

A new species of *Loboscelidia* Westwood (Hymenoptera: Chrysididae: Loboscelidiinae) from Thailand

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Loboscelidiinae are rare and highly modified chrysidid wasps. The subfamily contains two genera: *Loboscelidia* Westwood, 1874 and *Rhadinoscelidia* Kimsey, 1988. To date, *Loboscelidia* is known by 67 species from the Oriental and Australian regions (Kimsey 1988, 2012; Li & Xu 2017; Hisasue *et al.* 2023). Thailand is one of the most extensively explored areas for this subfamily, with nine *Loboscelidia* and three *Rhadinoscelidia* species recorded (Kimsey 2012, 2018). Loboscelidiinae are known as egg parasitoids of stick insects (Hadlington & Hoschke 1959; Heather 1965; Riek 1970; Hisasue *et al.* 2023), and some may be myrmecophilous (Riek 1970; Krombein 1983; Hisasue & Mita 2020). *Rhadinoscelida lixa* Hisasue & Mita, 2020 was found near Wiang Kosai National Park (Phrae Province, Thailand), at the entrance of the ant nest of *Carebara diversa* (Jerdon, 1851). During the taxonomic study of *Loboscelidia* in Southeast Asia, we found a peculiar, undescribed species of *Loboscelidia* from Thailand. Here we describe it as a new species and briefly discuss its specialized morphological characteristics.

The material used in this study was deposited in the Thailand Natural History Museum, Technopolis, Khlong Luang, Pathum Thani, Thailand (THNHM). The description is based on the holotype only. Images were taken with a Sony α7R IV digital camera with a Canon MP-E 65 mm lens and edited using Adobe Photoshop C.C.

The morphological terms and measurements mainly follow Kimsey (1988, 2012) and Lanes *et al.* (2020) and the pilosity follows Hisasue *et al.* (2023). The following abbreviations and indices were used: maximum length of median ocellus diameter (MOD), minimum length of postocellar line (POL), minimum length of ocello-ocular line (OOL), shortest distance between the inner margins of the median and lateral ocelli (LOL), and flagellomere 1–11 (F1–F11).

Loboscelidia multistria Hisasue & Mita, sp. nov.

(Figs 1–8)

Description. Holotype male. Body length 4.6 mm (Fig. 1); forewing length 4.5 mm (Fig. 2).

Head. Head twice as long as high in lateral view (Fig. 5), 1.2× as long as wide (Fig. 4); frontal projection rectangular in anterior and dorsal view (Figs 3–4); apical margin of frontal projection depressed (Fig. 4); frons with some longitudinal furrows (Fig. 4), with low ridge extending from vertex along inner orbit of eye (Fig. 4); supraclypeal area with transverse carinae (Fig. 3); temple 1.2× as long as MOD (Fig. 5); POL as long as MOD (Fig. 4); OOL 1.8× as long as MOD (Fig. 4); LOL 0.47× as long as MOD (Fig. 4); posterior part of ocellar triangle with transverse depression (Fig. 4); cervical expansion strongly curved in lateral view (Fig. 5); basal part of cervical expansion constricted in dorsal view (Fig. 4); scape 3.8× as long as wide (Fig. 3); scape with longitudinal grooves (Fig. 3); F1 2.2× as long as wide; F2 2.3× as long as wide; F11 4.6× as long as wide (Fig. 1); relative length of F1–F11: 1.0: 1.0: 1.0: 1.0: 1.0: 1.1: 1.0: 1.0: 1.0: 1.5.

Mesosoma. Pronotal length 0.87× as long as posterior width of pronotum (Fig. 6); posterior width of pronotum 1.5× as wide as anterior width (Fig. 6) and wider than head; anterior margin of pronotum weakly depressed; dorsolateral surface of pronotum rounded (Fig. 1); mesoscutum 0.59× as long as wide (Fig. 7); notauli converging posteriorly (Fig. 7); mesoscutellum punctured (Fig. 7); scrobal area punctured, scrobal sulcus absent (Fig. 1); metascutellum with one median

longitudinal ridge, $0.44\times$ as long as mesoscutellum; propodeal angle weakly developed; propodeal declivity without transverse carina above foramen.

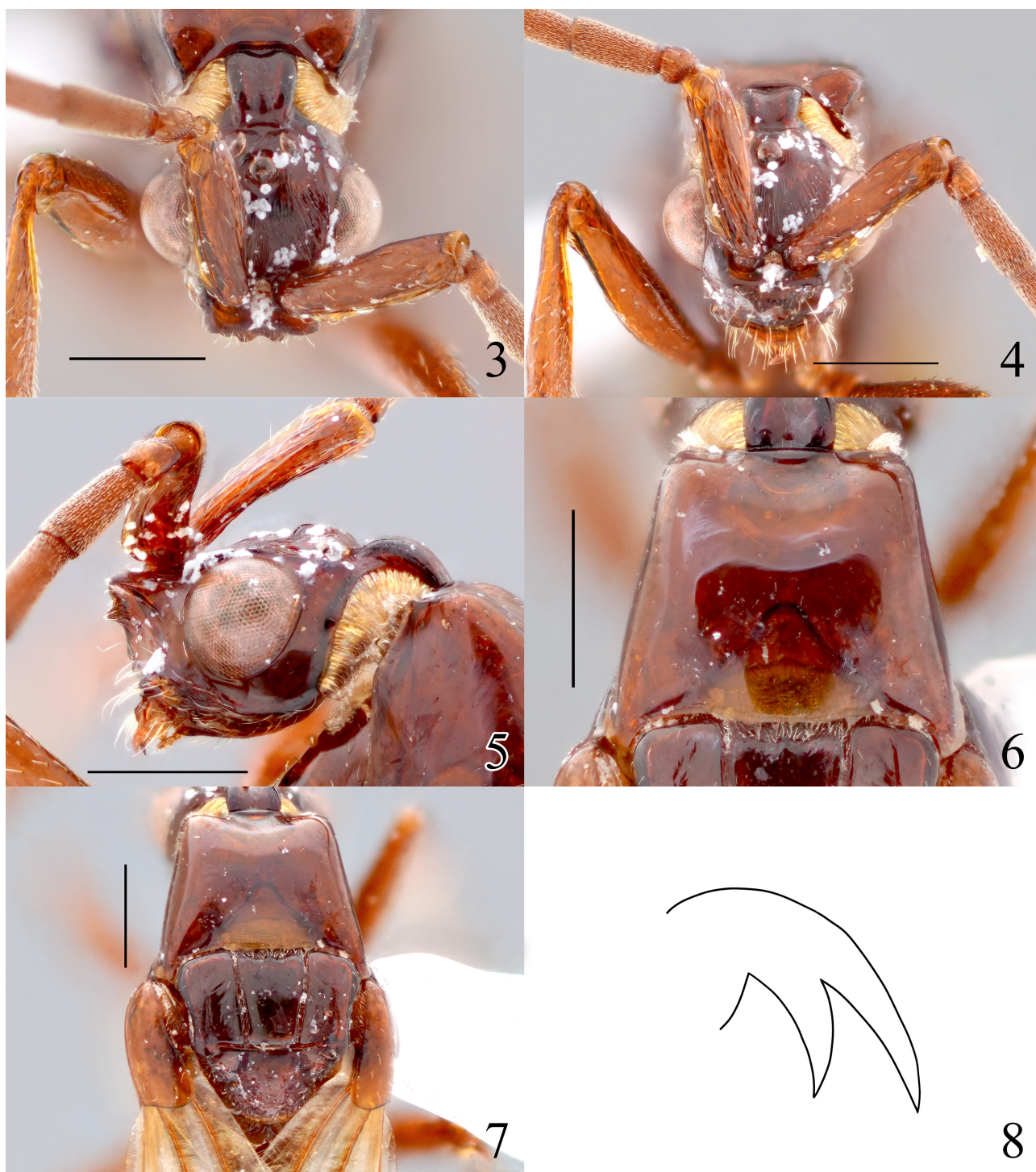
Legs. Tibiae polished; flange on profemur $0.39\times$ longer than and as wide as tubular part of profemur; flange on protibia $0.58\times$ longer than and $0.4\times$ wider than tubular part of protibia; flange on mesofemur $0.16\times$ longer than and $0.71\times$ wider than tubular part of mesofemur; flange on mesotibia $0.57\times$ longer than and $0.2\times$ wider than tubular part of mesotibia; dorsolateral surface of metacoxa with longitudinal carinae; metafemur moderately stout basally, as wide as distal part (Fig. 1); outer margin of metafemur flat (Fig. 1); ventral margin of metafemur flat (Fig. 1); flange on metafemur $0.52\times$ longer than and $0.5\times$ wider than tubular part of metafemur; flange on metatibia $0.8\times$ longer than and $0.73\times$ wider than tubular part of metatibia; tarsal claw of metaleg with one median tooth (Fig. 8); median tooth extending half of tarsal claw of metaleg (Fig. 8).

Forewing (Fig. 2). A two-third as long as Cu+M; M almost absent, present only basal portion; R1 $0.58\times$ as long as R; cu-a absent; Rs $1.6\times$ as long as R.

Pilosity. Frons with sparse simple setae (Fig. 4); ventral area of gena with sparse simple setae (Fig. 5); temple with sparse simple setae (Fig. 5); cervical expansion with sparse simple setae (Fig. 4); scape with sparse suberect simple setae (Fig. 3); pedicel with sparse simple setae; dorsal pronotal area with sparse simple setae (Fig. 6); propleuron with sparse simple setae (Fig. 1); mesoscutum with sparse simple setae (Fig. 7); tegula with sparse simple setae, shorter than MOD (Fig. 7); mesopleuron with sparse simple setae (Fig. 1); metapectal-propodeal complex with sparse simple setae in lateral view (Fig. 1); apical half of coxae with sparse simple setae; femora with sparse suberect simple setae (Fig. 1); tibiae with sparse suberect simple setae (Fig. 1).



FIGURES 1–2. *Loboscelidia multistria* sp. nov. (holotype). **1**, lateral habitus; **2**, forewing. Scale bar = 1.0 mm.



FIGURES 3–8. 3, frontal view of head; 4, dorsal view of head; 5, lateral view of head; 6, dorsal view of pronotum; 7, dorsal view of mesosoma; 8, hind tarsal claw. Scale bar =0.5 mm.

Coloration. Body reddish brown (Fig. 1); antenna brown (Figs. 1, 3); legs brown (Fig. 1); flanges yellowish brown; ribbon-like setae of gena, cervical expansion, and anterolateral margin of pronotum whitish yellow.

Material examined. Holotype ♂, Thailand, Chiang Mai Province, Doi Suthep, 5 Aug. 2001, T. Tanizaki leg. (THNHM).

Distribution. Thailand (Northern Thailand).

Etymology. The epithet *multistria* from Latin many striae referring to the wrinkled frons.

Discussion. This species is similar to *Loboscelidia defecta* Kieffer, 1916 and *L. reducta* Maa & Yoshimoto, 1961 by having the transverse depression located posterior to ocelli, the scapes more than 4.0× longer than wide, the pronotum with antero-lateral corner convex. However, *L. multistria* has the frons longitudinally costate, the scrobal sulci defined by one row of contiguous punctures, the tibiae with flanges, the metacoxae carinate, outer surface of metacoxae costate, and the M vein of the forewings present only basal 1/4, whereas *L. defecta* and *L. reducta* have the frons smooth, the scrobal sulci has no rows of contiguous punctures, the tibiae without flanges, the metacoxae smooth and ecarinate, and the outer surface of the metacoxae smooth. Additionally, M vein of the forewings is fully present in *L. defecta*.

The morphological state of the M vein is important for the identification of *Loboscelidia* species. Previously, *L. bakeri* Fouts, 1922, *L. fulgens* Kimsey, 2012, *L. guangxiensis* Xu, Weng & He, 2006, *L. incompleta* Kimsey, 2012 and *L. reducta* Maa & Yoshimoto, 1961 were known as species with an undeveloped M vein, species treated after couplet 2 of the key in Kimsey (2012). The new species has the frontal projection moderately projected, the frons with fine longitudinal furrows, the scape 4.0× as long as wide, the basal area of metafemora expanded, the dorsolateral surface of metacoxae with longitudinal carinae, the metafemora moderately stout basally, the ventral margin of metafemora flat, the femoral flanges 0.5× as long as the tubular part of metafemora; the tibial flanges more than 0.5× as wide as the tubular part, whereas other four species have the scapes less than 3.5× as long as wide, the dorsolateral surface of metacoxae without longitudinal carinae, the metafemora as wide as the distal part, ventral margin of metafemora swollen medially, *L. bakeri* has the basal area of metafemora not expanded, and as wide as the apical area of metafemora, the femoral flanges much shorter than 0.3× as long as the tubular part of the metafemora, the tibial flanges almost absent, *L. fulgens* has the basal area of metafemora not expanded, and as wide as the apical area of metafemora, the frons without fine grooves, *L. guangxiensis* has the basal area of metafemora not expanded, and as wide as the apical area of metafemora, the frons without fine grooves, *L. incompleta* has the frontal projection strongly projected, *L. reducta* has the basal area of metafemora not expanded, and as wide as the apical area of metafemora, the frons without fine grooves. Collectively, these traits establish *L. multistria* **sp. nov.** as a morphologically discrete species within the group with an undeveloped M vein.

The distinctive combination of characteristics observed in *Loboscelidia multistria* **sp. nov.** extends the range of morphological variations currently recognized within this genus. Its discovery in Thailand, one of the most surveyed regions for loboscelidid wasps in Southeast Asia, demonstrates that the full spectrum of morphological diversity of the genus has not yet been captured. This finding indicates that additional, as yet unknown, combinations of diagnostic characteristics are likely to be found.

After the description of *Loboscelidia multistria* **sp. nov.**, it can be included in the first couplet of the key to males of Indo-Chinese *Loboscelidia* (Hisasue *et al.* 2023) as follows:

- | | | |
|-----|---|--------------------------------------|
| 1'. | M vein absent or present basal 1/4; Rs much less than twice as long as R | 1 |
| – | M vein complete; Rs twice or longer than R | 3 |
| 1. | M vein present basal 1/4 (Fig. 2); metafemur basally stout, as wide as distal part (Fig. 1); outer margin of metafemur flat (Fig. 1); ventral margin of metafemur flat (Fig. 1); metatibia with flange (Fig. 1) | <i>L. multistria</i> sp. nov. |
| – | M vein absent; metafemur not stout basally, narrower than distal part; outer and ventral margins of metafemur swollen; metatibia without flange | 2 |

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