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NEW REPORTS OF SUBFAMILY OXYTELINAE FROM SOUTH INDIA (COLEOPTERA: STAPHYLINIDAE)

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ABSTRACT

Six new reports of staphylinids viz., *Anotylus glareosus* (Wollaston, 1854); *Oxytelus bengalensis* (Erichson, 1840); *Oxytelus incisus* (Motschulsky, 1858); *Oxytelus lividus* (Motschulsky, 1858); *Oxytelus nigriceps* (Kraatz, 1859) and *Oxytelus puncticeps* (Kraatz,1859) are recorded for the first time from south India. The current geographical distribution of these are provided.

Key words: Oxytelini, *Oxytelus*, *Anotylus*, Periya reserve forest, Badiyadukka, light trap, flotation method, Aralam Wildlife Sanctuary, rove beetle, Kerala

The subfamily Oxytelinae (Coleoptera: Staphylinidae) are distributed worldwide and contains more than 2000 described species (Schülke, 2012, Schülke and Smetana, 2015) and is one of the more ancient groups of Staphylinidae. Oxytelinae, as a well-defined monophyletic group of staphylinids, is readily distinguished from all other staphylinid subfamilies by the unique presence of paired secretory openings of non-eversible abdominal defensive glands on tergum IX, which is divided by tergum X or nearly so (Czarniawski and Staniec, 1997; Dettner, 1993; Dettner et al., 1985; Hansen, 1997; Herman, 1970; Newton, 1982; Newton et al., 2000; Thayer, 2005). Oxytelinae is represented by eight tribes viz., (Blediini Ádám, 2001; Coprophilini Heer, 1839; Deleasterini-Reitter, 1909; Euphaniini Reitter, 1909; Oxytelini-Fleming, 1821; Planeustomini-Jacquelin du Val, 1857; Syntomiini Böving and Craighead, 1931; and Thinobiini-Sahlberg, 1876) with 54 genera and 2263 species (Newton, Alfred, 2021). The present study reports six species [*Anotylus glareosus* (Wollaston, 1854); *Oxytelus bengalensis* (Erichson, 1840); *O. incisus* (Motschulsky, 1858); *O. lividus* (Motschulsky, 1858); *O. nigriceps* (Kraatz, 1859) and *O. puncticeps* (Kraatz, 1859)] belonging to two genera namely *Anotylus* Thomson, 1859 and *Oxytelus* Gravenhorst, 1806. *Anotylus* Thomson, 1859 and *Oxytelus* Gravenhorst, 1806 are found in litter, dung or decaying material in temperate regions (Hammond, 1976). *Oxytelus* spp. are widespread over all continents except Antarctica (Lü and Zhou, 2015). *Anotylus* is a speciose genus with 430 species (Newton, 2021). The present study also provides the current geographical distribution and literature references of the six new reports from south India.

MATERIALS AND METHODS

The collection of beetles was done using the flotation and light trap method from Periya Reserve Forest (11.7768°N, 75.8476°E), Badiyaduka agricultural ecosystem (12.5851°N, 75.0757°E) and Aralam Wildlife Sanctuary (11°50′ - 11°52′N and 75°57′ - 75°59′E) from the north Malabar region of Kerala during 2019 - 2022. The classification provided in Newton, Alfred (2021) was followed. Species-level identification was done with taxonomic keys in Cameron's (1930) description. Images were taken using Leica M205C stereozoom microscope fitted with Leica MC170HD digital camera. Measurements were taken with Leica LAS V4.5 software– TLA: body length from apex of mandible to pygidium; TLB: body length from apex of labrum to apex of abdomen; PL: length of pronotum along median line; PW: maximum width of pronotum; EL: maximum length of closed elytra; and EW: maximum width of elytra.

RESULTS AND DISCUSSION

***Anotylus glareosus* (Wollaston, 1854)** (Fig. 1A)

Wollaston, 1854: 610; id. 1857: 201; id. 1864: 598; id. 1865; Fauvel, 1902b: 66; id.1905e: 80, Bernhauer and Schubert, 1911: 113, Bernhauer, 1928: 7, Blackwelder, 1943: 100, 1963b: 31, Herman, 1970: 418, Hammond, 1975: 158, 163; id.1976: 174, Coiffait, 1976: 221, Shibata, 1993a: 318, Lecoq, J.C. 2017:760

Material examined: 2, Labelled 'India: Kerala: Badiyaduka agricultural ecosystem (12.5851°N, 75.0757°E); 'Light trap', 19.iii.2021, Coll. Vineetha V P

Measurements: TLA=2.04, TLB=1.86, PL=0.301, PW=0.356, EL=0.464, EW=0.47

Distribution: India: Kerala: Kasargod, Badiyaduka. Elsewhere: Bangladesh, China, Cuba, Dominica, Ghana, Grenada, Guatemala Jamaica, Haiti, Indonesia, Iwo Jima, Madeira, Malaysia, Mauritius Montserrat, Pakistan, Panama, Réunion, Sierra Leone, Sri Lanka,Tahiti, Taiwan,Thailand

***Oxytelus bengalensis* (Erichson, 1840)** (Fig. 1 B)

Kraatz, 1859: 171, Bernhauer and Schubert, 1911: 110, Cameron, 1921: 366, 400, Cameron, 1930: 232, Scheerpeltz, 1933: 1094, Paulian, 1941: 168, Herman, 1970: 409, Abdullah and Qadri, 1970: 122, 125, Hammond, 1975: 149, 155, Yuh et al.,1985: 227, Lü and Zhou. 2012: 3576; id. 2015: 3992

Material examined: 2, Labelled 'India: Kerala: Aralam Wildlife Sanctuary; (11°50′ - 11°52′N and 75°57′ - 75°59′E), 'Flotation method',19.iv.2022, Coll. Vineetha V P

Measurements: TLA=6.34, TLB=6.13, PL=0.916, PW=1.1, EL=0.906, EW=1.42

Distribution: India: Kerala: Kannur: Aralam wildlife sanctuary. Elsewhere: Bangladesh, China (Gansu, Guangxi, Guizhou, Hong Kong, Hubei, Jiangsu, Jiangxi, Liaoning, Shanghai, Sichuan, Zhejiang), India (Sikkim, Tripura, UP), Japan, Korea, Laos, Nepal, Malaysia, Myanmar, Pakistan, Singapore, Sri Lanka, Thailand,Vietnam, Taiwan.

***Oxytelus incisus* (Motschulsky, 1858)** (Fig. 1C)

Kraatz, 1859: 172 , Bernhauer and Schubert, 1911: 114, Cameron, 1930: 263, Scheerpeltz, 1933: 1097, Cameron, 1934: 78, Bernhauer, 1936: 81, Blackwelder, 1943: 96, Ramos, 1946: 32, Scheerpeltz, 1957: 225, Herman, 1970: 410, Jarrige, 1971: 499, Hammond, 1975: 150, 152, Moore, 1978: 489, Scheerpeltz, 1978: 190, Frank and Thomas, 1981: 400, 403, J. Li, 1993: 20 , Nishida, 1994: 73; id. 1997: 62, Hammond, 1998: 275, Lü and Zhou. 2012: 21-22, Frank, J.K.and D.S.C., J. H., 2011:399-400, Lü & Zhou. 2015: 14-15, Lecoq, J.C. 2017:169-232.

Material examined: 4, Labelled 'India: Kerala: Periya reserve forest (11.7768°N, 75.8476°E); 'Flotation method',19. iv. 2022, Coll. Vineetha V P

Measurements: TLA=3.51, TLB=3.24, PL=0.561, PW=0.728, EL=0.544, EW=0.828

Distribution: India: Kerala: Wayanad: Periya reserve forest. Elsewhere: Indonesia (Java, Sumatra, Sumbawa, Sulawesi), Philippines (Leyte, Luzon, Mindanao)

***Oxytelus lividus* (Motschulsky, 1858)** (Fig. 1D)

Kraatz, 1859: 171, Bernhauer, 1902b: 44, Bernhauer and Schubert, 1911: 115; Cameron, 1928: 100; id.1930: 231, Koch, 1932: 655, Scheerpeltz, 1933: 1099, Scheerpeltz, 1965: 100, Herman, 1970: 410, Hammond, 1975: 149, 156, Lü and Zhou. 2012:24-26; id. 2015:18

Material examined: 8, Labelled 'India: Kerala: Periya reserve forest (11.7768°N, 75.8476°E) 'Flotation method',10.x.2019, 19.iv.2022, Coll.Vineetha V P

Measurements: TLA=4.5, TLB=4.3, PL=1, PW=1.5, EL=1.1, EW=1.5

Distribution: India: Kerala: Wayanad: Periyar reserve forest. Elsewhere: Cambodia, China (Hainan, Shanghai, Yunnan), Indonesia (Java, Sulawesi, Sumatra, Timor), Laos, Malaysia, Myanmar, Philippines (Negros, Palawan), Sri Lanka, Thailand, Vietnam

***Oxytelus nigriceps* (Kraatz, 1859)** (Fig. 1 E)

Sharp, 1874: 93, Bernhauer, 1902: 44, Fauvel, 1904: 45, Bernhauer and Schubert, 1911: 116, Cameron, 1921: 366, Bernhauer, 1922: 223, Cameron, 1928: 100; id. 1930: 233, Koch, 1932: 655, Scheerpeltz, 1933: 1100, Bernhauer, 1936: 81, Nakane Sawada, 1960: A122, Nakane, 1963: 84, Herman, 1970: 410, Abdullah and Qadri, 1970: 122, 125, Watanabe Shibata, 1972: 61, Hammond, 1975: 149, 150, 153, Scheerpeltz, 1976: 79, Yuh et al., 1985: 227, Ikudome and Hayakawa, 1994: 187, Lü and Zhou. 2012:3576; id. 2015:3992

Material examined: 2, Labelled 'India: Kerala: Aralam Wildlife Sanctuary (11°50′ - 11°52′N and 75°57′ - 75°59′E), 'Flotation method', 19. iv. 2022, Coll.Vineetha V P

Measurements: TLA=4.24, TLB=4.01, PL=0.71, PW=0.877, EL=0.611, EW=1.15

Distribution: India: Kerala: Kannur: Aralam Wildlife Sanctuary. Elsewhere: Bangladesh, China (Fujian. Zhejiang), India (UP, West Bengal), Indonesia, Japan (Honshu, Kyushu, Shikoku), Korea, Malaysia, Nepal, New Guinea, New Britain, New Ireland; Vanuatu, Myanmar, Pakistan, Philippines, Ryukyus, Sri Lanka, Taiwan, Thailand, Vietnam

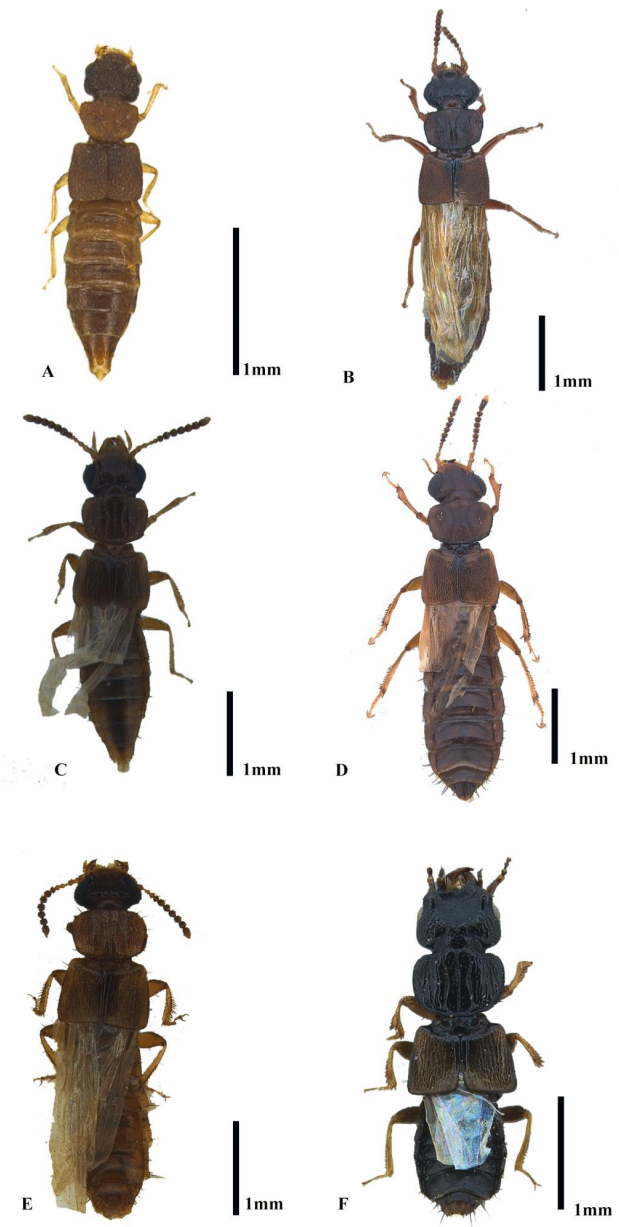

Fig. 1. Dorsal habitus of A-F: A- *Anotylus glareosus* (Wollaston, 1854); B- *Oxytelus bengalensis* (Erichson, 1840); C- *Oxytelus incisus* (Motschulsky, 1858); D-*Oxytelus lividus* (Motschulsky, 1858); *E-Oxytelus nigriceps* (Kraatz, 1859) and F- *Oxytelus puncticeps* (Kraatz, 1859)

***Oxytelus puncticeps* (Kraatz, 1859)** (Fig. 1F)

Bernhauer, 1902: 44, Fauvel, 1904: 46, Bernhauer and Schubert, 1911: 116 Bernhauer, 1922: 223, Cameron, 1930: 228, Bernhauer, 1936: 81; id. 1942: 350, Cameron, 1950: 10, Scheerpeltz, 1974: 65, Hammond, 1975: 150, Lü, L.and H.-Z.Z. 2012: 42-43; id. 2015: 27

Material examined: 2, Labelled 'India: Kerala: Periya reserve forest (11.7768° N, 75.8476° E); 'Flotation method',19.iv.2022, Coll.Vineetha V P

Measurements: TLA=2.14, TLB= 1.97; PL=0.42, PW=0.53, EL=0.589, EW=0.58

Distribution: India: Kerala: Wayanad: Periya reserve forest. Elsewhere: Afrotropical, China (Fujian, Hainan, Hong Kong, Jiangxi), Comoros, India (Meghalaya, UP), Indonesia, Madagascar, Philippines, Ryukyu Is. (Okinawa, Iriomote, Ishigaki), Sri Lanka, South Africa, Vietnam, Taiwan

Remarks: Most of the Indian species of the subfamily Oxytelinae are distributed in the Northern region of the country. This study reveals first time occurrence of species [*O. bengalensis* (Erichson, 1840), *O. incisus* (Motschulsky, 1858), *O. lividus* (Motschulsky, 1858), *O. nigriceps* (Kraatz, 1859, *O. puncticeps* (Kraatz, 1859)] in the Western Ghats hotspot of biodiversity.

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AUTHOR CONTRIBUTION STATEMENT

Vineetha V P, Vineesh P. J, Kavyamol P M and Jerin George analyzed the specimens, verified the review and drafted the manuscript.

CONFLICT OF INTETERST

No conflict of interest.

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