

## Revision of the genus *Oxyporus* Fabricius (Coleoptera: Staphylinidae: Oxyporinae) of the Malay Peninsula

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**Abstract.** The *Oxyporus* species from the Malay Peninsula are revised. The following two species are recognised: *O. pendleburyi* (= *O. intermedius* new synonym; *O. atratus* new synonym) and *O. cameronianus*, new species. All species are (re-)described with illustrations of the taxonomically important characters and photographs of their habitus.

**Keywords.** Rove beetle, biodiversity, new species, Malaysia, Oriental Region

### INTRODUCTION

The genus *Oxyporus* Fabricius, 1775 is a unique genus in the subfamily Oxyporinae, which is a small monophyletic lineage in the megadiverse family Staphylinidae (Herman, 2001; Grebennikov & Newton, 2009; Chatzimanolis et al., 2012). At present, 142 species (seven extinct) are recognised from the Palaearctic, Nearctic, Oriental, and Neotropical regions (Herman, 2001; Li et al., 2018, 2019; Newton, 2019; Lee et al., 2020; Li, 2020; Yan et al., 2020). The species diversity of this genus is very high in the Eastern Palaearctic and Oriental Regions (Newton, 2019), but considering the high biodiversity in this area, there still presumably remain undescribed species.

Three species rank taxa are currently recognised from the Malay Peninsula that are not well understood. In this paper, I provide a revision of the *Oxyporus* species from the Malay Peninsula, and describe a new species.

### MATERIAL AND METHODS

This study is based on dried specimens preserved in the following collections: Natural History Museum, London, UK (NHML), Ehime University Museum, Matsuyama, Japan (EUMJ), Kyushu University Museum, Fukuoka, Japan (KUMJ), Hiwa Museum of Natural Science, Shôbara, Japan (HIWA), and the author's private collection (pcYS). The observational methodology used mainly followed Hanley & Ashe (2003) and Maruyama (2006), except that female

terminalia were soaked in 5% KOH solution for 8–10 hours at room temperature. The terminology mainly followed Naomi et al. (2017), but the terminology from Herman (2010) was used for the female genital organs.

The verbatim label data indicated by double quotation marks (“”) are given for the holotype, and the line breaks of the label are indicated by a slash (/).

The abbreviations used for the measurements are as follows: AL – antennal length; BL – body length (apex of the clypeus to apex of the eighth abdominal segment); EL – elytral maximum length; EW – elytral maximum width; FBL – forebody length (HL + PL + EL); HL – head length (apex of clypeus to posterior margin of head capsule); HW – head maximum width; PL – pronotal maximum length; PW – pronotal maximum width.

### TAXONOMY

#### *Oxyporus* Fabricius, 1775

#### *Oxyporus pendleburyi* Cameron, 1936

*Oxyporus pendleburyi* Cameron, 1936: 41 [original description]; Herman, 2001: 1987 [catalogued].

*Oxyporus pendleburyi* var. *intermedius* Cameron, 1936: 41 [original description]; Herman, 2001: 1987 [catalogued; as infraspecific taxon] — new synonym.

*Oxyporus pendleburyi* var. *atratus* Cameron, 1936: 41 [original description]; Herman, 2001: 1987 [catalogued; as infraspecific taxon] — new synonym.

**Type specimens examined.** *Oxyporus pendleburyi* Cameron, 1936. Holotype (NHML; designated by monotypy): male, “Type” [printed on white round label with red border], “PAHANG, F.M.S. / “Cameron’s High- / lands”.” [printed on white label], “on fungus 4800 ft. / 18.VI.1923 / H.M. Pendlebury” [handwritten on white label, but partly printed], “O. / pendleburyi / TYPE [red, underline] Cam.” [handwritten

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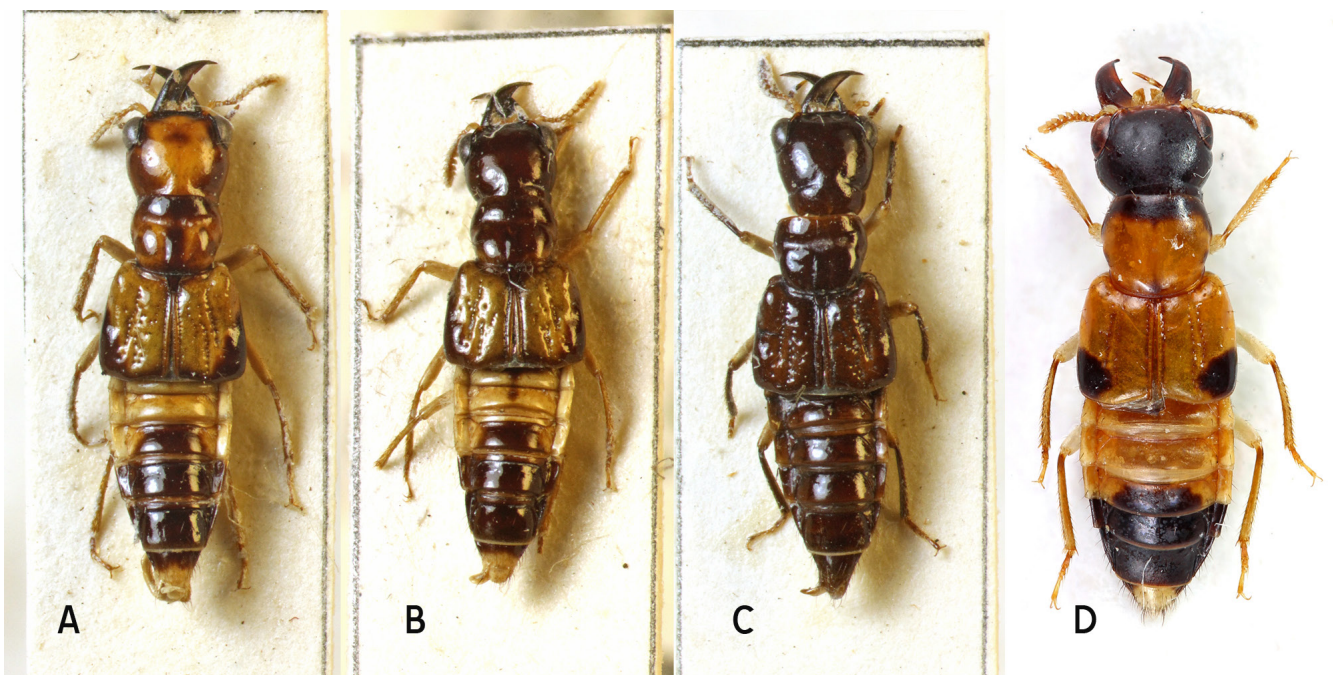


Fig. 1. Holotypes of *Oxyporus* spp. A, *O. pendleburyi* Cameron; B, *O. pendleburyi* var. *intermedius* Cameron; C, *O. pendleburyi* var. *atratus* Cameron; D, *O. cameronianus*, new species.

on white label], “M. Cameron. / Bequest / B.M.1955-147” [printed on white label], “HOLOTYPE / *Oxyporus pendleburyi* / Cameron, 1936 / des. Y. Senda, 2019” [printed on red label with black border].

*Oxyporus pendleburyi* var. *intermedius* Cameron, 1936. Holotype (NHML; designated by monotypy): male, “Type” [printed on white round label with red border], “PAHANG, F.M.S. / “Cameron’s High- / lands.”” [printed on white label], “on fungus 4800 ft. / 18.VI.1923 / H.M. Pendlebury” [handwritten on white label, but partly printed], “O. / v. *intermedius* / TYPE [red, underline] Cam.” [handwritten on white label], “M. Cameron. / Bequest / B.M.1955-147” [printed on white label], “HOLOTYPE / *Oxyporus pendleburyi* / v. *intermedius* Cameron, 1936 / des. Y. Senda, 2019” [printed on red label with black border].

*Oxyporus pendleburyi* var. *atratus* Cameron, 1936. Holotype (NHML; designated by monotypy): male, “Type” [printed on white round label with red border], “PAHANG, F.M.S. / “Cameron’s High- / lands.”” [printed on white label], “on fungus 4800 ft. / 18.VI.1923 / H.M. Pendlebury” [handwritten on white label, but partly printed], “O. / v. *atratus* / TYPE [red, underline] Cam.” [handwritten on white label], “M. Cameron. / Bequest / B.M.1955-147” [printed on white label], “HOLOTYPE / *Oxyporus pendleburyi* / v. *atratus* Cameron, 1936 / des. Y. Senda, 2019” [printed on red label with black border].

**Redescription.** Male. Colouration: Body yellow to reddish brown, shining; mouthparts yellow, except for blackish mandibles and maxillary palpi; elytra yellow, except blackish lateral sides and apical margin with black macula on the outer angle, or entirely reddish brown (without any maculae); tibiae dark yellow to blackish brown; femora yellow, except

for the blackish basal part; tarsi brown; abdomen yellow, except the blackish middles of ventrites III–V, the middle of tergum V, segments VI, VII and the basal 2/3 of VIII, but often entirely reddish brown.

Body robust, slightly convex dorsally. Head circular, widest at the anterior 1/4 of the temple. Eyes moderate in size, prominent. Antennae stout; antennomere I fusiform, widest at the middle; antennomeres II and III cylindrical; antennomere IV slightly dilated apically, slightly flat; antennomere V dilated apically, flat; antennomeres VI to XI flat, densely pubescent in the side area; antennomeres VI to X more or less oblong, and XI bullet-shaped; the length/width ratio of each antennomere I to XI as follows: 2.3, 1.1, 1.0, 0.7, 0.5, 0.4, 0.4, 0.4, 0.4, 0.4, 1.2; relative lengths of segments: 31.2 : 11.2 : 10.0 : 10.0 : 11.2 : 11.5 : 11.5 : 11.5 : 11.5 : 24.2, and relative widths: 13.3 : 10.0 : 10.0 : 14.1 : 20.7 : 25.2 : 25.6 : 25.6 : 25.6 : 24.8 : 19.3.

Pronotum subhexagonal, widest at the anterior 1/3; disc smooth, with a medial sulcus and shallow basal longitudinal sulci; lateral sides weakly depressed in the basal 1/2, well expanded to the widest point, thence narrowed basally, with three setae on the apical 1/4, 1/2 and 3/4; anterior margin feebly emarginated at the middle, with four setae on the middle to near corners, respectively; posterior margin arcuate, with two setae on the middle. Scutellar shield impunctate, with a truncate apex. Elytra subquadrate, feebly dilated apically; disc with several irregular punctures, with two punctulate striae, whose outer stria is arranged from the anterior 1/5 to 3/4, and is feebly oblique, and inner stria is arranged from the anterior 1/4 to the near posterior margin and is longitudinal; lateral and posterior margins with several setae. Basisternum asetose; inner coxal process short, pointed at the apex. Metaventricle sparsely clothed with tiny colourless

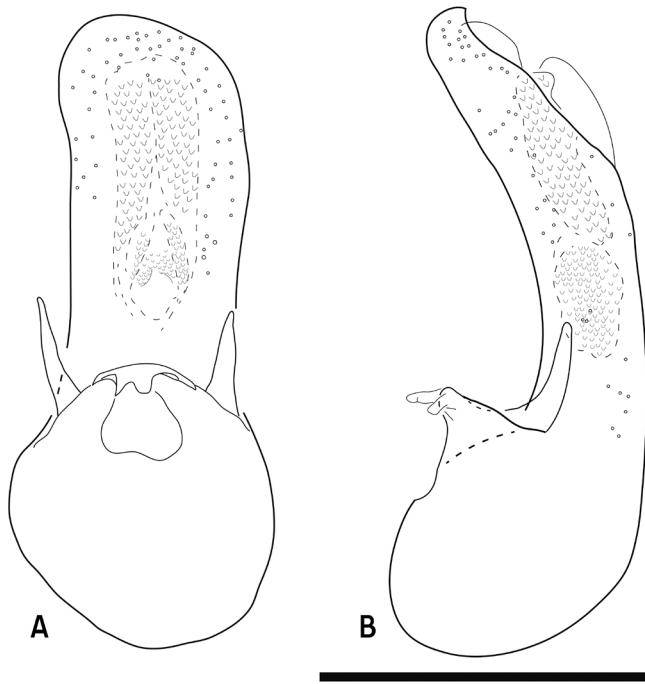


Fig. 2. *Oxyporus pendleburyi* Cameron, holotype, male. A, aedeagus, ventral view; B, ditto, lateral view. Scale bar = 0.5 mm.

pubescence, with golden setae on the posterior area; inner coxal process truncate at the apex. Legs simple, rather thick.

Abdomen covered sparsely with minute punctures and indistinct alutaceous microsculpture; terga III and IV with a pair of wing folding setal patches on the middle, respectively; terga and ventrites VII and VIII with distinct shallow grooves on each posterior part; tergum VIII with about 22 setae, arcuate at the caudal margin; ventrite VIII with about 30 setae, slightly emarginated at the caudal margin; tergum IX setigerous in the apical 1/2, rounded in the apex; tergum X with a few macrosetae in the apicomedial area, densely fringed with tiny setae along the arcuate caudal margin; ventrite IX setigerous in the apical 1/2, with the basal margin incised into “V” and some fine setae arranged on the rounded apex.

Aedeagus (Fig. 2A, B) robust, weakly asymmetrical; median lobe barely twisted, with a basal capsule approximately 2/3 the length of the apical lobe; apical lobe weakly curved ventrally, narrowest at the basal 1/5, thence feebly dilated towards the widest point of the apical 1/4 in the ventral view, rounded at the apex in the ventral view; parameres slender, approximately 1/3 the length of the apical lobe, almost straight, gently narrowed towards the pointed apex in the ventral view; internal sac covered partly with small spicules, without any other sclerites; copulatory tube rather large, robust and feebly tapering apically.

Female. Unknown.

**Measurement.** Male (n = 3) — BL: 7.46–7.64 mm (7.56 ± 0.09 mm); FBL: 4.38–4.60 mm (4.47 ± 0.12 mm); HL: 1.31–1.44 mm (1.37 ± 0.07 mm); HW: 1.49–1.66 mm (1.58 ± 0.09 mm); AL: 1.32–1.36 mm (1.35 ± 0.02 mm);

PL: 1.27–1.37 mm (1.31 ± 0.05 mm); PW: 1.44–1.53 mm (1.49 ± 0.05 mm); EL: 1.72–1.88 mm (1.79 ± 0.08 mm); EW: 2.22–2.34 mm (2.29 ± 0.06 mm). HL/HW = 0.85–0.88 (0.87 ± 0.02); AL/FBL = 0.30–0.31 (0.30 ± 0.01); PL/PW = 0.84–0.90 (0.88 ± 0.03); PW/HW = 0.91–0.97 (0.95 ± 0.03); EL/EW = 0.74–0.81 (0.78 ± 0.04); EW/PW = 1.52–1.55 (1.54 ± 0.02).

**Remarks.** Cameron (1936) distinguished *O. pendleburyi* var. *intermedius* and *O. pendleburyi* var. *atratus* from *O. pendleburyi* by its colouration. These two taxa are valid as subspecific, refer to Articles 10.2 and 45.6.4 of ICZN (1999). After careful observations of their morphological characters, including male genital organs, I was unable to clearly distinguish the two species. Thus, I concluded that the colour differences are due to infraspecific colour variations, and determined that *O. intermedius* and *O. atratus* are junior synonyms of *O. pendleburyi*. Additionally, it is suggested that this species shows noteworthy intraspecific colour variation.

This species is distinguishable from its similar congeners, *O. drescheri* Cameron, 1936 (Java) and *O. annae* Lundgren, 1985 (Java), by colouration. As the colour differences in this genus are highly variable, the taxonomic aspects of these species require future research.

#### *Oxyporus cameronianus*, new species

**Type series.** Holotype: female (HIWA), “[MALAYSIA; Peninsular] / Batu 19 (alt. 600 m) / nr. Cameron Highland / Daerah Batang Padang / Perak State, 7–IV–2011 / Y. Senda leg.” [printed on white label], “collected from dead tree / with mushroom” [printed on white label], “HOLOTYPE / *Oxyporus cameronianus* sp. nov. / Det. Y. Senda, 2019” [printed on red label with black border].

Paratypes: 1 female (pcYS), same data as holotype; 1 female (EUMJ), Bukit Fraser (Fraser’s Hill), 22 May 1979, T. Hatayama leg.; 1 female (KUMJ), Tapah, 18 May 1981, S. Imasaka leg.

**Diagnosis.** This new species is similar to *O. javanus* Cameron, 1936 (Java) and *O. modiglianii* Cameron, 1928 (Sumatra) in general appearance, but differs from these species by the parallel and longitudinal punctulate striae of the elytra (in *O. javanus* and *O. modiglianii*: elytral punctulate striae oblique and non-parallel). Also, this new species is easily distinguished from the congener, *O. pendleburyi* Cameron, as it has no sulci on its pronotum.

**Description.** Female. Colouration: Body reddish yellow, shining; head black, but labrum, labium, and maxillae except for brownish palpi yellow; antennae brownish yellow; pronotum with a black macula along anterior margin to about 1/2 point of lateral margin; elytra with a pair of round black maculae on the outer corner; metaventrite blackish in posterior 1/2; abdominal tergum V mostly black; segments VI, VII, and the basal part of VIII black.



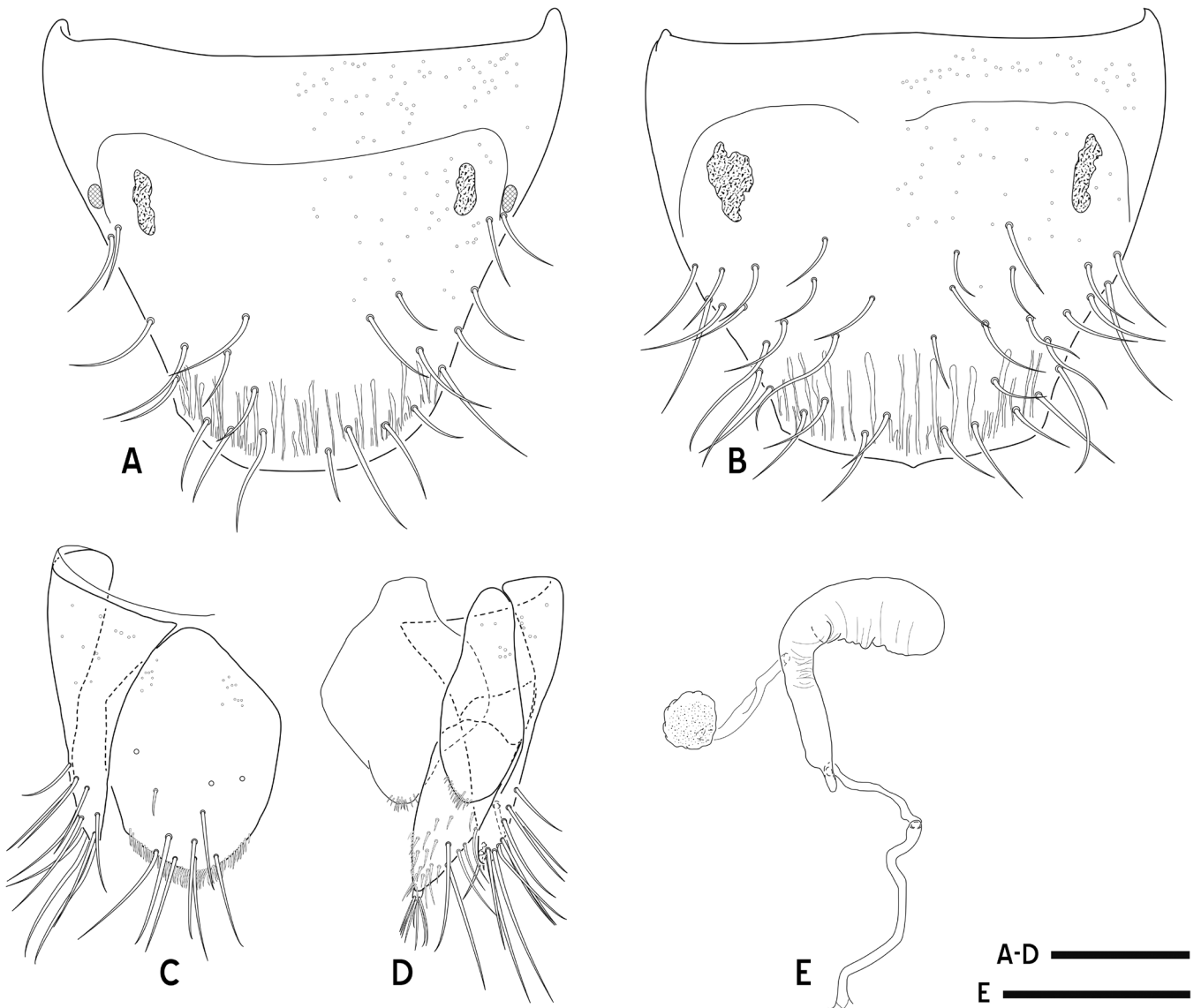


Fig. 3. *Oxyporus cameronianus*, new species, paratype, female. A, tergum VIII; B, ventrite IX; C, terga IX (left half) and X; D, gonocoxites (right half); E, spermatheca. Scale bars: 0.5 mm for A–D; 0.2 mm for E.

Body robust, slightly convex dorsally. Head circular, widest at the anterior 1/3 of the temple. Eyes moderate in size, prominent. Antennae stout; antennomere I fusiform, widest at the apical 1/3; antennomeres II and III rather cylindrical; antennomere IV slightly dilated apically; antennomere V dilated apically, slightly flat; antennomeres VI to XI flat, densely pubescent in the side area; antennomeres VI to X more or less oblong, and XI bullet-shaped; the length/width ratio of each antennomere I to XI as follows: 2.1, 1.2, 1.5, 1.4, 0.7, 0.5, 0.5, 0.6, 0.5, 0.6, 1.1; relative lengths of segments: 29.0 : 11.0 : 12.0 : 11.0 : 10.0 : 10.0 : 10.0 : 11.0 : 10.0 : 10.0 : 17.0, and relative widths: 17.5 : 11.3 : 10.0 : 10.0 : 17.5 : 23.8 : 25.0 : 25.0 : 25.0 : 22.5 : 20.0.

Pronotum subhexagonal, widest at the middle; disc smooth, without any sulcus; lateral sides shallowly depressed in the basal 1/2, well expanded to the widest point, thence narrowed basally, with three setae on the apical 1/4, 1/2 and 3/4; anterior margin feebly emarginated at the middle, with two setae on the middle and near corners, respectively; posterior margin arcuate, with two setae on the middle. Scutellar

shield impunctate, with an arcuate apex. Elytra subquadrate, feebly dilated apically; disc without irregular punctures, with two parallel and longitudinal punctulate striae, whose outer stria is arranged from the anterior 1/6 to 3/4 and inner stria is arranged from the anterior 1/6 to near posterior margin; lateral margin with several setae on apical 2/3; posterior margin bearing a few setae. Basisternum asetose; inner coxal process short, pointed at the apex. Metaventrite sparsely clothed with tiny colourless pubescence; inner coxal process truncate at the apex. Legs simple, rather thick.

Abdomen covered with minute punctures and alutaceous microsculpture; terga III and IV with a pair of wing folding setal patches on the middle, respectively; terga and ventrites VII and VIII with distinct shallow grooves on each posterior part; tergum VIII (Fig. 3A) furnished with about 24 macrosetae, arcuate at the caudal margin; ventrite VIII (Fig. 3B) furnished with about 36 macrosetae, barely projecting at the arcuate caudal margin; tergum IX (Fig. 3C) setigerous in the apical 1/3, rounded in the apex; tergum X (Fig. 3C) slightly longer than wide, with a few

macrosetae in the apicomedial area, densely fringed with tiny setae along the arcuate caudal margin. Gonocoxites as shown in Fig. 3D; proximal gonocoxite almost as long as distal gonocoxite, fringed with fine setae on a part of the apical margin; distal gonocoxite subtriangular, with a few setae on the outer margin, fringed with fine setae on the apical part of the inner side; styli subconical, with several setae on near apices; medial gonocoxite semirhomboidal, projected at the basal margin, with fine setae on the centre of the apical margin. Spermatheca (Fig. 3E) membranous, bulbous, distinctly curve in 1/2, dilated apically in the apical 1/2; spermathecal duct rather long.

Male. Unknown.

**Measurement.** Female (n = 3) — BL: 7.97–8.60 mm ( $8.26 \pm 0.32$  mm); FBL: 4.61–5.10 mm ( $4.83 \pm 0.25$  mm); HL: 1.25–1.42 ( $1.31 \pm 0.10$  mm); HW: 1.65–1.92 ( $1.78 \pm 0.14$  mm); AL: 1.33–1.41 mm ( $1.36 \pm 0.05$  mm); PL: 1.51–1.67 mm ( $1.59 \pm 0.08$  mm); PW: 1.65–1.89 mm ( $1.75 \pm 0.13$  mm); EL: 1.85–2.01 mm ( $1.94 \pm 0.08$  mm); EW: 2.34–2.61 mm ( $2.47 \pm 0.14$  mm). HL/HW = 0.70–0.76 ( $0.73 \pm 0.03$ ); AL/FBL = 0.26–0.29 ( $0.28 \pm 0.02$ ); PL/PW = 0.88–0.93 ( $0.91 \pm 0.02$ ); PW/HW = 0.96–1.00 ( $0.98 \pm 0.02$ ); EL/EW = 0.77–0.80 ( $0.79 \pm 0.01$ ); EW/PW = 1.38–1.45 ( $1.42 \pm 0.03$ ).

**Etymology.** The species is named after Malcolm Cameron (1873–1954), who described many Oriental *Oxyporus* species in the early twentieth century.

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