

## CORRESPONDENCE

# A new genus of scuttle flies (Diptera: Phoridae), with description of a new species from China

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**Abstract** A new genus, *Sacculiphora* **gen. nov.**, is described from China, with a new species, *S. cultrata* **sp. nov.** The new genus seems closely related to the genus *Maculiphora* Disney. It is distinguished from *Maculiphora* by the frontal bristle formula of 2-4-4 as opposed to 2-2-4, a strongly developed wing vein Sc, clearly fine veins and a cystiform structure on the inner surface of the male fore femur.

**Key words** New genus, new species, *Sacculiphora*, taxonomy.

China, acrossing the Palaearctic and the Oriental Regions, has a high diversity in Phoridae (scuttle flies). During the last decade considerable progresses have been made on Phoridae fauna study, especially on the amount increase of genera and species described (e.g. Liu, 2001, 2015, 2017, 2020; Liu & Yang, 2016). However, our knowledge on the phorid fauna of China is still limited. Because of the small size and sex dimorphism in Phoridae, their species identification is usually difficult. In the ongoing study, a series of tiny specimens have unique combination of characters and could not be assigned to any known genus. Therefore, a new genus with a new species is proposed and described. It seems closely related to the genus *Maculiphora* Disney, 1991 based on the swollen fore femur.

Specimens were stored in 80% ethanol. The head, legs, and one wing were detached and slide mounted according to the method of Disney (1994). For study of the male terminalia, the terminal abdominal segments were detached from the body and placed in a 10% solution of KOH at 50°C for 8 hours, then dropped into an 8% solution of acetic acid for 30 minutes, and transferred to distilled water for dissection. Observations were carried out under both binocular stereoscopic and compound light microscopes. Line drawings were made using a Leica M205C with a drawing tube. Photographs were taken using Leica M205A and Leica DM5500B microscopes, with the help of a CCD 450 multi-focus imaging system. The terminology follows McAlpine (1981). The type specimens are deposited in the Natural History Museum of Shenyang University (NMSU), Shenyang, China.

### *Sacculiphora* **gen. nov.**

Type species: *Sacculiphora cultrata* **sp. nov.**

**Diagnosis.** In Disney's (1994) key to genera, the new genus runs to couplet 197, to the genus *Maculiphora* Disney (Disney & Kistner, 1991). However, it is distinguished from *Maculiphora* by the frontal bristle formula of 2-4-4 as opposed to 2-2-4, a strongly developed wing vein Sc, clearly fine veins and a cystiform structure on the inner surface of the male fore femur. The male of new genus is also similar to the genus *Metopina* Macquart, 1835, in terms of the bristle formula of frons, however, the wing section between the vein M<sub>2</sub> and CuA<sub>1</sub> is not hourglass-shaped as that in *Metopina* species.

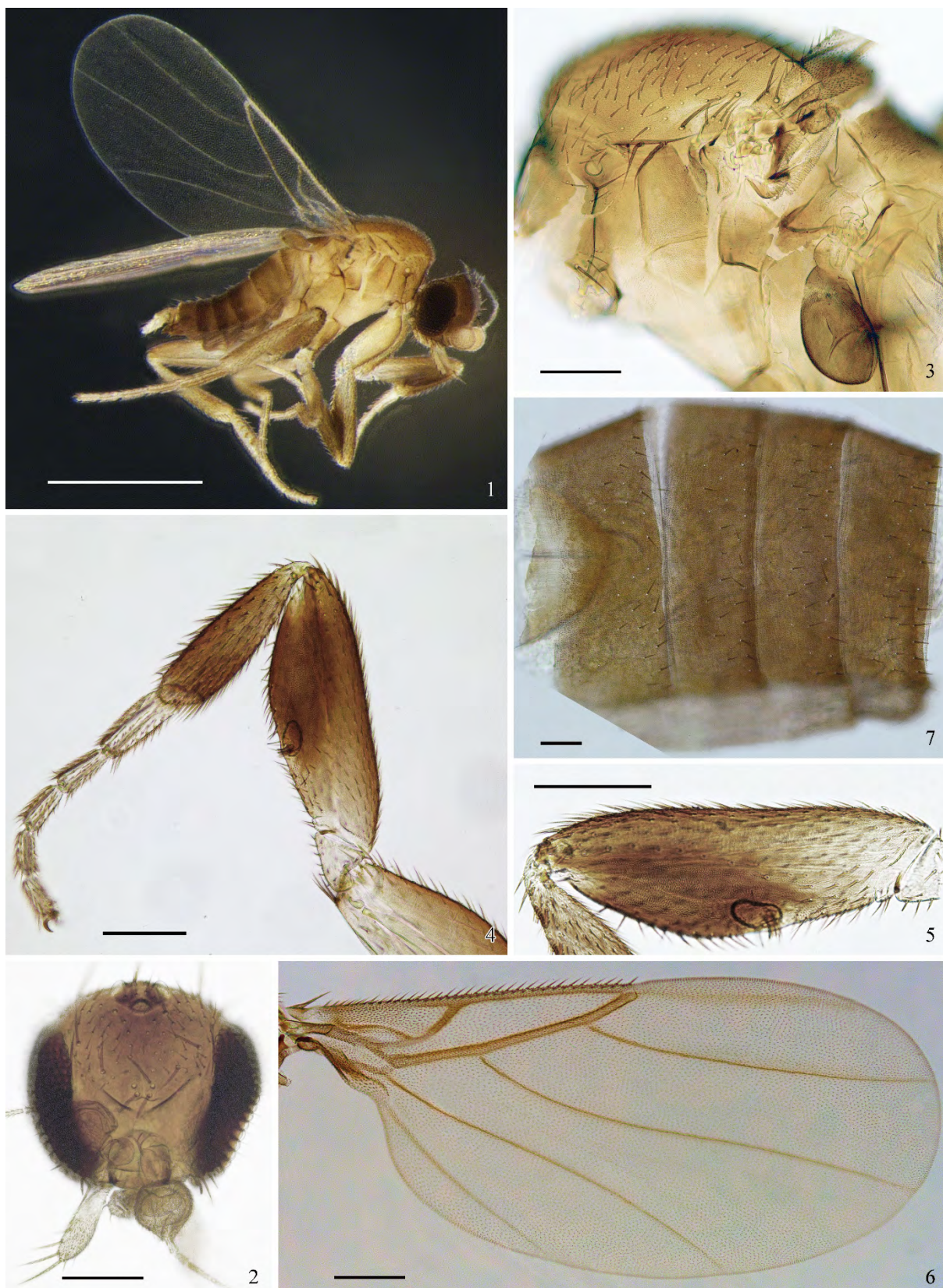
**Description.** Small sized flies. Frons lacking ventral fronto-orbital setae; two pairs of supra-antennal setae present. Frontal furrow absent. Flagellomere 1 globular with pointed apex; arista subapical. Anepisternum bare, divided. Wing vein

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Sc present; vein  $R_{2+3}$  absent; all thin veins clearly present. Halter fully developed. Tibia without dorsal longitudinal setal palisades and isolated pre-apical setae. Fore femur dark, expanded ventrally; inner surface concave, covered with tubercles;



Figures 1–7. *Sacculiphora cultrata* sp. nov. 1. Body, right view; 2. Head; 3. Thorax, left view; 4. Fore leg; 5. Fore femur; 6. Wing; 7. Abdomen, dorsal view. Scale bars: 1=0.5 mm; 2–7=0.1 mm.



a cystiform structure present at middle part of ventral edge; a row of inward inclinate setae present along apical half of ventral edge. Fore tibia cylindrical and thickening towards end. Male terminalia asymmetric and hypandrium anticlockwise rotated.

**Etymology.** The genus name is from the Latin words “*sacculus*” meaning cystiform and “*phora*” meaning scuttle fly, referring to the structure at middle part of ventral edge of fore femur.

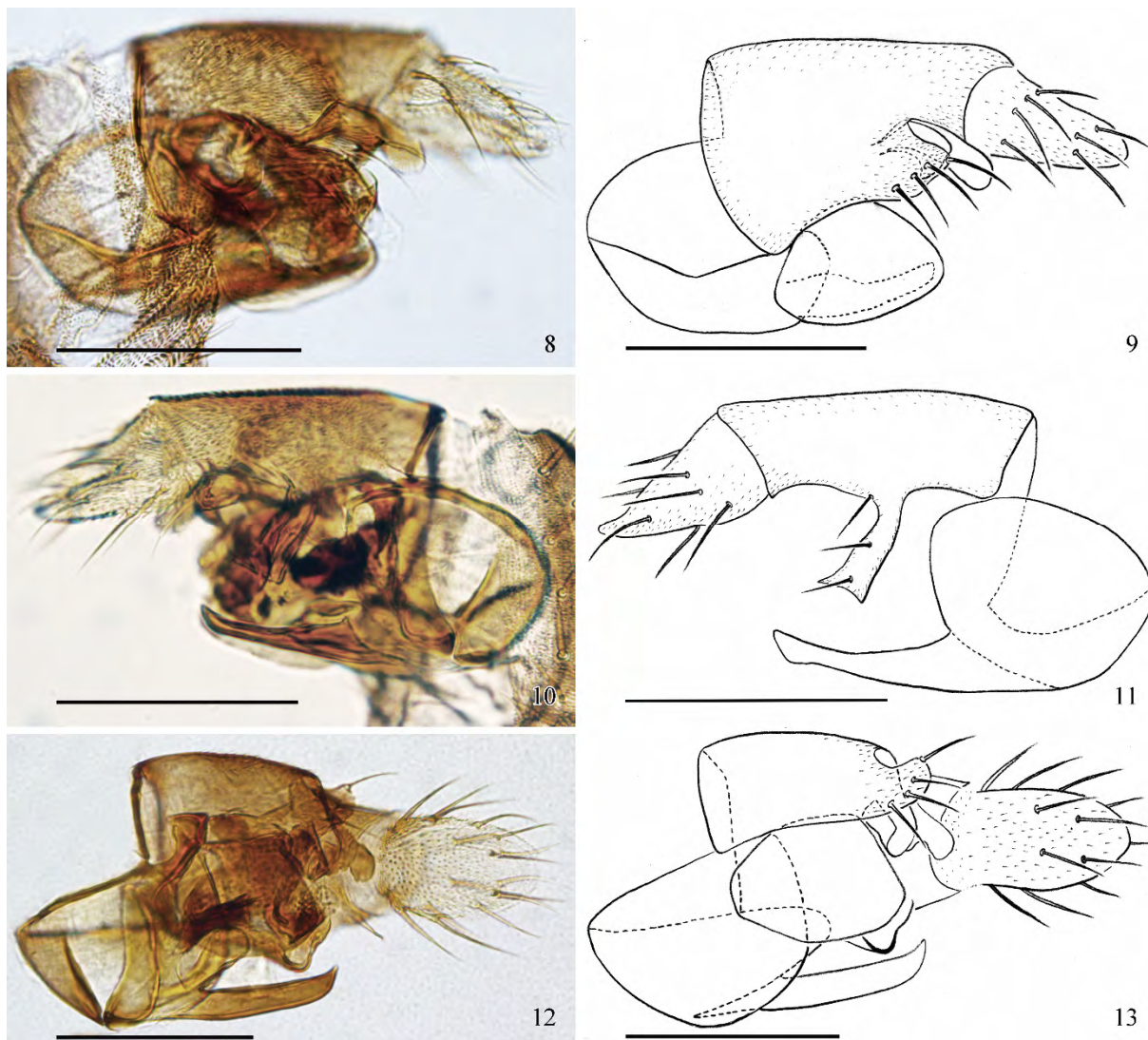
**Distribution.** China (Guangxi).

**Discussion.** The new genus is classified in the subfamily Metopininae, based on the divided anepisternum and lack of tibial setae. Furthermore, it seems belonging to the tribe Metopiniini, according to the characters of lacking vein  $R_{2+3}$ ; lack of small basal setae of hypandrium, and hypandrium rotated (*sensu* Brown, 1992). However, this classification requires further data support and more evidence. The discovery of female of this genus would be particularly helpful on the problem's clarification.

***Sacculiphora cultrata* sp. nov.** (Figs 1–13)

**Diagnosis.** The species is characteristic by: fore femur dark with cystiform structure; wing vein Sc clearly reaching vein  $R_1$ ; left epandrium with two distorted processes; right epandrium with a long inner-concave process.

**Description.** Male. Body (Fig. 1) length 1.1–1.2 mm. Frons (Fig. 2) yellowish brown, covered with 60–70 setae. All



Figures 8–13. Male terminalia of *Sacculiphora cultrata* sp. nov. 8–9. Left view; 10–11. Right view; 12–13. Ventral view. Scale bars = 0.1 mm.

frontal setae relatively weak. Ventral interfrontal setae much further apart than dorsal interfrontal setae. Dorsal fronto-orbital seta closed to eye margin and lower than dorsal interfrontal setae on frons. Supra-antennal setae proclinate, lower pair slightly shorter than upper pair. Flagellomere 1 yellowish brown, oval, slightly pointed apically; arista subapical. Palpus whitish yellow, 4 times as long as width, flattened dorsoventrally, with five long setae along the outer surface of the apical half. Mouthparts whitish, with small labrum. Labella small and without teeth.

Thorax (Fig. 3) generally brown, but darker on top. Notopleural cleft absent. Anepisternum divided, bare. Scutellum with short outer pair and long inner pair of setae.

Legs (Figs 4–5) mostly pale brown, fore tibia and hind tibia darker. Fore femur expanded ventrally; inner surface concave, covered with tubercles; A round cystiform structure present in the middle part of the ventral margin, several setae protruding from the structure; a row of inward inclinate setae present along apical half of ventral edge. Foretarsomeres 1–5 with setal palisades. All tibiae without dorsal longitudinal setal palisades and isolated large setae.

Wing (Fig. 6) length 1.10–1.11 mm. Mean costal index 0.53–0.54. Costal ratio 1:1.61. Costal cilia 0.021–0.022 mm. Vein Sc reaching vein R<sub>1</sub>. Vein R<sub>2+3</sub> absent. Base of vein Rs without small setae. All thin vein clearly present. Axillary setae absent. Stem and knob of halter dark brown.

Abdomen (Fig. 7) with brown tergites, the second being clearly longer than any of the rest. Abdominal tergites with short, sparse setae. Venter pale brown and bare.

Male terminalia (Figs 8–13) brown and asymmetric. Epandrium dull, covered with short setae. Left side of epandrium with blunt posteroventral corner, and with four long setae along ventral edge; posterodorsally divided into a long finger-like process and a downbent process. Right epandrium slender with a long downward process; the process with three long setae and forming a groove at inner surface. Hypandrium rotated in a counterclockwise and without basal small setae; left lobe of hypandrium with a large leaf-like process; right lobe of hypandrium with a long knife-shaped process. Hypoproct and cerci pale yellow.

Female. Unknown.

Etymology. The species name refers to the long knife-shaped process on the left lobe of the hypandrium.

Material examined. Holotype ♂, China, Guangxi, Fangchenggang, Shangsi (21°53'24.92"N, 107°54'34.26"E; elev. 461 m); 6 August 2015, Chunfeng Li, Boling Gao. Paratypes. 1♂, same data as holotype; 7♂, China, Guangxi, Fangchenggang, Shangsi (21°52'50.39"N, 107°55'23.56"E; elev. 1261 m), 7 August 2015, Chunfeng Li, Boling Gao.

Remarks. The biology of the new species is unknown but may be associated with ants.

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