

Three new species of the genus *Platypalpus* (Diptera: Empididae) from Sichuan, China

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Abstract: *Platypalpus* Macquart is one of the largest genera in the family Empididae with over 550 known species distributed worldwide. Eight species were known to occur in Sichuan. Here three new species belonging to the *Platypalpus longicornis* species group are described from Sichuan: *Platypalpus breviarista* **sp. nov.**, *Platypalpus minor* **sp. nov.**, and *Platypalpus yadinganus* **sp. nov.** A key to the species of *Platypalpus* from Sichuan is presented.

Key words: dance fly; taxonomy; key

四川平须舞虻属 *Platypalpus* 三新种 (双翅目: 舞虻科)

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摘要: 平须舞虻属 *Platypalpus* Macquart 是舞虻科中最大的属之一, 已知 550 余种分布世界各地。四川以前已知 8 种。本文记述四川平须舞虻属 3 新种: 短芒平须舞虻 *Platypalpus breviarista* **sp. nov.**, 微距平须舞虻 *Platypalpus minor* **sp. nov.** 和亚丁平须舞虻 *Platypalpus yadinganus* **sp. nov.**, 均属于长角平须舞虻种团 *Platypalpus longicornis* species group, 并编制了四川平须舞虻属分种检索表。

关键词: 舞虻; 分类; 检索表

Introduction

Platypalpus Macquart is characterized by the raptorial mid leg and wing with an anal cell (Chvála 1975; Grootaert & Chvála 1992). It is distributed worldwide with over 550 known species, of which 52 species are recorded from China (Yang *et al.* 2007, 2018; Li *et al.* 2019). The European species were divided into eleven species groups by Chvála (1975). The major references dealing with the Oriental and Palaearctic *Platypalpus* are as follows: Brunetti (1920), Frey (1943), Smith (1965), Chvála (1975, 1989), Grootaert & Chvála (1992), Grootaert & Shamshev (2006), and Yang *et al.* (2010).

Eight species were known to occur in Sichuan (Yang *et al.* 2018; Li *et al.* 2019). Here

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three new species belonging to the *Platypalpus longicornis* species group are added to the fauna of Sichuan. A key to the species of *Platypalpus* from Sichuan is provided.

Material and methods

The specimens were examined and illustrated using a ZEISS Stemi 2000–c. Genitalic preparations were made by macerating the apical portion of the abdomen in cold 10% NaOH for about 6 hours. The type specimens are deposited in the Entomological Museum of China Agricultural University (CAU), Beijing. The following abbreviations are used: acr — acrostichal bristle(s), av — anteroventral bristle(s); dc — dorsocentral bristle(s); h — humeral bristle(s); npl — notopleural bristle(s); oc — ocellar bristle(s); prsc — prescutellar bristle(s); psa — postalar bristle(s); pv — posteroventral bristle(s); sc — scutellar bristle(s).

Taxonomy

Key to species of *Platypalpus* from Sichuan

1. Mid femur with outer pv beside two rows of ventral bristles 2
- Mid femur without outer pv beside two rows of ventral bristles 3
2. Arista blackish; thorax entirely black; apical spur of mid tibia present ··· *P. dongae* Li, Chang, Zhang & Yang
- Arista white; thorax yellow except mesoscutum with 2 black spots, postnotum black at middle and ventral half of pleuron nearly entirely black; apical spur of mid tibia absent *P. sichuanensis* Yang & Yang
3. 2nd costal section black basally; mid tibia modified, ventrally obtuse with dense brown pubescence at extreme tip 4
- 2nd costal section not darkened basally; mid tibia not modified 5
4. Legs mostly brownish yellow; R₄₊₅ and M parallel apically; crossveins r–m and m–m distinctly separated ···
..... *P. acutatus* Yang & Li
- Legs mostly dark brown; R₄₊₅ and M apically a little divergent at extreme tip; crossveins r–m and m–m very narrowly separated *P. laohegouanus* Li, Chang, Zhang & Yang
5. Thorax black; apical spur of mid tibia spine-like or absent 6
- Thorax yellow except only scutellum black; apical spur of mid tibia finger-like
..... *P. guangxiensis* Yang & Yang
6. Hairs on mesonotum rather sparse, acr and dc distinctly separated 7
- Hairs on mesoscutum dense, acr and dc not separated or separated anteriorly 8
7. 2 vt; legs partly darker; mid femur narrower than fore femur *P. crassifemur* Li, Chang, Zhang & Yang
- 1 vt; legs entirely pale yellow; mid femur thicker than fore femur ··· *P. flavisetosus* Li, Chang, Zhang & Yang
8. First flagellomere rather long, 3.0 times longer than wide; arista nearly as long as or slightly longer than first flagellomere 9
- First flagellomere rather short, 1.4–1.7 times longer than wide; arista much longer than first flagellomere · 10
9. Arista nearly as long as first flagellomere; apical spur of mid tibia absent *P. breviarista* **sp. nov.**
- Arista 1.3 times longer than first flagellomere; apical spur of mid tibia slightly longer than tibia thickness ···
..... *P. breviseta* Li, Chang, Zhang & Yang
10. Mid spur of mid tibia indistinct; all femora dark brown or blackish except extreme bases brownish yellow ·
..... *P. minor* **sp. nov.**
- Mid spur of mid tibia very short, acute; all femora brown except extreme base of mid femur brownish

yellow and basal 1/2 of hind femur yellow *P. yadinganus* sp. nov.

1. *Platypalpus breviarista* sp. nov. (Fig. 1)

Description. Male. Body length 2.2 mm, wing length 3.1 mm.

Head black with somewhat dense pale gray pollen; clypeus shiny. Eyes dark brown, separated; face distinctly narrower than frons. Hairs on head dark yellow, bristles dark brown. Ocellar tubercle with 2 very long oc and 2 very short posterior hairs; 3 long upper postocular bristles including 2 vt, somewhat curved inward, slightly shorter than oc. Antenna blackish; scape without dorsal bristles; pedicel with circle of blackish apical hairs; first flagellomere rather long, 3.0 times longer than wide, distinctly brown pubescent; arista nearly as long as first flagellomere, dark brown, very short brown pubescent. Proboscis 0.5 times as long as height of head, dark brown, with few short brown hairs; palpus nearly oval, nearly as long as wide, brownish yellow with brown hairs and 2 brownish apical bristles.

Thorax somewhat shiny black with pale gray pollen, mesoscutum with somewhat dense pollen. Hairs on thorax dark yellow, bristles brownish; hairs on mesoscutum dense, acr and dc not separated; 1 long h, 2 long npl, 1 long psa, 1 very long presc distinctly longer than psa; scutellum with 2 pairs of sc (basal pair rather short). Legs brownish yellow except tibiae and tarsi dark brownish yellow with tarsomeres 3–5 dark brown. Hairs and bristles on legs brown to dark brown except those on coxae dark yellow. Mid femur weakly thickened; fore femur 1.2 times and mid femur 1.3 times as wide as hind femur. Mid femur with two rows of thick blackish ventral bristles somewhat long (pv sparse, mostly longer than av, 1 basal most pv rather long and brownish yellow). Fore tibia not distinctly thickened. Mid tibia with row of dark brown short ventral bristles; apical spur indistinct. Wing hyaline; veins dark brown; R₄₊₅ and M nearly parallel apically; crossveins r-m and m-m very narrowly separated. Squama brown with dark yellow hairs. Halter dark yellow.

Abdomen short thick, nearly straight; subshiny blackish with thin pale gray pollen except sternites 1–6 dark brown. Hypopygium somewhat swollen, slightly narrower than pregenital segments. Hairs and bristles on abdomen dark yellow.

Male genitalia. Left and right epandrial lamellae widely connected at base. Right epandrial lamella rather broad, slightly longer than wide; right surstylus short, thick with very short acute process at tip. Left epandrial lamella much longer than wide; left surstylus rather wide, apically nearly truncate. Right cercus slightly shorter than left cercus, relatively narrow with obtuse apex; left cercus wider than right cercus, with obtuse apex.

Female. Unknown.

Holotype. ♂, China, Sichuan, Yading, Luorongniuchang, 4133 m, 18-VII-2020, Liang WANG (CAU).

Remarks. This species is similar to *P. breviseta* Li, Chang, Zhang & Yang, 2019 from Sichuan, but may be separated from the latter by the arista nearly as long as the first flagellomere and the apical spur of mid tibia absent. In *P. breviseta*, the arista is 1.3 times longer than the first flagellomere, and the apical spur of mid tibia is present, slightly longer than tibia thickness (Li *et al.* 2019).

Etymology. This specific epithet refers to the short arista.

Diagnosis. Three long upper postocular bristles including 2 vt, somewhat curved inward. First flagellomere 3.0 times longer than wide; arista nearly as long as first flagellomere. All

femora brownish yellow. Mid femur weakly thickened. Apical spur of mid tibia absent.

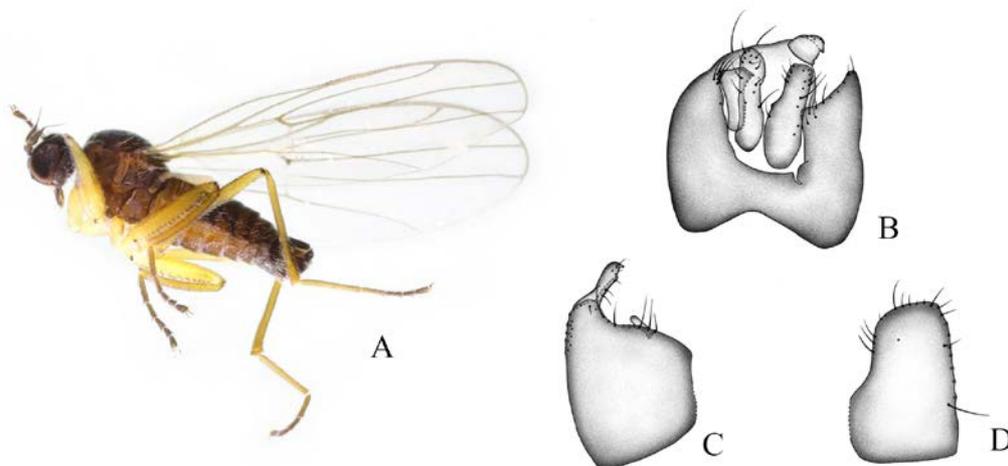


Figure 1. *Platypalpus breviarista* sp. nov. A. Male habitus, lateral view; B. Male genitalia, dorsal view; C. Right epandrial lamella; D. Left epandrial lamella.

2. *Platypalpus minor* sp. nov. (Fig. 2)

Description. Male. Body length 2.6–2.7 mm, wing length 4.8–4.9 mm.

Head black with somewhat dense pale gray pollen; clypeus shiny. Eyes dark brown, separated, face distinctly narrower than frons. Hairs on head dark yellow, bristles dark brown. Ocellar tubercle with 2 very long oc and 2 very short posterior hairs; 2 very long vt, somewhat curved inward, nearly as long as oc. Antenna blackish; scape without dorsal bristles; pedicel with circle of blackish apical hairs; first flagellomere rather short, 1.7 times longer than wide, distinctly brown pubescent; arista 3.3 times longer than first flagellomere, dark brown, very short brown pubescent. Proboscis 0.6 times as long as height of head, brown, with few short brown hairs; palpus nearly oval, 1.2 times longer than wide, brownish yellow with brown hairs and 2 brownish apical bristles.

Thorax somewhat shiny black with thin pale gray pollen. Hairs on thorax dark yellow, bristles brownish; hairs on mesoscutum short, rather dense, acr and dc narrowly separated anteriorly; 1 long h, 2 very long npl, 1 long psa, 1 very long presc slightly longer than psa; scutellum with 2 pairs of sc (basal pair rather short). Legs brownish to brown except coxae and trochanters brownish yellow, fore femur dark brown and mid and hind femora blackish except extreme bases brownish yellow. Hairs and bristles on legs brown to dark brown except those on coxae dark yellow. Mid femur weakly thickened. Fore femur 1.4 times and mid femur 1.2 times as wide as hind femur. Mid femur with two rows of thick blackish ventral bristles somewhat long (pv slightly longer than av). Fore tibia weakly thickened. Mid tibia with row of dark brown short ventral bristles; apical spur very short, somewhat acute. Wing hyaline, indistinctly tinged brown; veins dark brown; R_{4+5} and M nearly parallel apically; crossveins r-m and m-m narrowly separated. Squama brownish yellow with dark yellow hairs. Halter dark yellow.

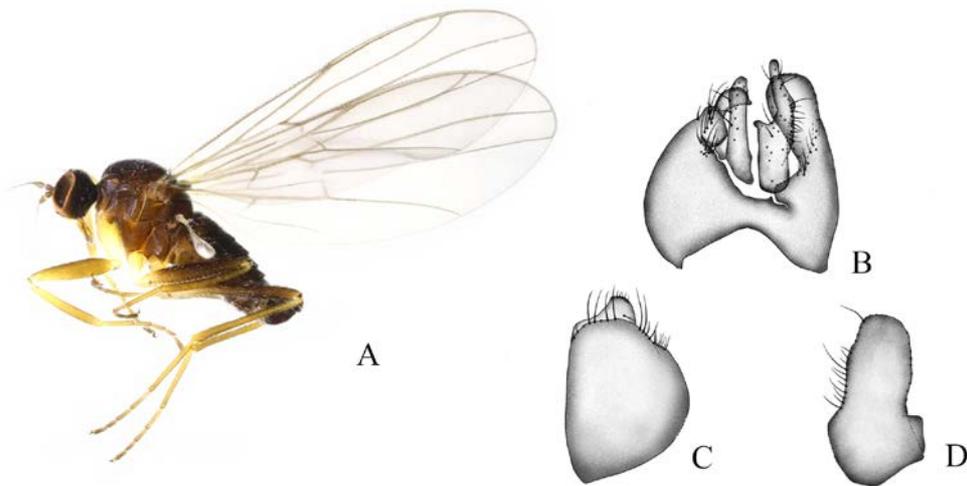


Figure 2. *Platypalpus minor* sp. nov. A. Male habitus, lateral view; B. Male genitalia, dorsal view; C. Right epandrial lamella; D. Left epandrial lamella.

Abdomen somewhat short, thick, nearly straight; subshiny blackish with thin pale gray pollen. Hypopygium somewhat swollen, nearly as thick as pregenital segments. Hairs and bristles on abdomen dark yellow.

Male genitalia. Left and right epandrial lamellae narrowly connected at base. Right epandrial lamella rather broad, slightly longer than wide; right surstylus very short and wide, apically narrowed and obtuse. Left epandrial lamella much longer than wide; left surstylus wide and obtuse apically. Right cercus straight, finger-like; left cercus thicker than right cercus, apically narrowed and weakly curved inward.

Female. Body length 2.7–2.8 mm; wing length 3.9–4.0 mm.

Holotype. ♂, China, Sichuan, Yading, Xiannairi, 4111 m, 17-VII-2020, Liang WANG (CAU). **Paratypes.** 1♂5♀, same data as holotype (CAU).

Remarks. This species is similar to *P. crassifemur* Li, Chang, Zhang & Yang, 2019 from Sichuan in the mid femur weakly thickened, but may be separated from the latter by all femora dark brown or blackish except extreme bases brownish yellow. In *P. crassifemur*, all femora are yellow except the fore femur with a small blackish dorsal spot at tip, mid femur with apical 3/5 brown and hind femur with apical 1/2 black (Li *et al.* 2019).

Etymology. This specific epithet refers to the minute apical spur of the mid tibia.

Diagnosis. First flagellomere rather short, 1.7 times longer than wide; arista much longer than first flagellomere. All femora dark brown or blackish except extreme bases brownish yellow. Mid femur weakly thickened. Apical spur of mid tibia very small, somewhat acute.

3. *Platypalpus yadinganus* sp. nov. (Fig. 3)

Description. Male. Body length 2.5–2.7 mm; wing length 4.3–4.6 mm.

Head black with somewhat dense pale gray pollen; clypeus shiny. Eyes dark brown, separated; face distinctly narrower than frons. Hairs on head dark yellow, bristles dark brown. Ocellar tubercle with 2 very long oc and 2 very short posterior hairs; 2 vt, somewhat curved inward, outer vt slightly short, inner vt nearly as long as oc. Antenna blackish; scape without

dorsal bristles; pedicel with circle of blackish apical hairs; first flagellomere rather short, 1.4 times longer than wide, distinctly brown pubescent; arista 3.6 times longer than first flagellomere, dark brown, very short brown pubescent. Proboscis 0.75 times as long as height of head, dark brown, with few short brown hairs; palpus long oval, 1.9 times longer than wide, brownish yellow with brown hairs and 2 brownish apical bristles.

Thorax somewhat shiny black with thin pale gray pollen. Hairs on thorax dark yellow, bristles brownish; hairs on mesoscutum short, rather dense, acr and dc narrowly separated anteriorly; 1 long weak h, 2 very long npl, 1 very long psa, 1 very long presc nearly as long as psa; scutellum with 2 pairs of sc (basal pair rather short). Legs brown, except coxae and trochanters dark yellow, extreme base of mid femur brownish yellow and basal 1/2 of hind femur yellow; tarsomeres 1–2 brownish. Hairs and bristles on legs brown to dark brown except those on coxae dark yellow. Fore femur distinctly and mid femur weakly thickened; fore femur 1.7 times and mid femur 1.35 times as wide as hind femur. Mid femur with two rows of thick blackish ventral bristles somewhat long (pv slightly longer than av). Fore tibia not thickened. Mid tibia with row of dark brown short ventral bristles; apical spur short acute, distinctly shorter than tibia thickness. Wing hyaline, indistinctly tinged brown; veins dark brown; R_{4+5} and M weakly convergent at extreme tip; crossveins r-m and m-m narrowly separated. Squama brownish yellow with dark yellow hairs. Halter dark yellow.

Abdomen somewhat short, thick, nearly straight, subshiny blackish with thin pale gray pollen. Hypopygium somewhat swollen, nearly as thick as pregenital segments. Hairs and bristles on abdomen dark yellow.

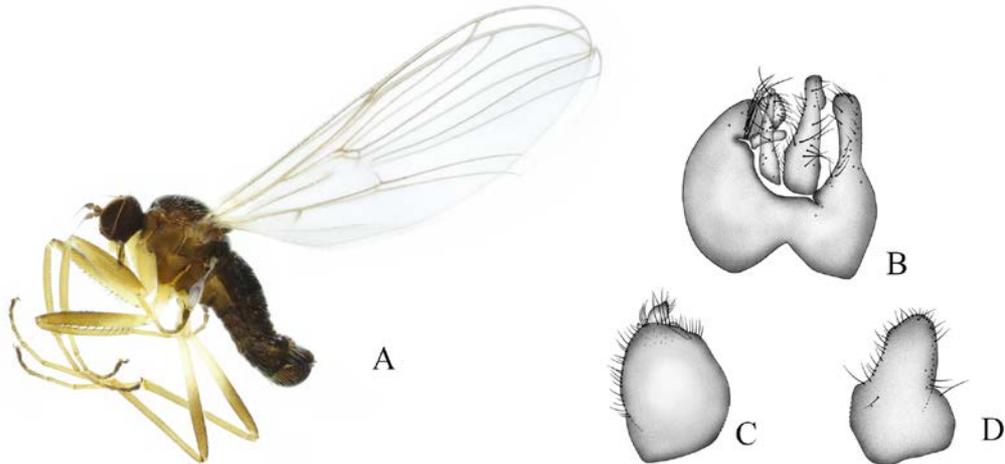


Figure 3. *Platypalpus yadinganus* sp. nov. A. Male habitus, lateral view; B. Male genitalia, dorsal view; C. Right epandrial lamella; D. Left epandrial lamella.

Male genitalia. Left and right epandrial lamellae rather widely connected at base. Right epandrial lamella somewhat broad, longer than wide; right surstylus very short and thick, apically narrowed. Left epandrial lamella longer than wide; left surstylus wide and obtuse apically. Right cercus nearly straight, finger-like; left cercus longer and thicker than right

cercus, apically obtuse.

Female. Unknown.

Holotype. ♂, China, Sichuan, Yading, Xiannairi, 4111 m, 17-VII-2020, Liang WANG (CAU). **Paratypes.** 2♂, same data as holotype (CAU).

Remarks. This species is somewhat similar to *P. crassifemur* Li, Chang, Zhang & Yang, 2019 from Sichuan in the mid femur weakly thickened, but may be separated from the latter by all femora brown except extreme base of mid femur brownish yellow and basal 1/2 of hind femur yellow. In *P. crassifemur*, all femora are yellow except the fore femur with a small blackish dorsal spot at tip, mid femur with apical 3/5 brown and hind femur with apical 1/2 black (Li *et al.* 2019).

Etymology. This specific epithet refers to the type locality Yading.

Diagnosis. First flagellomere rather short, 1.4 times longer than wide; arista much longer than first flagellomere. All femora brown except extreme base of mid femur brownish yellow and basal 1/2 of hind femur yellow. Mid femur weakly thickened, narrower than fore femur. Apical spur of mid tibia distinct, short acute.

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