

## New and little known species of Dolichopodidae (Diptera) from China (XII)

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### Abstract

Six species of Dolichopodidae from Southwest China are described as new to science: *Plagiozopelma defuense* sp. nov., *P. trifurcatum* sp. nov., *P. xishuangbannanum* sp. nov., *Ludovicus fanjingshanus* sp. nov., *Hercostomus (Hercostomus) gaoae* sp. nov., and *H. (H.) napoensis* sp. nov.

**Key words:** Dolichopodidae, new species, Southwest China

### Introduction

In the present paper, 6 species of Dolichopodidae from Yunnan, Guizhou and Guangxi of Southwest China are described as new to science. A key to the species of *Plagiozopelma* from China is given. The types are deposited in the Insect Collection of China Agricultural University (CAU) and the Institute of Zoology, Chinese Academy of Sciences (IZCAS).

#### Genus *Plagiozopelma* ENDERLEIN

The genus *Plagiozopelma* is characterized by the very long arista and fore coxa with strong anterior spines or bristles. Now 11 species are known from China. Three species are described as new to science. A key to the known species of *Plagiozopelma* from China is presented.

#### Key to species of *Plagiozopelma* from China

1. First flagellomere much elongated; arista without apical flag . . . . . 2  
– First flagellomere rather short; arista with apical flag . . . . . 6
2. Lateral scutellar bristle present . . . . . 3  
– Lateral scutellar bristle absent. Guangxi . . . . .  
. . . . . *satoi* YANG
3. Antenna yellow or dark brownish yellow . . . . . 4  
– Antenna blackish to black with dark yellow first flagellomere. Yunnan . . . . . *pubescens* YANG

4. Antenna yellow . . . . . 5  
– Antenna dark brownish yellow; wing weakly tinged with grayish; m-cu nearly straight. Guangxi . . . . .  
. . . . . *defuense* sp. nov.
5. Wing hyaline; m-cu nearly straight. Hubei, Zhejiang, Taiwan . . . . . *elongatum* (BECKER)  
– Wing with brown clouding antero-apically; m-cu sinuous. Yunnan . . . . . *magniflavum* BICKEL et WEI
6. Arista without ovate node at 2/3 . . . . . 7  
– Arista with white ovate node at 2/3 and apical flag which are white on apical half. Yunnan . . . . .  
. . . . . *medivittatum* BICKEL et WEI
7. Arista with black apical flag pale at base; lateral scutellar bristle absent . . . . . 8  
– Arista with white apical flag . . . . . 9
8. All coxae yellow. Yunnan . . . . . *flavipodex* (BECKER)  
– Fore coxa yellow, mid and hind coxae black. Yunnan . . . . .  
. . . . . *luchunanum* YANG et SAIGUSA
9. Wing hyaline, slightly tinged with yellow or brownish yellow . . . . . 10  
– Wing dark brown with posterior margin somewhat pale; all coxae black; fore coxa with 3 black bristles. Yunnan . . . . . *xishuangbannaum* sp. nov.
10. All coxae yellow; fore coxa with 4-5 spines. Taiwan . . . . . *apicatum* (BECKER)  
– Fore coxa yellow, mid and hind coxae brownish; fore coxa with 3 spines. Yunnan . . . . . *trifurcatum* sp. nov.

#### 1. *Plagiozopelma defuense* sp. nov. (Fig. 1)

**Diagnosis.** Antenna dark brownish yellow; first flagellomere much elongated, 5.0 times longer than wide. Fore coxa with outer row of 9 strong spines and inner row of 10 weak spines.

**Male.** Body length 5.0 mm, wing length 5.2 mm.

Head metallic green with pale gray pollen; vertex distinctly excavated. Hairs and bristles on head black, but postero-ventral surface with pale hairs; frons with 1 short hair anteriorly, and 1 long bristle and 2 hairs posteriorly on postero-lateral slope, ocellar tubercle with 2 very

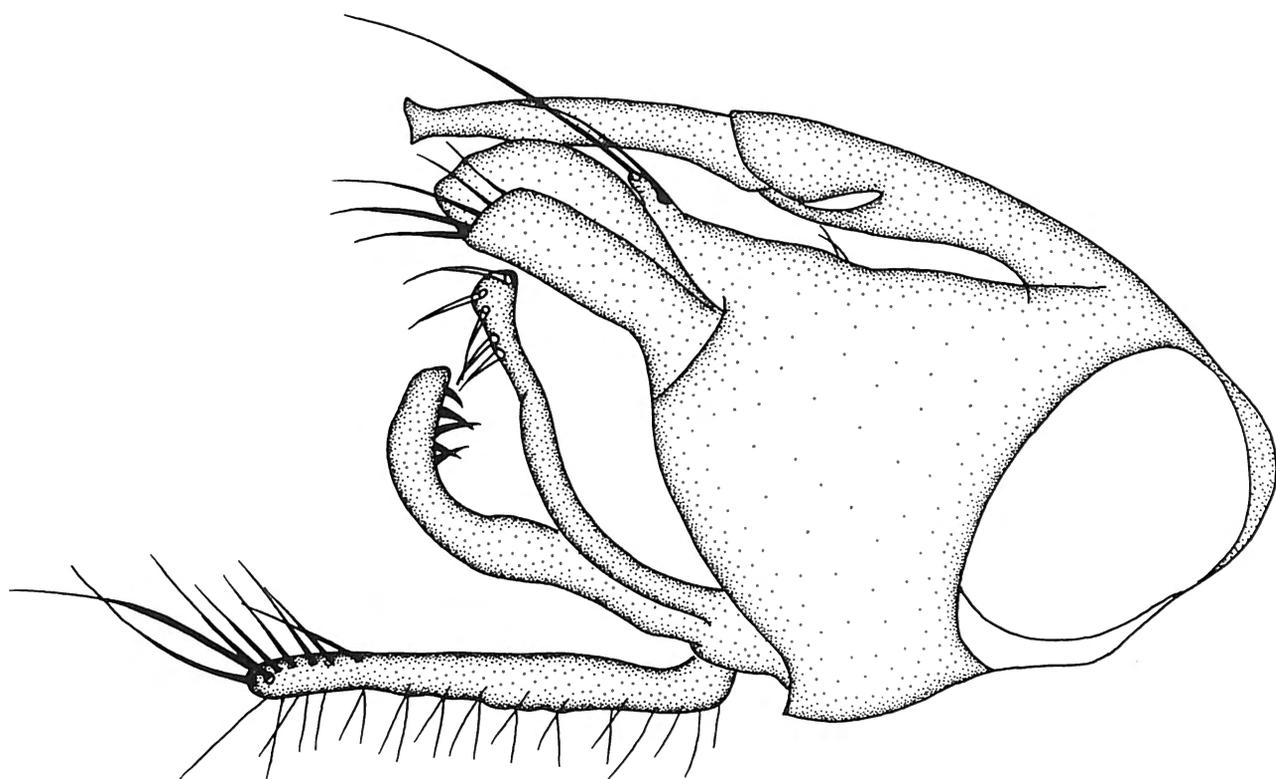


Fig. 1 — *Plagiozopelma defuense* sp. nov., male genitalia, lateral view.

short posterior hairs. Antenna dark brownish yellow; first flagellomere much elongated, 5.0 times longer than wide; arista apical, blackish. Proboscis dark yellow with black hairs; palpus black with pale hairs and 2 black bristles.

Thorax metallic green, and with pale gray pollen. Hairs and bristles on thorax black; 2 strong posterior dc; 3 irregularly paired acr rather long; lateral scutellar bristle very short and pale. Legs yellow; coxae yellow, mid coxa with a short black stripe; fore tarsomere 5 and mid and hind tarsomeres 2-5 dark brown. Hairs and bristles on legs black; coxae with pale hairs; fore coxa with outer row of 9 strong spines and inner row of 10 weak spines, which are brownish yellow; fore and hind femora with pale ventral hairs basally. Fore tibia without distinct d; mid tibia with 1 short ad; hind tibia with 6 short d, 4 very short av and 6 pv. Relative lengths of tibia and 5 tarsomeres LI 3.45 : 3.1 : 1.1 : 1.0 : 0.8 : 0.45; LII 5.1 : 4.1 : 1.4 : 0.9 : 0.5 : 0.3; LIII 6.7 : 3.1 : 1.6 : 0.9 : 0.5 : 0.3. Wing weakly tinged with grayish; veins dark brown, crossvein m-cu nearly straight. Squama brownish yellow with brown hairs. Halter dark yellow with brownish yellow knob.

Abdomen metallic green with pale gray pollen; terga 2-6 with gray brown pollen basally. Hairs and bristles on abdomen black. Male genitalia (Fig. 1): Epandrium somewhat narrow apically, its surstylus moderately long and concave medially with a short projectin at base; cercus deeply trifurcated; hypandrium with thin lateral

arm somewhat curved and partly visible in lateral view; aedeagus somewhat thick, and nearly truncate apically.

*Female.* Unknown.

*Holotype* male, Guangxi: Napo, Defu (1350 m), 2000. VI. 21, Jian Yao. (IZCAS)

*Distribution.* China (Guangxi).

*Etymology.* The species is named after the type locality Defu.

*Remarks.* The new species is somewhat similar to *Plagiozopelma satoi* YANG from Guangxi in the shape of cercus, but may be separated from the latter by the presence of a very short, pale lateral scutellar bristle. In *satoi*, the lateral scutellar bristle is absent (YANG, 1995).

## 2. *Plagiozopelma trifurcatum* sp. nov. (Fig. 2)

*Diagnosis.* Antenna yellow; arista with very narrow and white apical flag. Fore coxa with 3 yellow spines.

*Male.* Body length 6.0 mm, wing length 6.6 mm.

Head metallic green with pale gray pollen; frons po-

lished without pollen; vertex distinctly excavated. Hairs and bristles on head black, but postero-ventral surface with pale hairs; frons with 1 black strong bristle and 3-4 pale hairs on postero-lateral slope, ocellar tubercle with 4 very short posterior hairs. Antenna yellow; first flagellomere short and subconical, 1.5 times longer than wide; arista apical, brownish, with apical flag very narrow and white. Proboscis yellow with pale hairs; palpus yellow with pale hairs.

Thorax brownish, slightly tinged with metallic green, and with pale gray pollen. Hairs and bristles on thorax black; 2 strong posterior dc; 2-3 irregularly paired acr rather long; lateral scutellar bristle pale and hair-like. Legs yellow; fore coxa yellow, mid and hind coxae brownish; fore and mid tarsi from tip of tarsomere 1 onward brown to dark brown, entire hind tarsus dark brown. Hairs and bristles on legs black; coxae with pale hairs, fore coxa with 3 yellow spines; femora with pale ventral hairs. Fore tibia with 1 ad; mid tibia with 4 ad, 1 pd and 2 av; hind tibia with 1 ad and 3-4 pd. Relative lengths of tibia and 5 tarsomeres LI 4.6 : 3.1 : 1.3 : 1.0 : 0.4 : 0.3; LII 7.5 : 5.0 : 2.0 : 1.4 : 0.7 : 0.3; LIII 9.0 : 3.9 : 2.2 : 1.7 : 0.9 : 0.35. Wing hyaline, slightly tinged with brownish yellow; veins brown, crossvein m-cu nearly

straight. Squama yellow with pale hairs. Halter yellow.

Abdomen brownish, slightly tinged with metallic green, and with pale gray pollen. Hairs and bristles on abdomen chiefly black. Male genitalia (Fig. 2): Epanthrium somewhat narrow apically, its surstylus long and concave medially with a short projection at base; cercus trifurcated; hypandrium with a long lateral arm (which is somewhat thick apically); aedeagus somewhat thick.

*Female.* Unknown.

*Holotype* male, Yunnan: Xishuangbanna (620-650 m), 1959. V. 2, Yingran Zhang. (CAU)

*Distribution.* China (Yunnan).

*Etymology.* The specific name refers to the trifurcated cercus.

*Remarks.* The new species is similar to *Plagiozopelma apicatum* (BECKER) from Taiwan, but may be separated from the latter by the brownish mid and hind coxae, and fore coxa bearing 3 spines. In *apicatum*, all coxae are yellow, and fore coxa has 4-5 spines (BECKER, 1922).

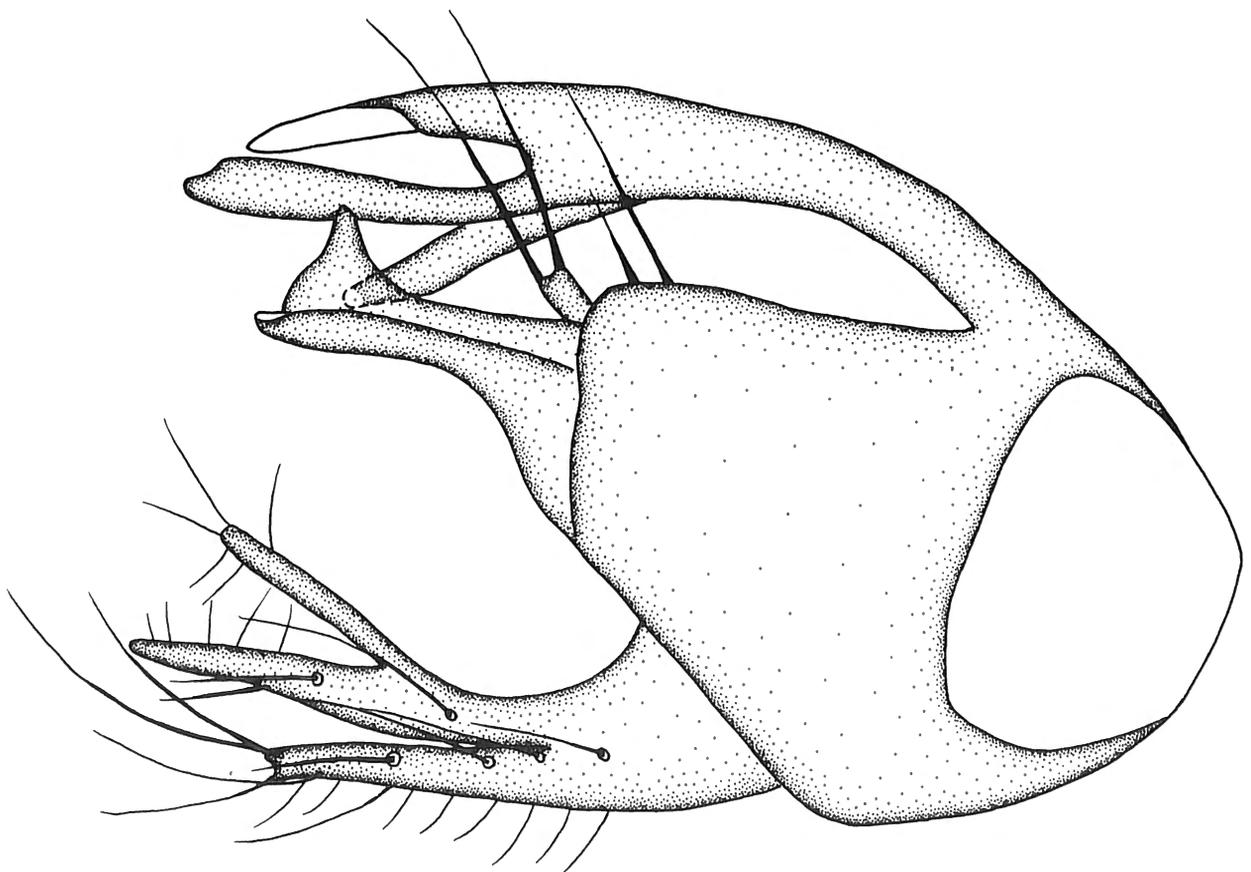


Fig. 2 — *Plagiozopelma trifurcatum* sp. nov., male genitalia, lateral view.

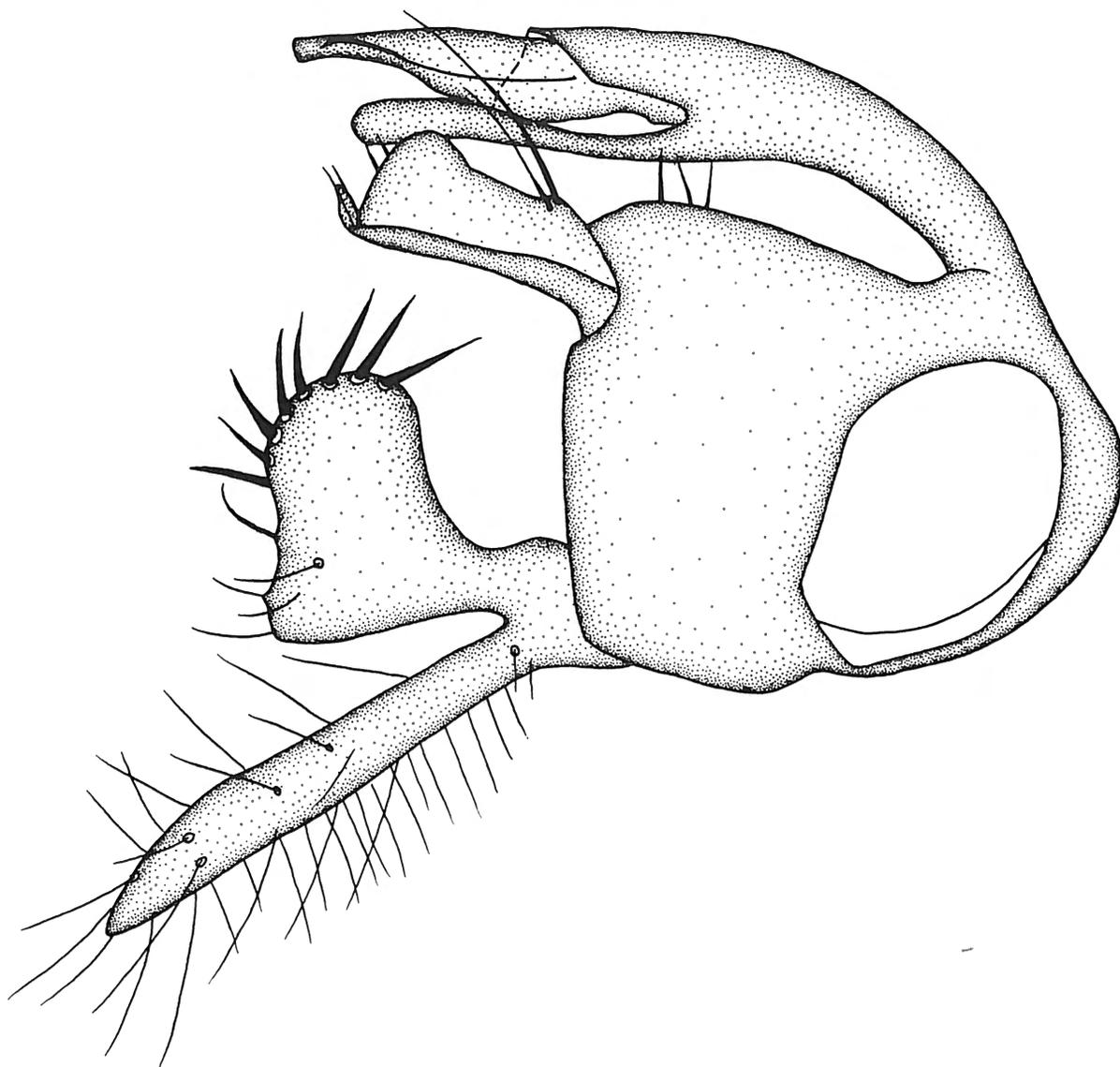


Fig. 3 — *Plagiozopelma xishuangbannanum* sp. nov., male genitalia, lateral view.

### 3. *Plagiozopelma xishuangbannanum* sp. nov.

(Fig. 3)

**Diagnosis.** Antenna black; arista with very narrow and white apical flag. All coxae black. Fore coxa with 3 black bristles. Wing dark grayish brown with posterior margin somewhat pale. Halter black. Male cercus furcated into long straight dorsal arm and short quadrate ventral arm.

**Male.** Body length 3.6 mm, wing length 5.2 mm.

Head metallic green with pale gray pollen; frons subshiny; vertex distinctly excavated. Hairs and bristles on head black, but postero-ventral surface with pale hairs; frons with 3 bristle-like hairs on postero-lateral slope, ocellar tubercle with 2 very short posterior hairs. Antenna black; first flagellomere short and subconical, as long as wide; arista apical, very long, with apical flag very narrow and white. Proboscis black with black hairs; palpus black with black and pale hairs.

Thorax metallic green, with pale gray pollen. Hairs and

bristles black; 2 strong posterior dc; 3 irregularly paired ac somewhat long; lateral scutellar bristle short and hair-like. Legs black; all coxae black; apices of fore and mid femora, fore and mid tibiae (except extreme bases) yellow; fore tarsus brownish yellow with darker dorsal surface. Hairs and bristles on legs black; coxae with partly pale hairs, fore coxa with 3 black bristles; fore femur with long pale ventral hairs, mid femur with long and chiefly black ventral hairs, which are partly bristle-like. Fore tibia with 1 ad; mid tibia with 1 ad and 3 pd; hind tibia with 3-4 d. Relative lengths of tibia and 5 tarsomeres LI 3.9 : 2.1 : 0.9 : 0.6 : 0.4 : 0.2; LII 6.0 : 3.8 : 1.4 : 0.8 : 0.4 : 0.2; LIII 7.3 : 2.9 : 1.6 : ? : ? : ?. Wing dark grayish brown with posterior margin somewhat pale; veins dark brown, crossvein m-cu slightly bent. Squama dark brown with black hairs. Halter black.

Abdomen metallic green with pale gray pollen. Hairs and bristles on abdomen chiefly black. Male genitalia (Fig. 3): Epandrium rather wide apically, its surstylus moderately long and concave medially; cercus furcated

into a long straight dorsal arm and nearly quadrate ventral arm; hypandrium with a long lateral arm; aedeagus rather thick with narrow tip.

*Female.* Unknown.

*Holotype* male, Yunnan: Xishuangbanna (650 m), 1958. VIII. 1, Leyi Zheng. (CAU)

*Distribution.* China (Yunnan).

*Etymology.* The species is named after the type locality Xishuangbanna.

*Remarks.* The new species is peculiar. It is easily separated from other known species of the genus from China by the dark grayish brown wing and shape of cercus.

#### Genus *Ludovicicus* Rondani

The genus *Ludovicicus* is characterized by the well developed scape and reduced pedicel in male. It is highly diversified in China with 21 known species (YANG & SAIGUSA, 2001). It is newly recorded from Guizhou with 1 new species.

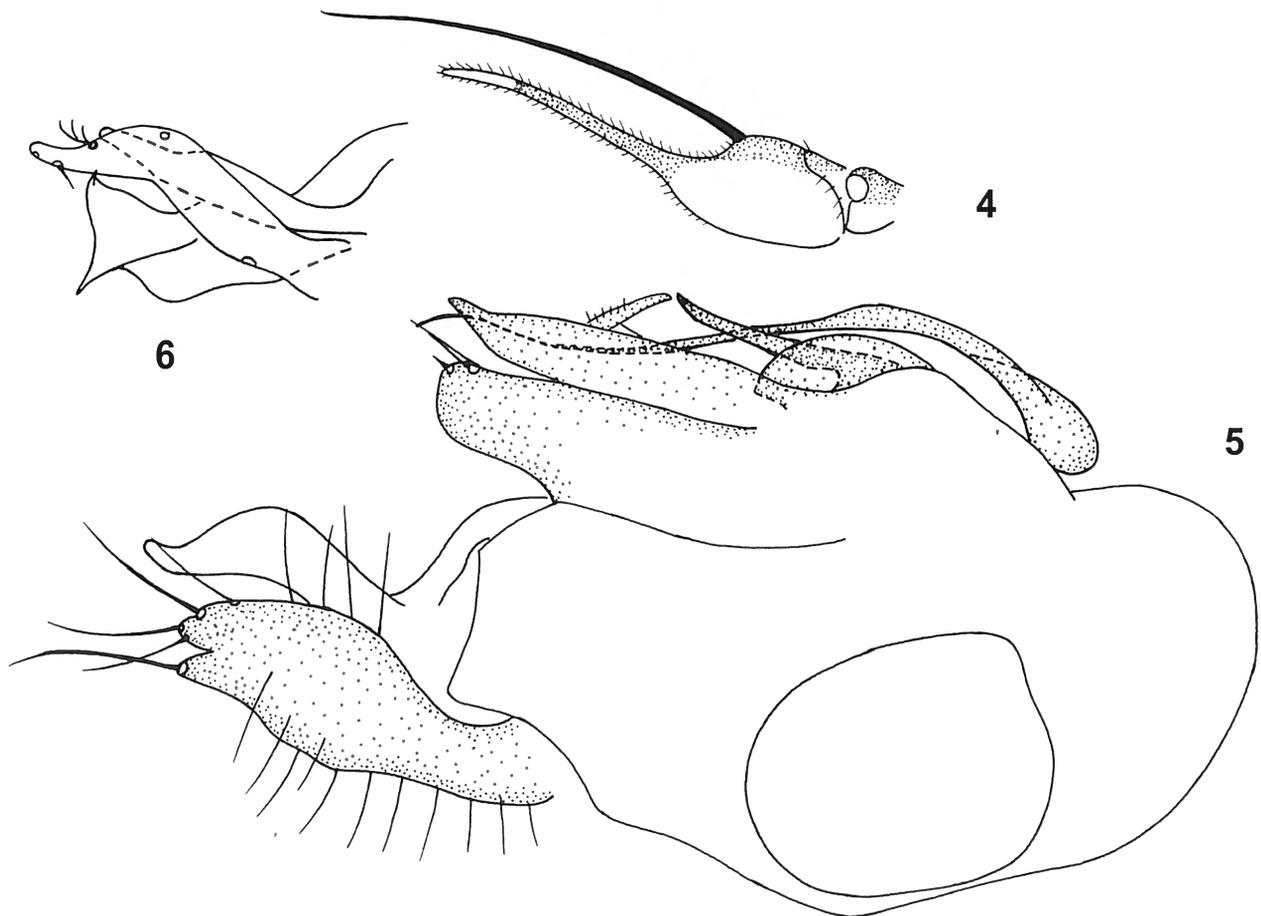
#### 4. *Ludovicicus fanjingshanus* sp. nov. (Figs. 4-6)

*Diagnosis.* First flagellomere much elongated, 3.6 times longer than wide, with long finger-like apical portion which is black with white tip; arista dorsal. Metapleuron yellow.

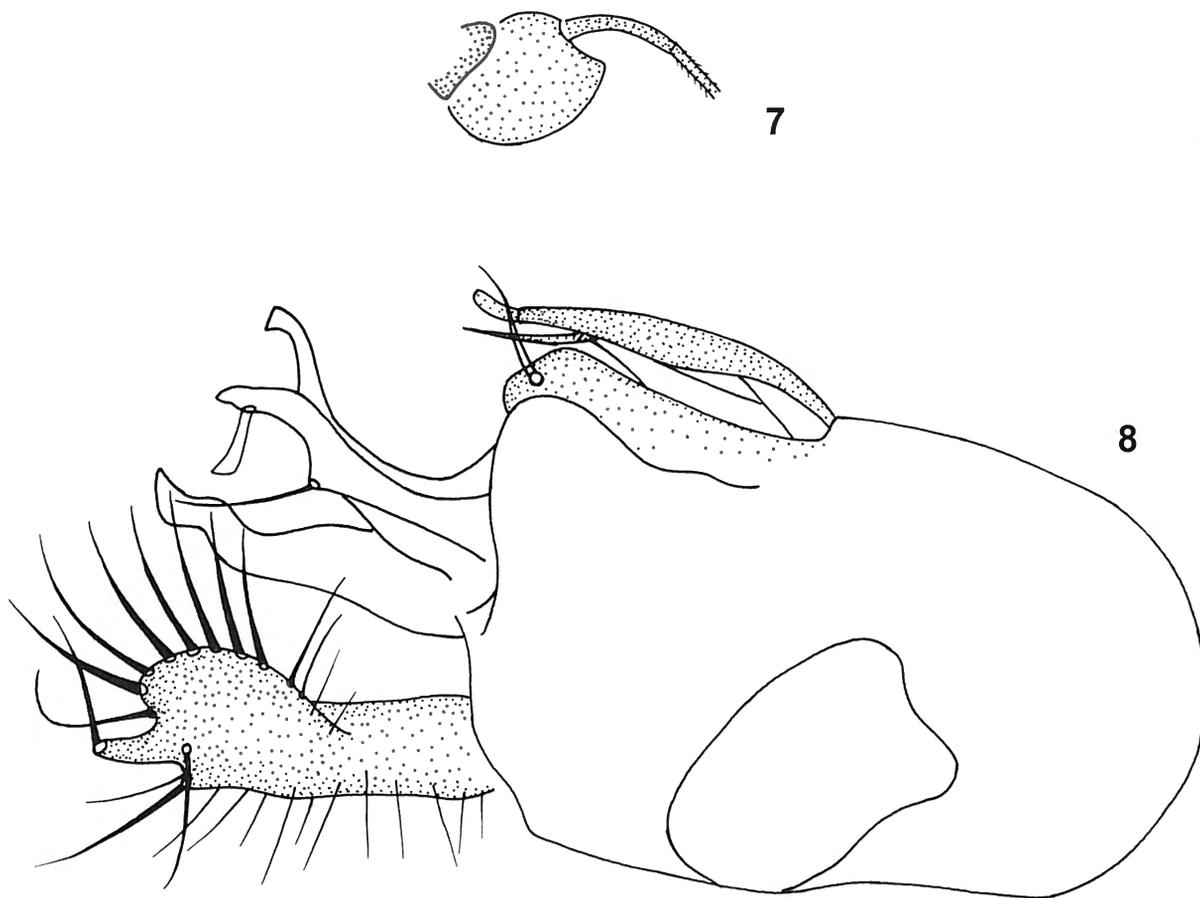
*Male.* Body length 5.6 mm, wing length 5.6 mm.

Head metallic green with pale gray pollen; face slightly narrower than first flagellomere. Hairs and bristles on head black; postocular bristles (including ventral hairs) black. Antenna yellow; scape and pedicel black dorsally; first flagellomere black dorsally, much elongated, 3.6 times longer than wide, with long finger-like apical portion which is black with white tip; arista dorsal, black, bare. Proboscis blackish with black hairs; palpus blackish with black hairs and 1 black apical bristle.

Thorax metallic green with pale gray pollen; metapleuron yellow. Hairs and bristles on thorax black; 6 strong dc, acr absent. Legs yellow; coxae yellow, mid coxa with a black stripe; tarsi from tip of tarsomere 1 onward dark brown. Hairs and bristles on legs black; mid and hind coxae with 1 outer bristle; mid and hind femora with 1 preapical bristle. Fore tibia



Figs. 4-6 — *Ludovicicus fanjingshanus* sp. nov., male. 4. antenna, lateral view; 5. genitalia, lateral view; 6. apical genital processes, lateral view.



Figs. 7-8 — *Hercostomus (Hercostomus) gaoae* sp. nov., male. 7. antenna (excluding scape), lateral view; 8. genitalia, lateral view; 6. apical genital processes, lateral view.

with 2 pd, apically with 2 bristles; mid tibia with 3 ad, 2 pd and 1 pv, apically with 5 bristles; hind tibia with 2 ad, 4 pd and 4 weak av, apically with 3 bristles. Mid tarsomere 1 with 3 av and 2 pv; hind tarsomere 1 with 2 v. Relative lengths of tibia and 5 tarsomeres LI 1.65 : 1.0 : 0.5 : 0.45 : 0.4 : 0.15; LII 2.7 : 1.5 : 0.7 : 0.6 : 0.45 : 0.2; LIII 3.1 : 0.9 : 1.0 : 0.6 : 0.45 : 0.2. Wing weakly tinged with grayish; veins dark brown, R4+5 and M convergent apically; CuAx ratio 0.4. Squama yellow with black hairs. Halter yellow.

Abdomen metallic green with pale gray pollen. Hairs and bristles on abdomen black. Male genitalia (Figs. 5-6): Epandrium with thick lateral lobe obtuse apically; cercus band-like, weakly incised apically; hypandrium irregularly branched.

*Female.* Unknown.

*Holotype* male, Guizhou: Fanjingshan Mountain, Huixiangping (1800 m), 2002. VI. 1, Ding YANG. (CAU)

*Distribution.* China (Guizhou).

*Etymology.* The specific name refers to the type locality Fanjingshan Mountain.

*Remarks.* The new species is somewhat similar to *Ludovicus biaristatus* YANG from Shaanxi and Henan in the shape of the first flagellomere, but may be separated from the latter by having the thorax except metapleuron and abdomen wholly metallic green. In *biaristatus*, the thorax and abdomen are partly yellow (YANG, 1999).

#### Genus *Hercostomus* LOEW

Two new species of the *Hercostomus* are described here from Guizhou and Guangxi.

#### 5. *Hercostomus (Hercostomus) gaoae* sp. nov. (Figs. 7-8)

*Diagnosis.* Belonging to *digitatus*-group. First flagellomere rather short (1.2 times longer than wide) and obtuse apically; arista subapical. Wing distinctly tinged with gray. Lateral lobe on epandrium not distinctly projected.

*Male.* Body length 5.2 mm, wing length 6.0 mm.

Head metallic green with pale gray pollen; face slightly narrower than first flagellomere. Hairs and bristles on

head black; postocular bristles (including ventral hairs) black. Antenna [arista broken apically] wholly black; first flagellomere rather short, 1.2 times longer than wide, obtuse apically; arista subapical, black, with very short hairs. Proboscis brown with black hairs; palpus black with black hairs and 1 black apical bristle.

Thorax metallic green with pale gray pollen. Hairs and bristles on thorax black; 6 strong dc, 7 irregularly paired acr short and hair-like. Legs yellow; fore coxae yellow, mid and hind coxae (except narrow apex) black; fore and mid tarsi from apex of tarsomere 1 onward dark brown; hind tibia with blackish apex, hind tarsus entirely black. Hairs and bristles on legs black; mid and hind coxae with 1 outer bristle; mid and hind femora with 1 preapical bristle. Fore tibia with 1 ad and 2 pd, apically with 2 bristles; mid tibia with 3 ad, 2 pd and 2 long av, apically with 5 bristles; hind tibia with 3 ad, 4 pd and 3 short av, apically with 2 bristles. Hind tarsomere 1 with 1 v at base. Relative lengths of tibia and 5 tarsomeres LI 2.1 : 1.0 : 0.55 : 0.45 : 0.3 : 0.3; LII 2.9 : 1.4 : 0.8 : 0.6 : 0.45 : 0.4; LIII 3.2 : 1.0 : 1.2 : 0.8 : 0.6 : 0.45. Wing distinctly tinged with gray; veins dark brown, R4+5 weakly curved backward, M slightly bent, R4+5 and M strongly convergent apically; CuAx ratio 0.7. Squama

yellow with black hairs. Halter yellow.

Abdomen metallic green with pale gray pollen. Hairs and bristles on abdomen black. Male genitalia (Fig. 8): Epandrium with obtuse lateral lobe not distinctly projected; cercus with a finger-like apical projection, and with thick marginal bristles; hypandrium rather narrow.

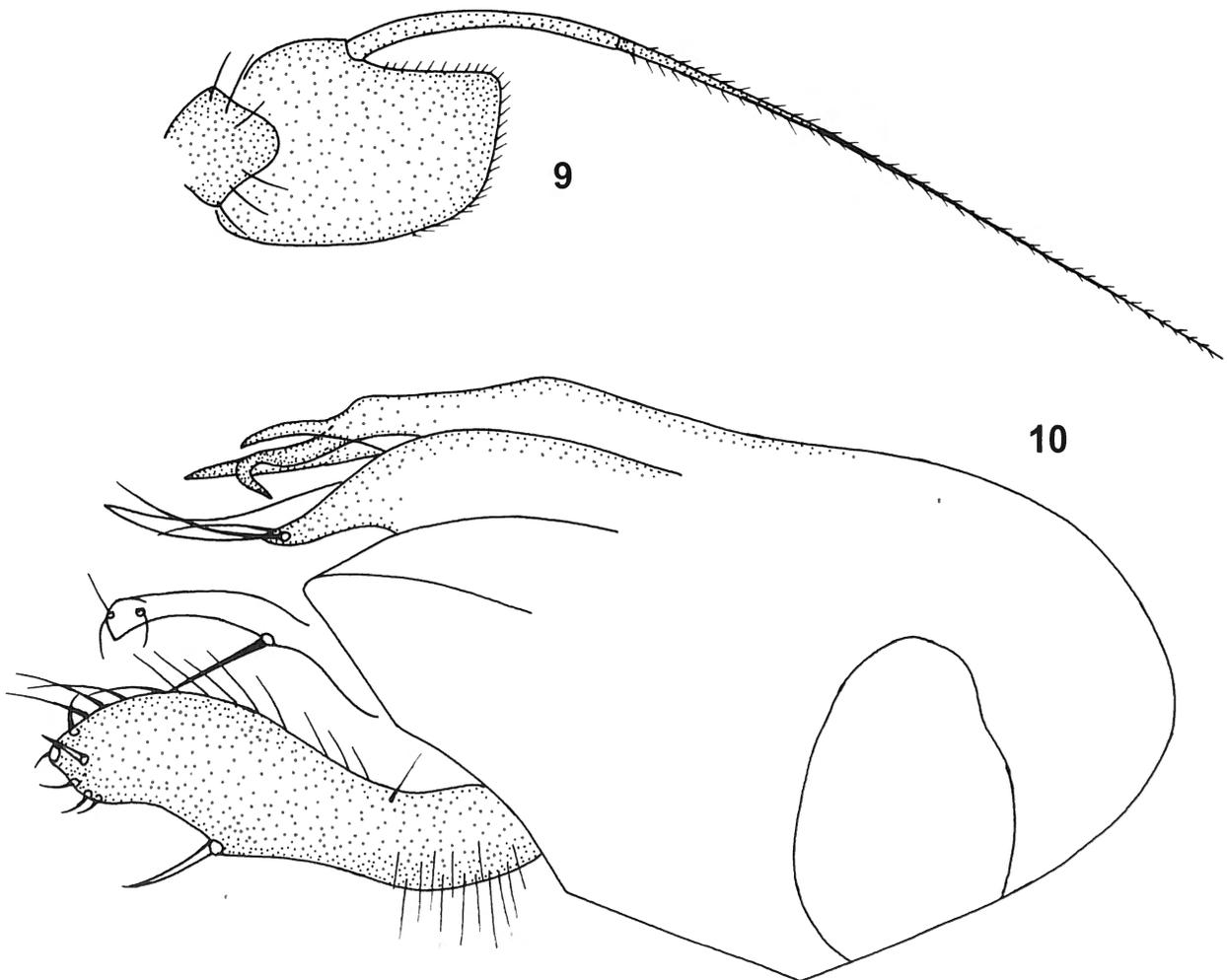
*Female.* Unknown.

*Holotype* male, Guizhou: Fanjingshan Mountain (900 m), 2001. VIII. 3, Caixia GAO. (CAU)

*Distribution.* China (Guizhou).

*Etymology.* The species is named after Ms. Caixia GAO.

*Remarks.* The new species is very similar to *Hercostomus (Hercostomus) jingdinganus* YANG et SAIGUSA from Sichuan, but may be separated from the latter by having the wing distinctly tinged with gray, and the lateral lobe on epandrium rather wide apically. In *jingdinganus*, the wing is hyaline and slightly tinged with grayish, and the lateral lobe on epandrium is narrow apically (YANG & SAIGUSA, 2000).



Figs. 9-10 — *Hercostomus (Hercostomus) napoensis* sp. nov., male. 9. antenna (excluding scape), lateral view; 10. genitalia, lateral view.

6. *Hercostomus (Hercostomus) napoensis* sp. nov.  
(Figs. 9-10)

*Diagnosis.* Belonging to *flavimaculatus*-group. Thorax and abdomen partly dark yellow. First flagellomere somewhat quadrate, 1.35 times longer than wide, and obtuse apically; arista dorsal. Lateral lobe on epandrium somewhat acute and slightly curved.

*Male.* Body length 3.3 mm, wing length 5.5 mm.

Head metallic green with pale gray pollen; face distinctly narrower than first flagellomere. Hairs and bristles on head black; postocular bristles (including ventral hairs) black. Antenna wholly black; first flagellomere somewhat quadrate, 1.35 times longer than wide, obtuse apically; arista dorsal, black, very short pubescent, with basal segment 0.35 times as long as apical segment. Proboscis yellow with black hairs; palpus yellow with black hairs and 1 black apical bristle.

Thorax metallic green with pale gray pollen; anterior and lateral portions of mesonotum brownish; pleuron dark yellow except pteropleuron tinged with black. Hairs and bristles on thorax black; 6 strong dc, 5-6 irregularly paired acr short and hair-like. Legs yellow; coxae yellow; fore and mid tarsi from tip of tarsomere 1 onward brown to dark brown; hind tarsus dark brown except tarsomere 1 brown. Hairs and bristles on legs black; mid and hind coxae with 1 outer bristle; mid and hind femora with 1 preapical bristle. Fore tibia with 1 ad and 2 pd, apically with 2 bristles; mid tibia with 3 ad, 2 pd and 1 pv, apically with 4 bristles; hind tibia with 3 ad, 3 pd and 3-4 av, apically with 3 bristles. Hind tarsomere 1 with 1 v at base. Relative lengths of tibia and 5 tarsomeres LI 2.15 : 1.1 : 0.6 : 0.55 : 0.45 : 0.3; LII 3.1 : 1.5 : 0.95 : 0.75 : 0.55 : 0.4; LIII 3.55 : 1.1 : 1.3 : 0.9 : 0.6 : 0.45. Wing weakly tinged with gray; veins

brown, R4+5 and M distinctly convergent apically; CuAx ratio 0.4. Squama brown with black hairs. Halter brownish yellow.

Abdomen metallic green with pale gray pollen, from segment 7 onward dark yellow, terga 1-2 dark yellow laterally; hypopygium chiefly yellow. Hairs and bristles on abdomen black. Male genitalia (Fig. 10): Epandrium with distinct lateral lobe somewhat acute and slightly curved apically; cercus band-like with oblique outer margin slightly incised; hypandrium irregularly furcated.

*Female.* Unknown.

*Holotype* male, Guangxi: Napo, Defu (1350 m), 2000. VI. 18, Wenzhu LI. (IZCAS)

*Distribution.* China (Guangxi).

*Etymology.* The species is named after the type locality Napo.

*Remarks.* The new species is very similar to *Hercostomus (Hercostomus) polleti* YANG et SAIGUSA from Sichuan in having the postocular bristles wholly black, but may be separated from the latter by having the first flagellomere obtuse apically and cercus with somewhat acute tip. In *polleti*, the first flagellomere is somewhat acute apically, and the cercus is wide at tip (YANG & SAIGUSA, 1999).

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