and two first report from south India. Descriptions of species with images are provided. © 2023 Association for Advancement of Entomology

KEY WORDS: Dung beetles, *Neocalaphodius*, *Platytomus*, *Rhyssemus*, Kerala, first report

Subfamily Aphodiinae (Coleoptera, Scarabaeidae) is a predominant group of the dung beetle communities in the Palearctic and Nearctic region (Hanski, 1991; Lobo, 2000; Cabrero-Sañudo and Lobo, 2009) consisting of nearly 285 genera and 3,200 described species. 133 species of Aphodiinae are reported from India (Chandra, 1999) with 10 genera from south Indian region. In the present study, first record of one species of *Neocalaphodius*, two species of *Platytomus*, and three species of *Rhyssemus* from Kerala state and first record of one species of *Rhyssemus* from Karnataka state are reported.

Specimens were collected from agricultural fields at Pattambi (10°48'36"N; 76°11'21"E, 53m) of Palakkad district, Karuvambam west (11°06'56"N; 76°07'21"E, 66m) of Manjeri of Malappuram district and forests at Nelliampathy (10°29'45"N; 76°42'21"E, 1020m) of Palakkad district,

Parambikulam Tiger Reserve (10°26'31"N - 76°49'07"E, 569 m) of Palakkad district and Peechi (10°29'05"N; 76°26'01"E, 705m) of Thrissur district of Kerala State and from the Mookambika Wildlife Sanctuary (13°49'40"N; 74°44'46"E, 277m) of Udupi district of Karnataka State using the portable UV LED light traps and light sheet.

Tribe, genus and species level identification were done by using the keys provided in Schmidt (1908), Balthasar (1963), Pittino and Mariani (1986), specimens were studied using Labomed CZM6 microscope. Photographs were taken with Leica DFC 450 Camera and images were stalked using Leica V3.80. The images were post-processed using Adobe®Photoshop®CC. Identified specimens were deposited in 'National Zoological Collections' at Western Ghat Regional Centre, Zoological Survey of India, Kozhikode (ZSIK). New records are asterisked '*'.

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1. *Platytomus indicus* (Balthasar, 1941) (Fig. 1)

Diastictus indicus Balthasar, 1941, 133: 170; 1964, 3: 543.

Description: Lateral clypeal margin widely rounded. Pronotum as wide as long, widest distinctly behind middle, obviously narrowed anteriorly, anterior angle narrow, lacking marginal furrow. Elytra widest behind the middle, finely and slightly striate; metasternum smooth, shiny and punctate, longitudinal furrow complete from base to apex. Fore tibia with a small basal tooth behind the third one.

Body length: 3 to 3.4mm.

Material examined: 13 ex., 23.iii.2022, light trap, Pattambi, Palakkad, Kerala, India, coll. K. A. Sobhana, ZSI/WGRC/I.R-INV.22729; 7 ex., 12.viii.2022, light attracted, Karuvambram west, Manjeri, Malappuram, Kerala, coll. K.A. Sobhana, ZSI/WGRC/I.R-INV.22888; 10 ex., 20.iii.2022, light trap, Peechi, Thrissur, Kerala, coll. K.A. Sobhana, ZSI/WGRC/I.R-INV.22488; 5 ex., 25.iii.2022, light trap, Nelliampathy, Palakkad, Kerala, coll. K.A. Sobhana, ZSI/WGRC/I.R-INV.22257.

Distribution: India: Tamil Nadu: Coimbatore; Kerala*: Palakkad, Malappuram, Thrissur (Fig. 8).

Elsewhere: Not recorded.

Remarks: This species was earlier reported from Tamil Nadu (Balthasar, 1941) and it is the first record from Kerala state during the present study.

2. *Platytomus nathani* Pittino & Mariani, 1986 (Fig. 2)

Platytomus nathani Pittino & Mariani, 1986, 3: 49.

Description: Dark reddish brown colour. Pronotum slightly narrower than elytral base. Metasternum unpunctate, lacking any trace of a longitudinal furrow. Hind femur about as wide as anterior one, slightly wider than middle femur. Pronotal and metasternal sculptures are extremely reduced.

Body length: 3.1 to 3.5mm.

Material examined: 10 ex., 23.iii.2022, light trap, Pattambi, Palakkad, Kerala, coll. K.A. Sobhana, ZSI/WGRC/I.R-INV.22728; 7 ex., 12.viii.2022, light attracted, Karuvambram west, Manjeri, Malappuram, Kerala, coll. K.A. Sobhana, ZSI/WGRC/I.R-INV.22888; 10 ex., 20.iii.2022, light trap, Peechi, Thrissur, Kerala, coll. K.A. Sobhana, ZSI/WGRC/I.R-INV.22488; 35 ex., 25.iii.2022, light trap, Nelliampathy, Palakkad, Kerala, coll. K.A. Sobhana, ZSI/WGRC/I.R-INV. 22257.

Distribution: India: Tamil Nadu: Coimbatore; Kerala*: Palakkad, Malappuram, Thrissur.

Elsewhere: Not recorded.

Remarks: This species was earlier reported from the state of Tamil Nadu (Pittino & Mariani, 1986) and is the first record from the state of Kerala during the present study.

3. *Rhyssemus karnatakaensis* Pittino, 1984 (Fig. 3)

Rhyssemus karnatakaensis Pittino, 1984, 2(6): 34.

Description: Uniformly black, except clypeal and pronotal margins in reddish brown. Anterior clypeal border roundly emarginated. Head with rounded and oblong-oval tubercles. Pronotum widest in the middle. Elytra oval, strongly convex, widest at the middle. Metasternum smooth, shiny, and punctate at middle with wide, deep, oval median depression and with distinct complete midline furrow.

Body length: 2.9 to 3.1mm.

Material examined: 1 ex., 23.iii.2022, light trap, Pattambi, Palakkad, Kerala, India, coll. K.A. Sobhana, ZSI/WGRC/I.R-INV.22728; 1 ex., 20.iii.2022, light attracted, Mookambika WLS, Karnataka, coll. V.D. Hegde & party, ZSI/WGRC/I.R-INV.21894.

Distribution: India: Karnataka: Chikmangalore; Kerala*: Palakkad.

Elsewhere: Not recorded.

Remarks: This species was earlier reported from the state of Karnataka (Pittino, 1984) and it is the

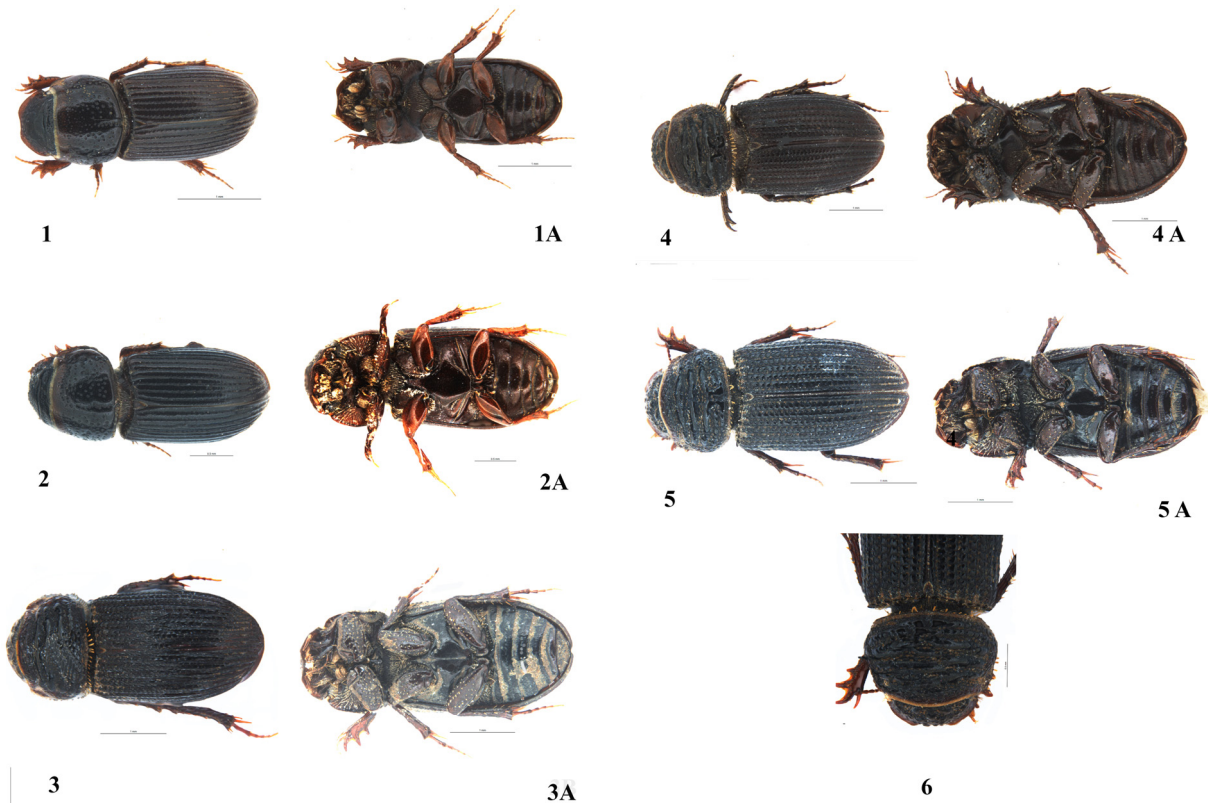


Fig. 1 Habitus of *Platytomus indicus* dorsal view, 1A- ventral view

Fig. 2 Habitus of *Platytomus nathani* dorsal view, 2A- ventral view

Fig. 3 Habitus of *Rhyssemus karnatakaensis* dorsal view, 3A- ventral view

Fig. 4 Habitus of *Rhyssemus procerus* dorsal view, 4A - ventral view

Fig. 5 Habitus of *Rhyssemus loebli* dorsal view, 5A - ventral view

Fig. 6 Frontal view of *Rhyssemus loebli*

first record from the state of Kerala during the present study.

4. *Rhyssemus procerus* Petrovitz, 1973 (Fig. 4)

Rhyssemus procerus Petrovitz, 1973, 24: 306.

Rhyssemus tschadensis Dellacasa, 1988, 1: 423.

Description: Body slender, nearly parallel. Glossy, deep black in the front edge of clypeus. Pronotum widest in middle. Sides and bases of pronotum notched and ciliated with bristles that are thickened towards the tip. Pronotal structure consists of five transversal ridges and five transversal furrows. Elytra sub parallel with oval granules. Elytral striae with distinct humeral denticles. Ventral surface mostly glabrous. Meta- ventral plate glabrous and

with complete midline furrow, narrow anteriorly and slightly reduce posteriorly, area surrounding midline furrow moderately concave. Pygidium with 2 pygidial macro setae.

Material examined: 3 ex., 23.iii.2022, light trap, Pattambi, Palakkad, Kerala, India, coll. K.A. Sobhana, ZSI/WGRC/I.R-INV.22214; 2 ex., 30.x.2022, light trap, Parambikulam TR, Palakkad, Kerala, coll. K.A. Sobhana, ZSI/WGRC/I.R-INV.22256.

Body length: 2.9 to 3.1mm.

Distribution: India: New Delhi; Kerala*: Palakkad.

Elsewhere: Not recorded.



Fig. 7 Habitus of *Neocalaphodius moestus* dorsal view, 7A - ventral view
 Fig. 8 Dorso-lateral view of *Neocalaphodius moestus*

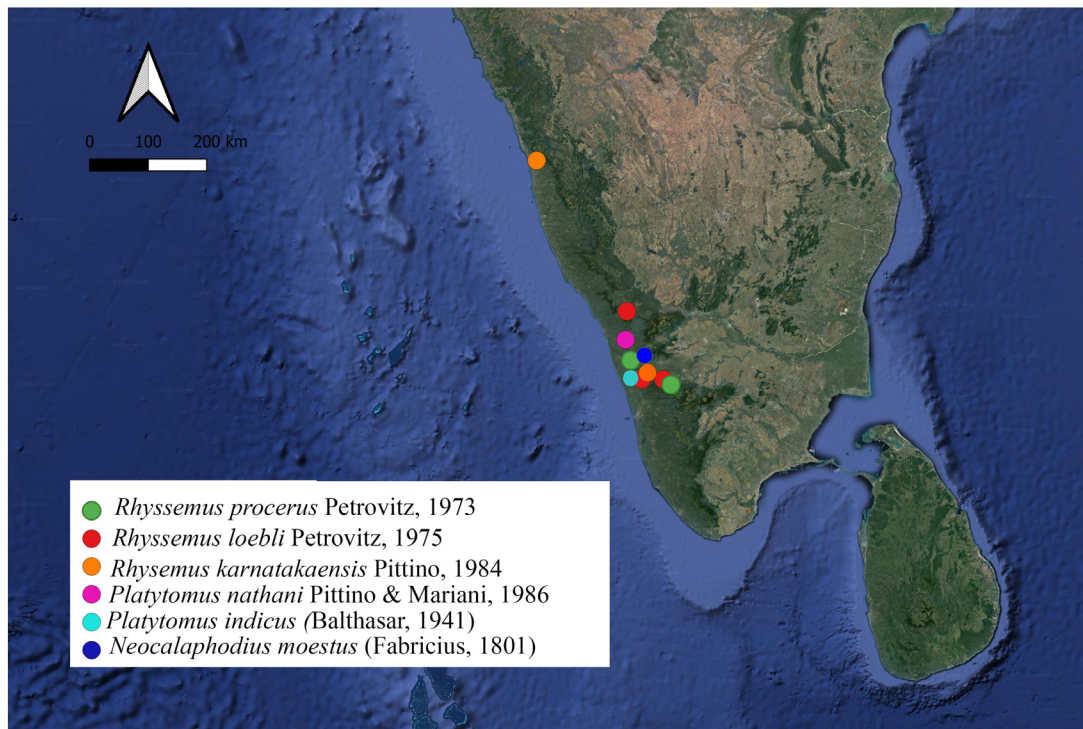


Fig. 9 Map showing the distribution pattern of subfamily Aphodiinae in the south Western Ghat Regions of Kerala

Remarks: This species was earlier reported from New Delhi (Petrovitz, 1973). It is the first report of the species from state of Kerala and also from south India during the present study.

5. *Rhyssemus loebli* Petrovitz, 1975 (Figs. 5, 6)

Rhyssemus loebli, Petrovitz, 1975, 82: 617.

Rhyssemus loebli, Dellacasa, 1988, 1: 455.

Description: Dark brown, shining, and oblong oval. Clypeus is not dentate, but angulated each side. Clypeal surface with distinct transversal granules. Pronotum widest behind the middle. Elytra not sub parallel. Individual granules in discal elytral intervals arranged in 2 rows. Ventral surface is mostly glabrous and smooth.

Body length: 3.3 to 3.5mm.

Material examined: 8 ex., 23.iii.2022, light trap, Pattambi, Palakkad, Kerala, India, coll. K.A. Sobhana, ZSI/WGRC/I.R-INV.22485; 3 ex., 12.viii.2022, light trap, Peechi, Thrissur, Kerala, coll. K.A. Sobhana, ZSI/WGRC/I.R-INV.21894; 9 ex., 25.iii.2022, light trap, Nelliampathy, Palakkad, Kerala, coll. K.A. Sobhana, ZSI/WGRC/I.R-INV.22256; 2 ex., light trap, Wayanad, Kerala, coll. K.A. Sobhana, ZSI/WGRC/I.R-INV.22213.

Distribution: India: Tamil Nadu: Udumalpet; Kerala*: Palakkad, Thrissur, Wayanad.

Elsewhere: Sri Lanka.

Remarks: This species was earlier reported from the state of Tamil Nadu and Sri Lanka (Petrovitz, 1975) and it is the first record from the state of Kerala during the present study.

6. *Neocalaphodius moestus* (Fabricius, 1801) (Figs. 7, 8)

Aphodius moestus Fabricius, 1801.

Aphodius mutans Walker, 1858.

Aphodius madagascariensis Harold, 1859.

Aphodius subvittatus Fairmaire, 1896.

Aphodius (Calaphodius) moestus *infrasp. innotatus* Endrodi, 1960.

Aphodius (Calaphodius) moestus *infrasp. connectens* Endrodi, 1960.

Description: Moderately convex, shiny. Head black-brown. Clypeus almost truncate anteriorly. Pronotum yellow-brown with large dark disc spot and small dark spots in the light side edge. Elytra yellow-brown, fairly deeply striped, stripes on the disc blackened, ventral parts and legs mostly tawny.

Body length: 5.3 to 5.5mm.

Material examined: 23 ex., 30.x.2022, light trap, Parambikulam TR, Palakkad, Kerala, coll. L. Bindu and party, ZSI/WGRC/I.R-INV.23608.

Distribution: Afrotropical: Republic of South Africa, Ghana, Sudan, Rwanda, Namibia, Ethiopia, Ivory Coast, Kenya, Chad, Niger, Angola, Botswana, Cameroon, Djibouti, Malawi, Senegal, Somalia, Tanzania, Zambia (Harold, 1859).

Oriental: India: Andaman and Nicobar Islands, Assam, Chhattisgarh, Haryana, Madhya Pradesh, Punjab, Rajasthan, Kerala*; Sri Lanka, Thailand, Myanmar, Laos, Cambodia, Malaysia), Madagascan (Madagascar, Comoros).

Palaeartic: Afghanistan, Pakistan, Turkey, Taiwan, Nepal, Tajikistan, Myanmar, Yemen: Socotra, India: Himachal Pradesh, Uttarakhand.

Remarks: Widespread species in Afrotropical, Oriental, and Palaeartic regions. It is the first report of the species from Kerala and south India during the present study.

The distribution pattern of subfamily Aphodiinae in the south Western Ghat Regions of Kerala is depicted in the map (Fig. 9).

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