

TWO NEW SPECIES IN THE GENUS *LOBOSCELIDIA* (HYMENOPTERA: CHRYSIDIDAE) FROM CHINA

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ABSTRACT

Two new species: *Loboscelidia levigata* **sp. nov.** and *Loboscelidia striolata* **sp. nov.** from China are described and illustrated. A key to the Chinese species is provided. Specimens are deposited in the Hymenoptera Collection of South China Agricultural University, Guangzhou (SCAU). In addition, *L. sinensis* and *L. guangxiensis* are redescribed from material collected with *L. levigata* and *L. striolata*.

Key Words: Chrysoidea, Loboscelidiinae, Oriental, Taxonomy

RESUMEN

Se describen e ilustran dos nuevas especies, *Loboscelidia levigata* **sp. nov.** y *Loboscelidia striolata* **sp. nov.** de la China. Se provee una clave de las especies en China. Los especímenes son depositados en la Colección de Hymenoptera de la Universidad Agrícola del Sur de China, en Guangzhou (SCAU). Además, *Loboscelidia sinensis* y *L. guangxiensis* son descritas de nuevo de material recolectado con *L. levigata* y *L. striolata*.

Loboscelidiinae is a subfamily in Chrysididae occurring throughout the wet tropics of the Oriental and Australian regions, composed of 2 genera *Loboscelidia* Westwood and *Rhadinosceldia* Kimsey, and including 35 species recognized all over the world (Kimsey & Bohart 1990; Terayama et al. 1998; Kojima & Ubaidillah 2003; Xu et al. 2006).

The genus *Loboscelidia* is characterized by having the head prolonged posteriorly into a cervical projection; tegula very large; fore wing without stigma and costal vein; metasoma with 4 or 5 visible segments.

Only 3 species, *L. maai*, *L. sinensis*, and *L. guangxiensis* are known from China (Lin 1964; Kimsey 1988; Xu et al. 2006). During our field survey of Hymenoptera from some mountains of southern China (Zhejiang, Fujian, Guangdong, Hainan, Guangxi), more than 200 specimens of Loboscelidiinae were collected by sweeping net, especially from Guangdong and Hainan. *Loboscelidia sinensis* was rediscovered from Zhejiang, Fujian, Guangdong and Hainan, while *L. guangxiensis* was found from Guangdong as well. *Loboscelidia levigata* **sp. nov.** and *L. striolata* **sp. nov.** are described in this paper as new to science.

MATERIALS AND METHODS

Specimens were examined under the stereomicroscope Motica K400 and Leica MZ 12.5; all figures were made by Zeiss Imager A1 and Image-Pro Plus software. All specimens are preserved in

the Hymenoptera Collection of South China Agricultural University, Guangzhou (SCAU).

The terms for morphology and nomenclature of wing vein are that of Kimsey & Bohart (1990). The measurements reported are relative proportions, except for the length of body and wing.

Abbreviations used in the text are as follows: MOD = midocellus diameter, POL = minimum distance between post ocelli, OL = minimum distance between median and posterior ocelli, OOL = minimum distance between posterior ocellus and eye.

TAXONOMY

L. guangxiensis Xu, Weng et He, 2006 (Fig. 1)

L. guangxiensis Xu, Weng et He 2006: 208. Type male, Guangxi China, original designation.

Material Examined. Two ♂♂, CHINA: Guangxi, Jiuwandashan, 31 July 2003, Yiping Wang, Nos.20037702 (Holotype), 20037720 (Paratype); 1♂, Guangdong Province, Nanling National Nature Reserve, 16-21 July 2008, Zaifu Xu, No.200800201; 5♂♂, Guangdong Province, Chebaling National Nature Reserve, 22-28 July 2008, Zaifu Xu, Nos.200800218, 200800219, 200800220, 200800221, 200800222.

Variation. Body length 2.30-3.30 mm; fore wing length 2.63-3.20 mm. Mesosoma blackish to dark brown.

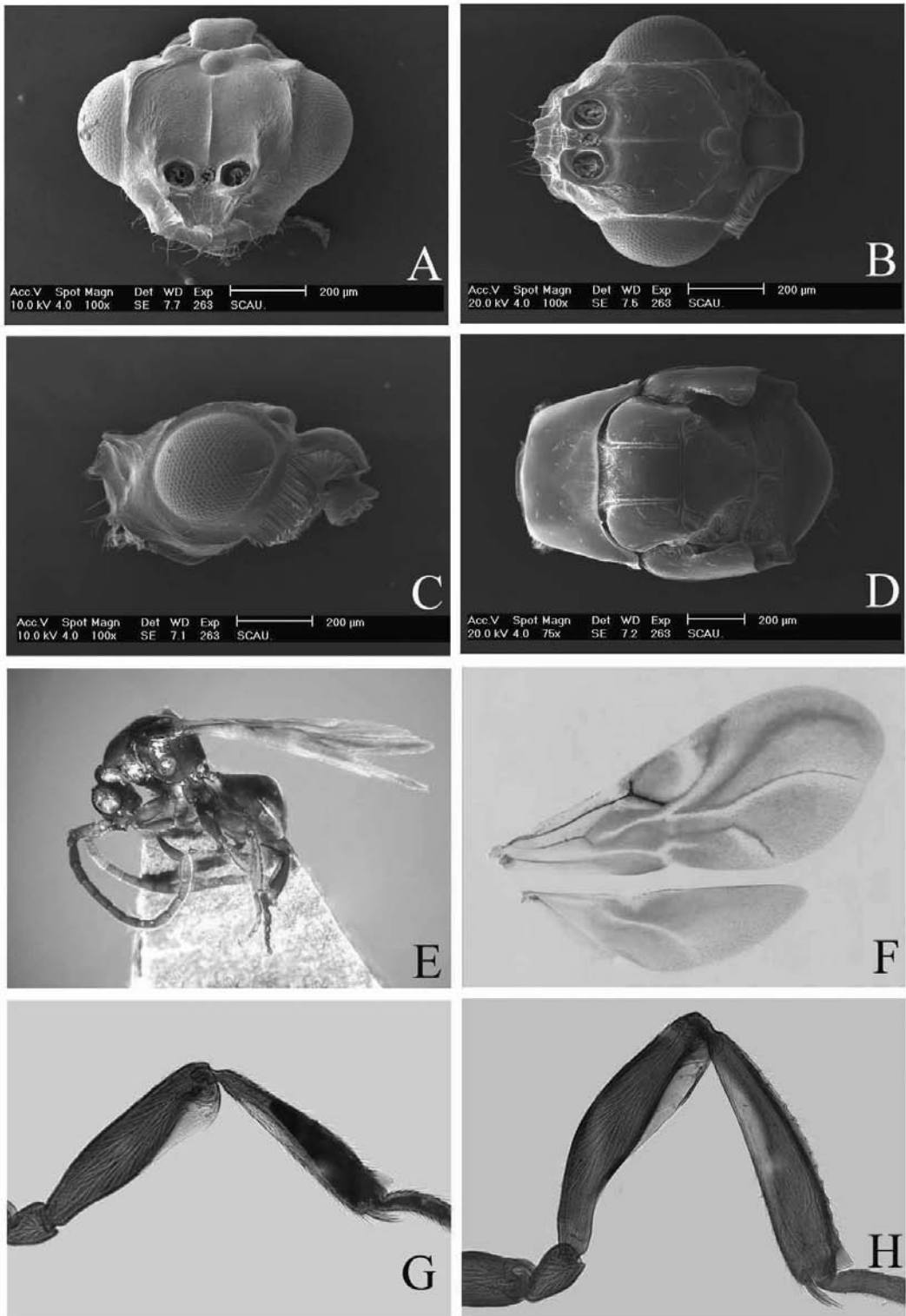


Fig. 1. *Loboscelidia guangxiensis*. A-C. Head (A, frontal view; B, Dorsal view; C, Lateral view). D. Meosoma, dorsal view. E. Habitus, lateral view. F. Wings. G. Middle leg. H. Hind leg.

Distribution. China (Guangdong, Guangxi).

Comments. This species resembles *L. bakeri* Fouts, 1922, and *L. reducta* Maa et Yoshimoto, 1961, by having the basal vein absent and notauli complete. It can be distinguished from *L. bakeri* by having the median lobe of mesoscutum that is 1.3 times as long as its basal wide (twice as long as its basal wide in *L. bakeri*) and the axilla weakly concave but not dimpled (deeply dimpled in *L. bakeri*). The species differs from *L. reducta* by having the first flagellomere being 1.8 times as long as wide (2.1 times as long as wide in *L. reducta*), and tegula as long as pronotum in profile (tegula distinctly shorter than pronotum *L. reducta*) and cervical projection in dorsal view nearly as long as wide (cervical projection distinctly longer than wide in *L. reducta*).

Loboscelidia levigata sp. nov. (Fig. 2)

Holotype Male. Fully winged. Body length 3.20 mm, forewing length 2.80 mm Head, antenna, and mesosoma russet; metasoma dark brown; leg yellowish brown; fore wing brownish fuscous.

Head in dorsal view 0.72 times as wide as mesosomal width at tegulae and 1.72 times the interocular distance. Frontal projection truncate, with lower part weakly longer than upper part in profile, trapezoid; upper lateral corner with a carina extending backward along ocular margins to occiput. Lower face smooth, with few fine carinae near middle. Frons with weak reticulate wrinkles and fine punctures. MOD = 4, POL = 6, OL = 1, OOL = 8. Cervical projection smooth, moderately arched in profile, posteriorly widened and trapezoid in dorsal view. Antenna filiform, densely pubescent, 1.09 times as long as body length. Scape with transparent flange along entire length; pedicel 0.67 times as long as wide; first to tenth flagellomeres subequal, about 2.17 times as long as wide. Antenna segments in the following proportions: 24 : 4 : 12 : 12 : 13 : 13 : 13 : 14 : 13 : 13 : 13 : 13 : 17.

Pronotum with maximum width distinctly longer than maximum length (37:24), proximal anterior width 0.81 times as apical width. Posterior half of pronotum with shallow impressions obliquely raised from posterolateral corner towards midline. Mesoscutum smooth, median lobe with dense and fine punctures on basal 0.2; notauli complete, parallel; posterolateral projection lamellate. Scutellum with dense and oblique short striae on lateral sides, sparsely punctuate on apex. Tegulae large, with short hairs sparsely. Propodeal projection angular, 0.50 times as high as MOD.

Fore wing brownish fuscous, with hyaline streaks, densely pubescent. A1 vein much shorter than M+Cu vein. Basal cell subtriangular. R1, Rs and cu-a each 0.90, 2.66 and 0.44 times as long as stigmal vein length.

Legs covered with numerous macrochaetae. Fore femoral transparent flange large and broad, 0.6 times as femoral length; fore tibial flange 0.67 times tibial lengths; middle femoral flange 0.72 times femoral length; middle tibial flange narrower, 0.75 times tibial length; hind femoral flange 0.80 times femoral length; hind tibial flange 0.90 times tibial length.

Metasoma with 5 visible segments, shiny, smooth.

Female. Unknown.

Holotype. ♂, CHINA: Guangdong Chebaling National Nature Reserve, 22-28 July 2008, Zaifu Xu, No.200800223. Paratype. 1♂, Fujian Province, Minqing County, Huangchulin Provincial Nature Reserve, 13-14 July 2005, Changming Liu, No.200701695; 10♂♂, same data as type, Nos.200800224, 200800225, 200800226, 200800227, 200800228, 200800229, 200800230, 200800231, 200800232, 200800233; 1♂, Guangdong Chebaling National Nature Reserve, 24 July 2008, Jie Zeng, No.200800163; 3♂♂, Guangdong Nanling National Nature Reserve, 16-21 July 2008, Zaifu Xu, Nos.200800202, 200800203, 200800204.

Distribution. China (Fujian, Guangdong).

Etymology. The specific name derives from Latin '*levigatus*' means 'smooth', referring to the smooth lower face.

Comments. The species is similar to *L. laotiana* Kimsey, 1988 by having the fore wing venation and notauli complete. It can be separated from the latter by first flagellomere shorter than the second (first and second flagellomeres in equal length in *L. laotiana*), and Rs 2.6 times as long as stigmal vein (Rs 3.0 times as long as stigmal vein in *L. laotiana*). The new species also can be distinguished from *L. asiana* Kimsey, 1988 by having the frontal projection in frontal view trapezoid (V-shaped in *L. asiana*) and fore wing with Rs 2.66 times as long as stigmal vein (Rs 1.4 times as long as stigmal vein in *L. asiana*). The new species is also close to *L. indica* Kimsey, 1988, but can be distinguished from it by pronotum wider than long along the transverse and longitudinal midlines (as long as wide in *L. indica*), notaulus complete (nearly complete in *L. indica*); and A1 vein distinct shorter than M+Cu vein (A1 vein longer than M+Cu vein in *L. indica*). This species can be separated from *L. pasohana* Kimsey, 1988 by having the Rs of fore wing 2.6 times as long as stigmal vein (3.5-4.0 times in *L. pasohana*). Differs from *L. scutellata* Fouts, 1922 by having the frontal projection in frontal view trapezoid (triangular in *L. scutellata*), A1 vein shorter than M+Cu (of which in equal length in *L. scutellata*). It can be distinguished from *L. collaris* Fouts, 1922 by having the mesoscutum subequal to scutellum (mesoscutum distinctly shorter than scutellum in *L. collaris*), and short A1 vein (A1 vein as long as M+Cu vein in *L. collaris*). It can be

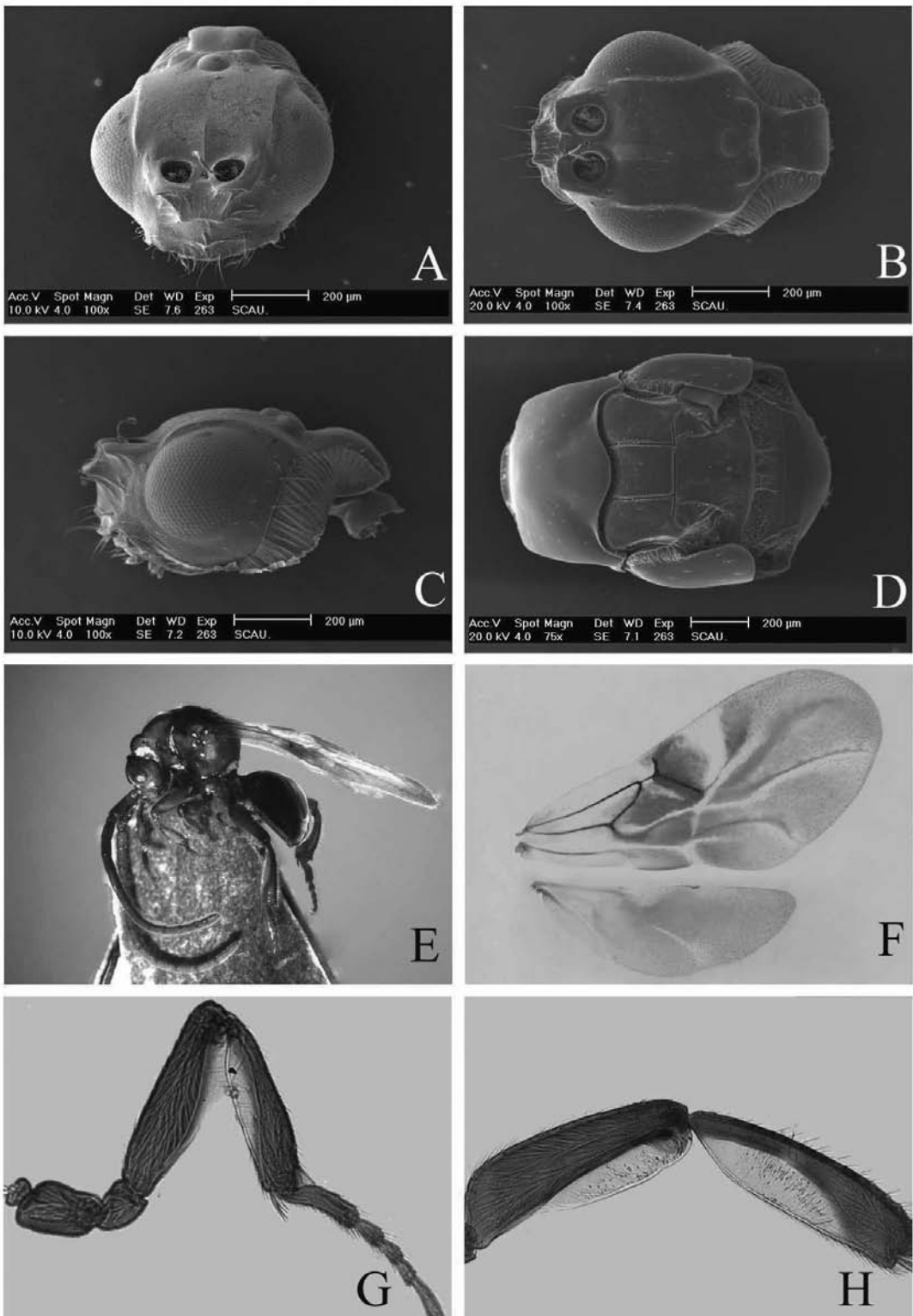


Fig. 2. *Loboscelidia levigata* sp. nov. A-C. Head of paratype (A. frontal view; B. Dorsal view; C. Lateral view). D. Meosoma, dorsal view. E. Habitus, lateral view. F. Wings. G. Middle leg. H. Hind leg.

separated from *L. halimunensis* Kojima, 2003 by having fore wing with R1 distinct (R1 un conspicuous in *L. halimunensis*).

Loboscelidia sinensis Kimsey, 1988 (Fig. 3)

Loboscelidia sinensis Kimsey, 1988: 76. Type male, Hainan Island, China.

Material Examined. CHINA: 1♂, Zhejiang Province, Kaihua County, Gutianshan Provincial Nature Reserve, 26 July 1986, Weiliang Xu, No.862958; 1♂, Zhejiang Province, Kaihua County, Gutianshan Provincial Nature Reserve, 2 July 2005, Min Shi, No.200601790; 2♂♂, Zhejiang Province, Taishun County, Wuyanling Provincial Nature Reserve, 5 August 2005, Peng Xu, Nos.200605167, 200605125; 2♂♂, Zhejiang Province, Taishun County, Wuyanling Provincial Nature Reserve, 28 July-5 August 2005, Jie Zeng, Nos.200701688, 200701690; 1♂, Zhejiang Province, Taishun County, Wuyanling Provincial Nature Reserve, 28 July-5 August 2005, Jingxian Liu, No.200701687; 5♂♂, Fujian Province, Mingqing, Huangchulin Provincial Nature Reserve, 13-14 July 2005, Changming Liu, Nos. 200701696, 200701697, 200710698, 200710699, 200701700; 5♂♂, Guangdong Province, Nanling National Nature Reserve, 16-21 July 2008, Zaifu Xu, Nos.200800191, 200800192, 200800193, 200800194, 200800195; 9♂♂, Guangdong Province, Shixing, Chebaling National Nature Reserve, 22-28 July 2008, Zaifu Xu, Nos.200800208, 200800209, 200800210, 200800211, 200800212, 200800213, 200800214, 200800215, 200800216; 1♂, Guangdong Province, Nanling National Nature Reserve, 9-18 July 2005, Zaifu Xu, No.200701179; 2♂♂, Hainan Province, Jianfengling National Nature Reserve, 12-15 July 2006, Jieming Liu, Nos.200700965, 200700969; 1♂, Hainan Province, Jianfengling National Nature Reserve, 4-7 June 2006, Jie Zeng, No.200800015; 2♂♂, Hainan Province, Jianfengling National Nature Reserve, 22. November. 2008, Jiangli Tan, No.200805352, 200805371; 4♂♂, Hainan Province, Bawangling National Nature Reserve, 8-11 June 2007, Lingqiong Weng, Nos.200800033, 200800034, 200800035, 200800036; 1♂, Hainan Province, Bawangling National Nature Reserve, 9-10 June 2007, Bin Xiao, No.200800040; 1♂, Hainan Province, Bawangling National Nature Reserve, 7-11 July 2007, Jingxian Liu, No. 200800006; 1♂, Hainan Province, Bawangling National Nature Reserve, 26 November 2008, Manman Wang, No.200805650.

Variation. Body length 2.8-3.5 mm, fore wing length 2.4-2.7 mm. Scutellum moderately to strongly coarsely punctate and rugose; fore wing with Rs vein 2.5-3.7 times as long as stigmal vein.

Distribution. China (Zhejiang, Fujian, Guangdong, Hainan).

Comments. Most of the characters matched the original description by Kimsey (1988) except that Rs vein a little longer of which is 1.8 times as long as stigmal vein of Kimsey. In some larger specimens, scape with transparent flange very weakly present.

Loboscelidia striolata sp. nov. (Fig. 4)

Holotype Male. Fully winged, body length 3.08 mm, fore wing length 3.0 mm Head black, antenna and leg reddish brown; mesosoma and metasoma blackish brown, fore wing fuscous.

Head in dorsal view 0.89 times as wide as mesosomal width at tegulae, and 1.17 times the interocular distance. Frontal projection strongly prolonged and obliquely truncate in profile; subtriangular in frontal view; upper lateral corner with carina extending backward along ocular margins to posterior ocellus. Lower part of face with dense and strong transverse carinae, coarse. Frons densely and obliquely striate, with distinct longitudinal carina. Ocellus rounded. MOD = 3, POL = 5, OL = 3, OOL = 9. Cervical projection strongly arched in profile; nearly as long as wide in dorsal view, with fine and dense longitudinal striae. Antenna filiform, densely pubescent, 1.11 times as long as body. Scape without transparent flange; pedicel as long as wide; first to tenth flagellomeres subequal and about 2.50 times as long as wide; apical flagellomere tapering to apex. Antennal segments in the following relative proportions: 23 : 6 : 12 : 12 : 12 : 12 : 12 : 13 : 13 : 13 : 13 : 18.

Pronotum with maximum width distinctly greater than maximum length in dorsal view (35:22); and 2.1 times as long as wide along transverse and longitudinal midlines; proximal anterior width 0.71 times as posterior width; pronotum with dense acicular punctures. Mesoscutum finely and densely scratched, nearly as long as scutellum; notaulus complete, straight and parallel; posterolateral projection lamellate. Tegula large, with sparseshort hairs. Scutellum densely and finely scratched, and sparsely punctate. Propodeal projection angular, 1.33 times as high as MOD.

Fore wing maculate, densely pubescent, with hyaline streaks. A1 vein equal to M + Cu vein. Basal cell with apical angle rounded. R1, Rs and cu-a each 0.28, 2.40 and 0.69 times as long as length of stigmal vein.

Legs covered with numerous macrochaetae. Fore femoral flange large and broad 0.5 times as femur, fore tibial flange very narrow; middle femoral flange short and round, about 0.2 times as femur, middle tibial flange narrow, 0.67 times as tibia; hind femoral flange narrow and short, 0.40 times as femoral length, hind tibial flange wide, extending entire tibial length.

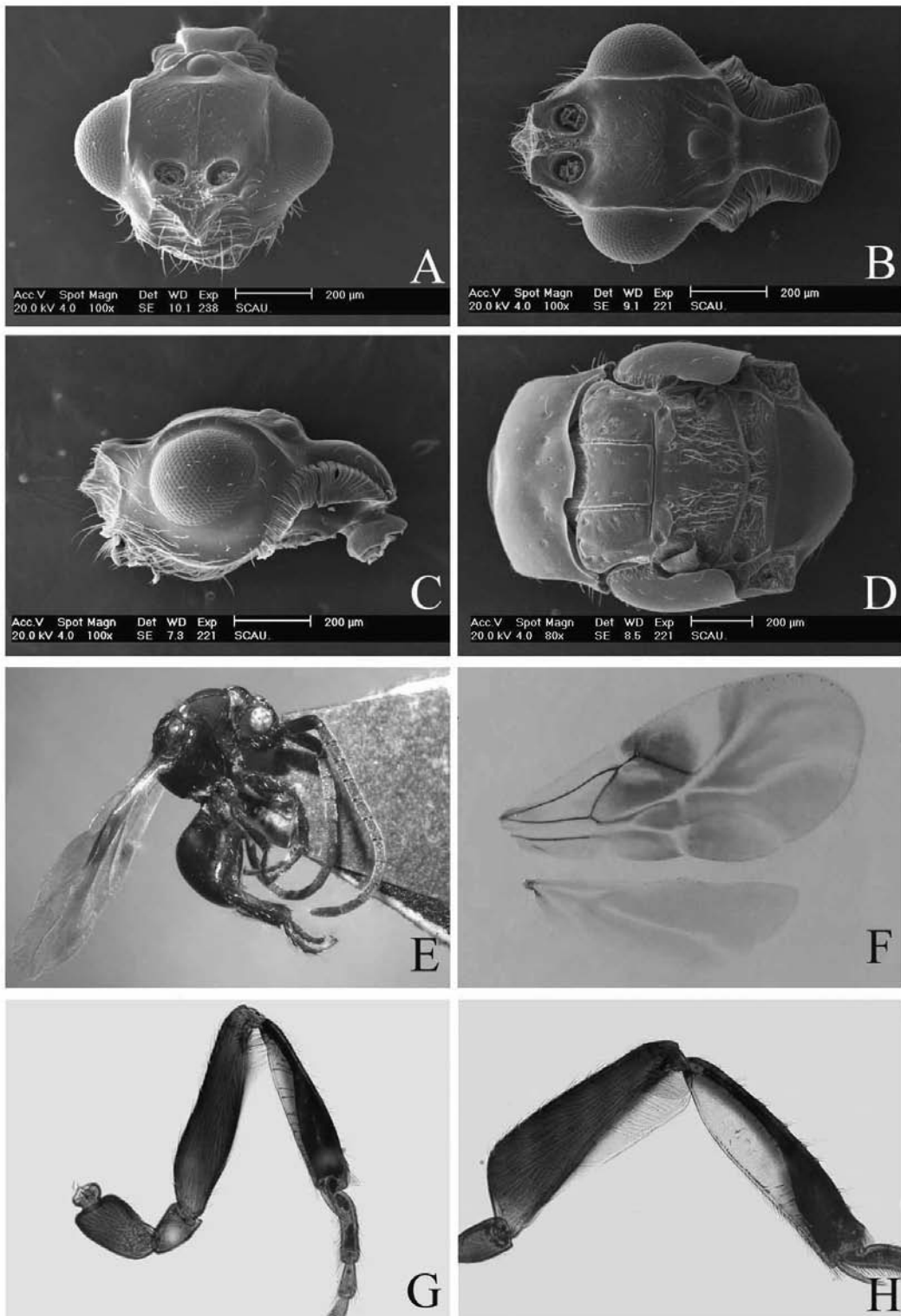


Fig. 3. *Loboscelidia sinensis*. A-C. Head (A. frontal view; B. dorsal view; C. lateral view). D. Meosoma, dorsal view. E. Habitus, lateral view. F. Wings. G. Middle leg. H. Hind leg.

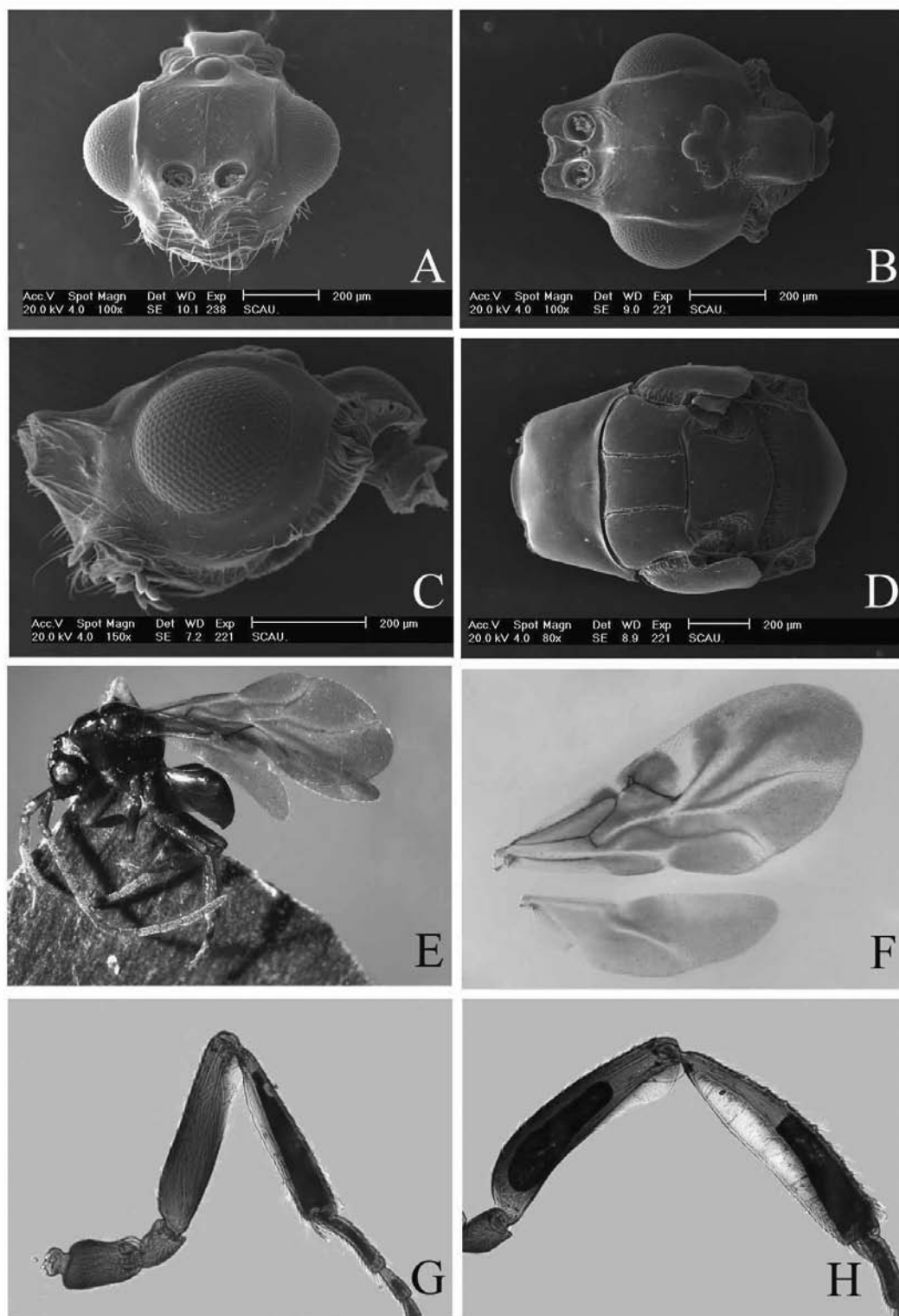


Fig. 4. *Loboscelidia striolata* sp. nov. A-C. Head of paratype (A. frontal view; B. dorsal view; C. lateral view). D. Meosoma, dorsal view. E. Habitus, lateral view. F. Wings. G. Middle leg. H. Hind leg.

Metasoma with 5 exposed segments, shiny, smooth.

Female. Unknown.

Material Examined. Holotype ♂, CHINA: Guangdong Province, Nanling National Nature Reserve, 9-18 July 2005, Zaifu Xu, No.200701182. Paratype. 1♂, Zhejiang Province, Wuyanling Provincial Nature Reserve, 28 July 2005, Jie Zeng, No.200701691; 4♂♂, same data as type, Nos.200701181, 200701183, Nos.200701184, 200701185; 3♂♂, same locality as type, 16-21 July 2008, Zaifu Xu, Nos.200800188, 200800189, 200800190; 3♂♂, same locality and date as type, Yali Cai, Nos.200701199, 200700098, 200701200; 3♂♂, Guangdong Province, Shixing County, Chelaling National Nature Reserve, 22-28 July 2008, Zaifu Xu, Nos.200800205, 200800206, 200800207.

Distribution. China (Zhejiang, Guangdong).

Etymology. The specific name derives from the Latin adjective 'striolatus', means fine stria, referring to the character of cervical projection.

Comments. This species is similar to *L. collaris* Fouts, 1922, but different from the latter by having the mesoscutum as long as scutellum (mesoscutum distinctly shorter than scutellum in *L. collaris*) and tegula more or less longer than pronotum

in profile (tegula much shorter than pronotum in *L. collaris*); and hind femoral flange narrow, about 0.4 times as femur (hind femoral flange wide, about 0.66 times as long as femur in *L. collaris*). It can be distinguished from *L. scutellata* Fouts, 1922 by having the scape without transparent flange (scape with transparent flange in *L. scutellata*) and median lobe of mesoscutum with dense and fine acicular punctures (mesoscutum polished in *L. scutellata*). The new species can be separated from *L. indica* Kimsey, 1988 and *L. asiana* Kimsey, 1988 by having the scape without transparent flange (both of the latter with distinct transparent flange on scape), pronotum wider than long along transverse and longitudinal midlines (of *L. indica* pronotum as long as wide, while in *L. asiana* with pronotum longer than wide). Differs from *L. laotiana* Kimsey, 1988 and *L. pasohana* Kimsey, 1988 by having the fore wing with Rs 2.4 times as long as stigmal vein (Rs vein of *L. laotiana* and *L. pasohana* each 3.0, 3.5-4.0 times as long as stigmal vein). This new species can be easily separated from *L. sinensis* Kimsey, 1988 by having the scutellum finely scratched (with scutellum coarsely scratched and punctate *L. sinensis*).

KEY TO THE CHINESE SPECIES OF *LOBOSCELIDIA* WESTWOOD

1. Antenna with first to tenth flagellomeres shorter than wide; eye with hairs. *L. maai* Lin
- Antenna with first to tenth flagellomeres longer than wide; eye without hairs. 2
2. Scape without distinct transparent flange 3
- Scape with distinct transparent flange. 4
3. Cervical projection densely and finely striate dorsally; pronotum with dense, longitudinal, acicular punctures; scutellum finely scratched. *L. striolata* **sp. nov.**
- Cervical projection dorsally smooth, not striate; pronotum sparsely punctate; scutellum coarsely punctate and rugose. *L. sinensis* Kimsey
4. Fore wing with basal vein distinct; hind tibial flange wider than tibial width *L. levigata* **sp. nov.**
- Fore wing with basal vein absent; hind tibial flange narrower than tibial width *L. guangxiensis* Xu, Weng et He

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REFERENCES CITED

- CAMERON, P. 1910. Description of a new genus and species of *Oxyura* (Hymenoptera) from Kuching, Borneo. *Entomologist* 43: 21-23.
- DAY, M. C. 1979. The affinities of *Loboscelidia* Westwood. *Systematic Entomol.* 4: 21-30.
- EVANS, H. E. 1964. A synopsis of the American Bethyloidea (Hymenoptera: Aculeata). *Bull. Mus. Comparative Zool., Harvard University* 132: 1-222.
- FOUTS, R. M. 1922. New parasitic Hymenoptera from the Oriental islands. *The Philippine J. Science* 20: 619-637.
- FOUTS, R. M. 1925. Descriptions of three new Hymenoptera from the Philippine Islands. *The Philippine J. Science* 26: 515-519.
- KIEFFER, J. J. 1916. *Diapriidae*. *Das Tierreich.*, 44: 627.
- KIMSEY, L. S. 1988. *Loboscelidiinae*, new species and a new genus from Malaysia (Hymenoptera: Chrysididae). *Psyche* 95(1-2): 67-79
- KIMSEY, L. S., AND BOHART, R. M. 1990. *The Chrysidid Wasps of the World*. America: Oxford University Press, 141-149.

- KOJIMA, J. I., AND UBAIDILLAH, R. 2003. Two new species of the cryptic chrysidid parasitoid subfamily Loboscelidiinae: the second species in *Rhadinoscelidia* and the first *Loboscelidia* for the Indonesian fauna. Entomological Science 6: 199-207.
- KROMBEIN, K. V. 1983. Biosystematic studies of Ceylonese wasps: A monograph of the Amiseginae and Loboscelidiinae (Hymenoptera: Chrysididae). Smithsonian Contribution to Zoology 376: 1-79.
- LIN, K. S. 1964. The Taiwanese Loboscelidiidae (Hymenoptera: Bethyloidea). Quarterly J. Taiwan Museum 17(3-4): 237-245.
- MAA, T. C., AND YOSHIMOTO, C. M. 1961. Loboscelidiidae, a new family of Hymenoptera. Pacific Insects 3: 523-548
- TERAYAMA, M., MUROI, T., AND YAMAGISHI, K. 1998. A new record of the subfamily Loboscelidiinae (Hymenoptera, Chrysididae) from Japan. The Japanese J. Systematic Entomol. 4(1): 31-32.
- WESTWOOD, J. O. 1874. Thesaurus Entomologicus Oxoniensis, Oxford: Clarendon Press. xxiv+205 pp., 40 pls.
- XU, Z. F., WENG, L. Q., AND HE, J. H. 2006. A new species of the genus *Loboscelidia* (Insecta, Hymenoptera) from China. Acta Zootaxonomia Sinica 31(1): 208-210.