

New and little known species of Dolichopodidae from China (VI): Diptera from Emei Mountain (1)

by Ding YANG and Toyohei SAIGUSA

Abstract

In the present paper, 20 species of the family Dolichopodidae from Emei Mountain of Sichuan are described as new to science: *Ludovicus biniger*, *L. longaristatus*, *Paraclius emeiensis*, *Phalacrotophila sichuanense*, *Hercostomus (Gymnopternus) petilus*, *Hercostomus (Hercostomus) acutangulus*, *H. (H.) bispinifer*, *H. (H.) concavus*, *H. (H.) curvatus*, *H. (H.) curvispinosus*, *H. (H.) dissectus*, *H. (H.) dissimilis*, *H. (H.) lateralis*, *H. (H.) polleti*, *H. (H.) rotundatus*, *H. (H.) serratus*, *H. (H.) ventralis*, *Rhaphium apicinigrum*, *R. sichuanense*, *Syntormon emeiensis*.

Key words: Dolichopodidae, new species, Emei Mountain, Sichuan

Introduction

Emei Mountain is famous for its insect diversity. But the species of the family Dolichopodidae from the region were poorly studied, with only 5 known species: *Hercostomus (Hercostomus) nudus* YANG, 1996; *Hercostomus (H.) emeiensis* YANG, 1997; *Ludovicus emeishanus* YANG, 1998; *Condyllostylus geniculatus* YANG, 1998; *Diostracus emeiensis* YANG, 1998. This paper lists 41 species of Dolichopodidae known from Emei Mountain, mainly based on the specimens collected by the authors with sweep nets in August, 1998. The 41 species belong to the following genera: *Ludovicus* (3 species), *Paraclius* (2), *Phalacrotophila* (1), *Polymedon* (1), *Dolichopus* (1), *Hercostomus (Gymnopternus)* (2), *Hercostomus (Hercostomus)* (24), *Condyllostylus* (1), *Rhaphium* (2), *Syntormon* (1), *Diostracus* (2), *Liancalus* (1). 20 species are described as new to science. The types of the new species are mainly deposited in the Insect Collection of China Agricultural University (CAU) except some paratypes kept in the Institut Royal des Sciences Naturelles de Belgique (IRSN).

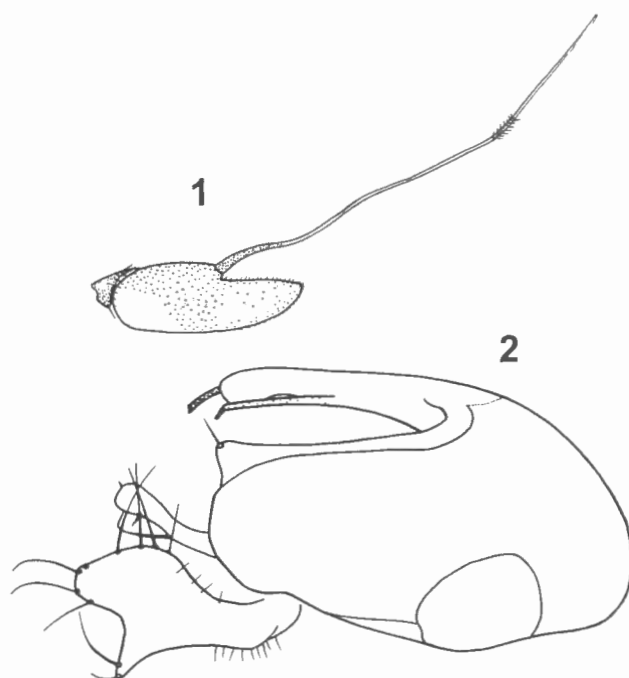
1. *Ludovicus biniger* sp. nov. (Figs. 1-2)

Diagnosis. First flagellomere distinctly elongated, somewhat acute apically; arista subapical, pale, with two blackish or black sections.

Male. Body length 3.2 mm, wing length 3.3 mm.

Head metallic green, with pale gray pollen. Face narrower than first flagellomere. Hairs and bristles on head black; postocular bristles wholly black. Antenna (Fig. 1) black, first flagellomere with baso-ventral area dark yellow; first flagellomere 2.6 times longer than wide, somewhat acute apically; arista subapical, pale, with black section basally, and blackish section near apex (bearing short hairs). Proboscis blackish, and palpus black, with black hairs.

Thorax metallic green, with pale gray pollen; mesonotum with anterior part (including humeri) brownish yellow; pleura brownish yellow, metapleuron yellow, pteropleuron more or less black. Hairs and bristles on thorax black; 6 strong dc, 1 row of acr; propleuron with blackish hairs on upper part, pale hairs and 1 black bristle on lower part. Legs yellow; all coxae yellow; tarsi brownish to



Figs. 1-2 — *Ludovicus biniger* sp. nov., male. 1. antenna (excluding scape), lateral view; 2. genitalia, lateral view.

brown from tip of tarsomere 1 onward. Hairs and bristles on legs black. Hind femur with 1 very long v and 1 short v on basal 2/5. Fore tibia with 2 pd; mid tibia with 3 ad, 2 pd, 1 av and 1 pv; hind tibia with 2 ad, 4 pd and 3 av. Relative lengths of segments (excluding coxae, trochanters and femora) of legs: LI 3.7: 2.2: 1.2: 1.1: 0.7: 0.3; LII 6.4: 3.2: 1.8: 1.4: 1.0: 0.4; LIII 7.3: 1.8: 2.4: 1.4: 1.0: 0.4. Wing slightly tinged with gray; veins black; R4+5 and M weakly convergent apically, CuAx ratio 0.45. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; tergites 1-3 yellow. Hairs on abdomen black. Male genitalia (Fig. 2): Epandrium distinctly longer than wide, its lateral lobe narrow; cercus rather wide, with a distinct incision; hypandrium thick, with a slender lateral arm, curved apically.

Female. Unknown.

Holotype male. Sichuan: Emei Mountain, Linggongli (1300-1400 m), 1998. VIII. 17, Ding YANG. (CAU)

Distribution. China (Sichuan).

Etymology. This new species is named after its pale arista with two blackish or black sections.

Remarks. This new species is somewhat similar to *emeishanus* YANG from Sichuan, but may be separated from the latter by having proboscis and palpus blackish to black and cercus rather wide apically, with a distinct incision. In dorsalis, the proboscis and palpus are yellow; the cercus is narrowing obliquely (YANG, 1998b).

2. *Ludovicicus emeishanus* YANG

Ludovicicus emeishanus YANG, 1998, Bull. Inst. R. Sci. Nat. Belg. Ent. 68: 177. Type locality: Sichuan.

Distribution. China (Sichuan).

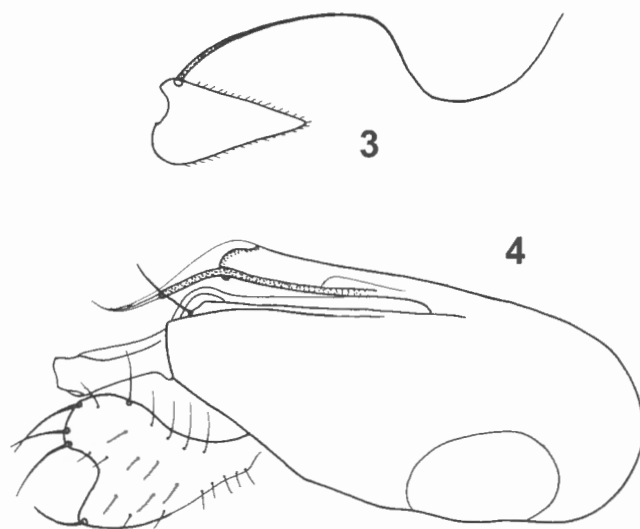
3. *Ludovicicus longaristatus* sp. nov. (Figs. 3-4)

Diagnosis. First flagellomere triangular with acute apex; arista dorsal.

Male. Body length 2.7 mm, wing length 3.1 mm.

Head metallic green, with pale gray pollen. Face narrower than first flagellomere. Hairs and bristles on head black; postocular bristles wholly black. Antenna (Fig. 3) black; first flagellomere yellow, triangular, with acute apex, 1.8 times longer than wide; arista dorsal and black. Proboscis and palpus black, with black hairs.

Thorax metallic green, with pale gray pollen. Hairs and bristles on thorax black; 6 strong dc (the most anterior one of which is short and somewhat thin), acr absent. Legs yellow; all coxae yellow; tarsomere 5 dark brown. Hairs and bristles on legs black. Hind femur with 2 yellow v.



Figs. 3-4 — *Ludovicicus longaristatus* sp. nov., male. 3. antenna (excluding scape and pedicel), lateral view; 4. genitalia, lateral view.

Fore tibia with 2 pd; mid tibia with 3 ad, 2 pd, 1 av and 1 pv; hind tibia with 2 ad, 4 pd and 2 av; hind tarsomere 1 with 3 v. Relative lengths of segments of legs LI 2.9: 1.5: 0.8: 0.8: 0.6: 0.4; LII 4.4: 2.4: 1.3: 1.0: 0.65: 0.4; LIII 5.2: 1.4: 1.9: 1.0: 0.7: 0.4. Wing hyaline; veins black; R4+5 and M convergent apically; CuAx ratio 0.45. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; hairs black. Male genitalia (Fig. 4): Epandrium distinctly longer than wide, its lateral lobe very narrow; cercus rather wide apically, with a distinct incision; hypandrium thick, with a slender lateral arm.

Female. Unknown.

Holotype male. Sichuan: Emei Mountain, Leidongping (2480 m), 1998. VIII. 8. (CAU)

Distribution. China (Sichuan).

Etymology. The new species is named after its longer arista.

Remarks. This new species is somewhat similar to *digitiformis* YANG, YANG et LI from Henan, but may be separated from the latter by having the first flagellomere yellow and triangular. In *digitiformis*, the first flagellomere is black and nearly quadrate with acute upper corner (YANG, YANG & LI, 1998).

4. *Paraclius acutatus* YANG et LI (Fig. 5)

Paraclius acutatus YANG et LI, 1998. In H. WU (ed.): Insects of Longwangshan Nature Reserve, p. 320. Type locality: Zhejiang.

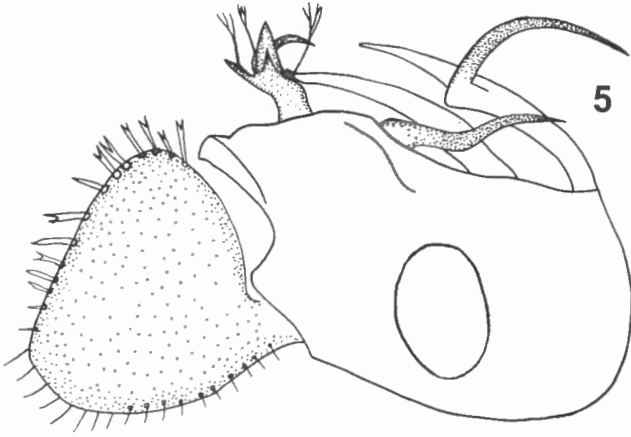


Fig. 5 — *Paraclius acutatus* YANG et LI. male genitalia, lateral view.

Specimens examined. 1 male, Sichuan: Emei Mountain, Jingshui (700-750 m), 1998. VIII. 7, Ding YANG; 3 males, Sichuan: Qingchen Mountain, Yuechenghu (900 m), 1998. VIII. 22, Ding YANG.

Distribution. China (Sichuan, Zhejiang, Henan).

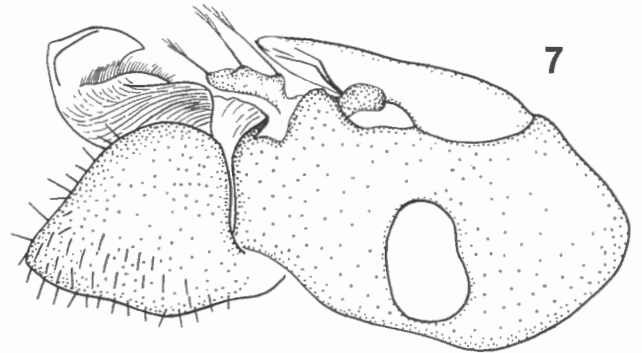
5. *Paraclius emeiensis* sp. nov.
(Figs. 6-7)

Diagnosis. Face distinctly narrower than first flagellomere. Fore and hind coxae yellow, mid coxa (except apex) blackish. Hind femur wholly yellow.

Male. Body length 4.6-4.7 mm, wing length 4.9-5.0 mm.

Head metallic green, with pale gray pollen; frons and face with white pollen; face distinctly narrower than first flagellomere. Hairs and bristles on head black; postocular bristles wholly black. Antenna (Fig. 6) wholly black; first flagellomere 1.2 times longer than wide, acute apically; arista black, with basal segment 0.35 times as long as apical segment. Proboscis blackish, and palpus black, with black hairs.

Thorax metallic green, with pale gray pollen. Hairs and bristles on thorax black; 6-9 irregularly paired ac, short and hair-like, 5 strong dc; scutellum with some pale marginal hairs. Mid-posterior margin of metapleuron with black hairs. Legs yellow; fore and hind coxae yellow, mid coxa (except apex) blackish; tarsi from tip of tarsomere 1 onward brown to dark brown. Hairs and bristles on legs black; fore tarsomeres 2-5 with dense thin hairs on ventral surface. Fore tibia with 3 ad and 2 pd, without av; mid tibia with 4 ad, 4 pd and 3-4 av; hind tibia with 4-5 ad, 5 pd and 6 av. Relative lengths of segments of legs L_I 5.0: 3.1: 1.1: 1.0: 0.6: 0.7; L_{II} 7.9: 3.9: 2.8: 2.1: 1.2: 0.8; L_{III} 9.3: 2.8: 3.7: 2.3: 1.3: 0.8. Wing slightly tinged with gray; veins black, M curved downward medially and then curved forward apically, convergent with R₄₊₅; CuA_x



Figs. 6-7 — *Paraclius emeiensis* sp. nov., male. 6. antenna, lateral view; 7. genitalia, lateral view.

ratio 1.1. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; hairs black. Male genitalia (Fig. 7): Epandrium distinctly longer than wide, with separated lateral lobe bearing 3 branched hairs; cercus very large and somewhat triangular, with some short hairs; hypandrium thick.

Female. Body length 4.3-4.7 mm, wing length 5.0-5.5 mm. Similar to male, but face slightly narrower than first flagellomere.

Holotype male, paratypes 4 males 3 females. Sichuan: Emei Mountain, Maziba-Linggongli (1100-1400 m), 1998. VIII. 16-17, Ding YANG. (CAU & IRSN)

Distribution. China (Sichuan).

Etymology. This new species is named after its type locality Emei Mountain.

Remarks. This species is similar to *acutatus* YANG et LI, but may be separated from the latter by having the hind femur wholly yellow. In *acutatus*, the hind femur is yellow with dorsal surface and apex black (YANG & LI, 1998).

6. *Phalacrosona sichuanense* sp. nov.
(Figs. 8-9)

Diagnosis. Legs with rather long claws; mid tarsomere 5 somewhat thickened; pulvilli on mid and hind legs reduced.

Male. Body length 5.7 mm, wing length 4.9 mm.

Head metallic green, with pale gray pollen; face dis-

tinctly wider than first flagellomere. Hairs and bristles on head black; middle and lower postocular bristles pale. Antenna (Fig. 8) entirely black; first flagellomere rather short, as long as wide, obtuse apically; arista black, bare, with very short basal segment. Proboscis and palpus black, with black hairs; palpus lobe-like.

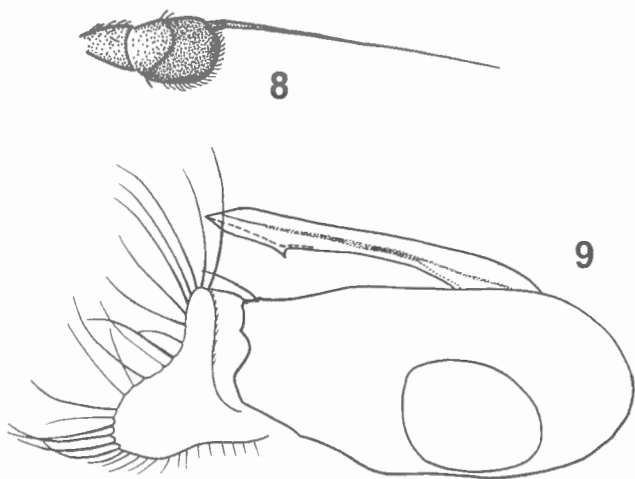
Thorax metallic green, with pale gray pollen. Hairs and bristles on thorax black; 5-6 irregularly paired acr, short and hair-like, 5 strong dc; scutellum without thin marginal hairs. Propleuron pale haired, with 1 black bristle on lower part. Legs yellow; coxae black, except fore coxa, that is brownish yellow on posterior surface; apex of hind tibia blackish; fore and mid tarsomere 5, and entire hind tarsus black. Legs with rather long claws; mid tarsomeres 2-4 thin, and tarsomere 5 somewhat thickened; mid and hind legs with reduced pulvilli. Hairs and bristles on legs black. Fore tibia with 2 ad, 2 pd and 1 pv; mid tibia with 3 ad, 2 pd and 1 av; hind tibia with 4 ad, 3 pd and 3 thin av; tarsomere 1 with 1 v at base. Relative lengths of segments of legs LI 6.4: 2.2: 0.8: 0.6: 0.5: 1.0; LII 8.9: 4.6: 2.4: 2.1: 1.1: 1.2; LIII 10.0: 4.6: 4.2: 2.7: 1.6: 1.4. Wing slightly tinged with gray; veins black, R4+5 and M distinctly convergent apically; CuAx ratio 1.2. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; hairs black. Male genitalia (Fig. 9): Epandrium much longer than wide, without distinct lateral lobe; cercus with concave apical margin (bearing long hairs); hypandrium acute apically, with an acute inner denticle near apex.

Female. Body length 5.8 mm, wing length 5.7 mm. Similar to male.

Holotype male. Sichuan: Emei Mountain, Wuxiangang (700 m), 1998. VIII. 14, Ding YANG; paratype female, Sichuan: Emei Mountain, Jingshui (650 m), 1998. VIII. 10, Ding YANG. (CAU)

Distribution. China (Sichuan).



Figs. 8-9 — *Phalacrotopa sichuanense* sp. nov., male. 8. antenna, lateral view; 9. genitalia, lateral view.

Etymology. This new species is named after its type locality Sichuan.

Remarks. This species is easily separated from other known species of the genus by having long claws on each leg and reduced pulvilli on mid and hind legs.

7. *Polymedon inopinatus* PARENT

Polymedon inopinatus PARENT, 1934, Mem. Soc. natn. Sci. math. Cherbourg 41: 302. Type locality: Punjab, India.

Specimens examined. 12 males 22 females, Sichuan: Emei Mountain, Wuxiangang (700 m), 1998. VIII. 14, Ding YANG; 3 males 6 females, Sichuan: Emei Mountain, Jingshui (700-750 m), 1998. VIII. 15, Ding YANG.

Distribution. China (Sichuan, Yunnan); India.

8. *Dolichopus simulator* PARENT

Dolichopus simulator PARENT, 1926. Encycl. Ent. (B. II) Dipt. 3: 119. Type locality: Shanghai.

Specimens examined. 7 males 6 females, Sichuan: Emei Mountain, Linggongli (1300-1400), 1998. VIII. 17, Ding YANG.

Distribution. China (Sichuan, Yunnan, Hubei, Shanghai, Zhejiang).

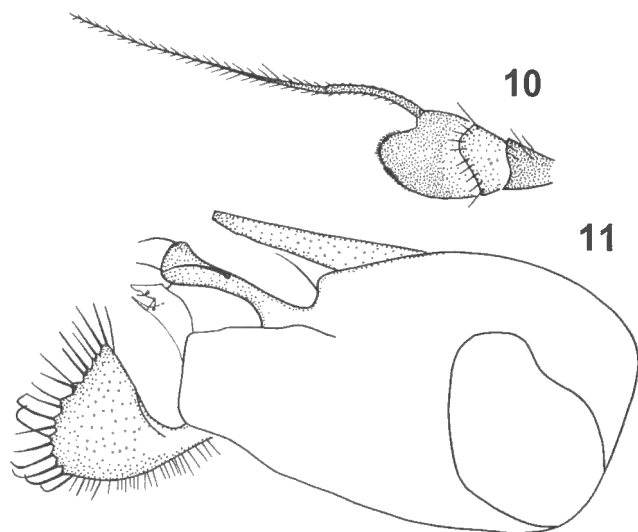
9. *Hercostomus (Gymnopternus) petilus* sp. nov. (Figs. 10-11)

Diagnosis. Antenna partly dark brownish yellow; arista long pubescent. Epandrium with long lateral lobe, swollen apically. Cercus with weak marginal denticles.

Male. Body length 3.8-3.9 mm, wing length 3.8-4.0 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 (Fig. 10) black, with apico-ventral surface of scape, pedicel, and narrow base of first flagellomere dark brownish yellow; first flagellomere 1.1 times longer than wide, obtuse apically; arista black, long pubescent, with basal segment 0.3 times as long as apical segment. Proboscis black, and palpus brownish yellow, with black hairs.

Thorax metallic green, with pale gray pruinosity. Hairs and bristles on thorax black; 7-8 irregularly paired acr, short and hair-like; 6 strong dc; scutellum with some black or pale marginal hairs. Legs yellow; fore and mid coxae black, hind coxa brownish yellow; tarsi from tip of



Figs. 10-11 — *Hercostomus (Gymnopternus) petilus* sp. nov., male. 10. antenna, lateral view; 11. genitalia, lateral view.

tarsomere 1 onward brown to dark brown. Hairs and bristles on legs black; mid and hind coxae, with 1 outer bristle, mid and hind femora each with 1 preapical bristle; fore tibia with 1 ad, 2 pd and 1 short apv; mid tibia with 3 ad, 2 pd and 1 av; hind tibia with 4 ad, 3-4 pd and 2 thin av. Relative lengths of segments of legs L_I 4.7: 2.2: 1.1: 0.9: 0.5: 0.5; L_{II} 6.2: 2.9: 1.8: 1.3: 0.9: 0.35; L_{III} 7.1: 1.9: 2.4: 1.7: 1.0: 0.4. Wing hyaline; veins black, R_4+5 and M parallel apically, $CuAx$ ratio 0.55. Squama yellow with black hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen. Hairs on abdomen black. Male genitalia (Fig. 11): Epandrium longer than wide, its lateral lobe rather long with swollen apex; cercus with weak marginal denticles; hypandrium thick.

Female. Body length 3.7-3.8 mm, wing length 3.8-3.9 mm. Similar to male, but face wider than first flagellomere, scape black and hind coxa blackish.

Holotype male, paratypes 5 males 7 females. Sichuan: Emei Mountain, Jingshui (650 m), 1998. VIII. 10, Ding YANG. (CAU & IRSN)

Distribution. China (Sichuan).

Etymology. This new species is named after the shape of lateral lobe on epandrium.

Remarks. This new species is similar to *H. nanjinensis* YANG from Jiangsu, but may be easily separated from the latter by having a brownish yellow palpus and lateral lobe on epandrium rather long. In *nanjinensis*, the palpus is black, the lateral lobe rather short and strongly swollen apically (YANG, 1996b).

10. *Hercostomus (Gymnopternus) zonalis*
YANG, YANG et LI

Hercostomus zonalis YANG, YANG & LI, 1998. In X. SHEN & Z. SHI (eds.): Insects of the Funiu Mountains region (1), p. 82. Type locality: Henan.

Specimen examined. 1 male, Sichuan: Emei Mountain, Jingshui (650 m), 1998. VIII. 10, Ding YANG.

Distribution. China (Sichuan, Henan).

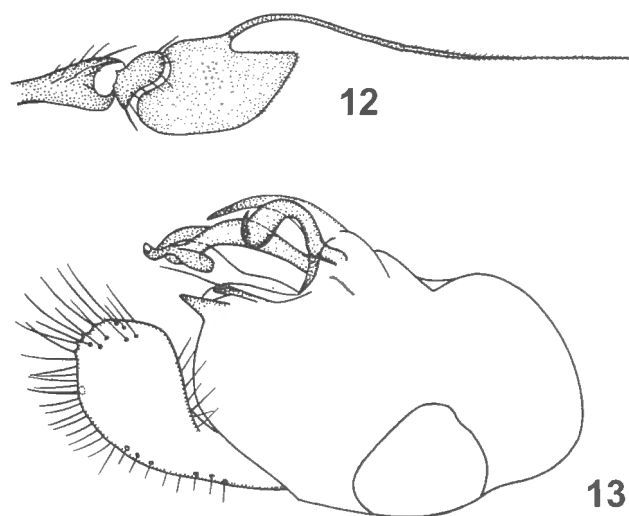
11. *Hercostomus (Hercostomus) acutangulatus* sp. nov.
(Figs. 12-13)

Diagnosis. Arista with rather long basal segment (0.8 times as long as apical segment). Epandrium with acute apical ventral corner.

Male. Body length 4.2 mm, wing length 5.0 mm.

Head metallic green, with pale gray pollen. Face nearly as wide as first flagellomere. Hairs and bristles on head black; postocular bristles (including ventral hairs) black. Antenna (Fig. 12) wholly black; first flagellomere 1.6 times longer than wide, acute apically; arista black, very short pubescent, with basal segment 0.8 times as long as apical segment. Proboscis dark yellow and palpus black, with black hairs.

Thorax metallic green, with pale gray pruinosity; hypopleuron with antero-lower corner dark yellow, and postero-upper corner yellow, metapleuron yellow. Hairs and bristles on thorax black; 6-7 irregularly paired acr, short and hair-like; 6 strong dc; scutellum without short hairs. Legs [mid femur, tibia and tarsus broken off yellow; all coxae yellow; tarsi from tip of tarsomere 1 onward brown to dark brown. Hairs and bristles on legs



Figs. 12-13 — *Hercostomus (Hercostomus) acutangulatus* sp. nov., male. 12. antenna, lateral view; 13. genitalia, lateral view.

black; mid and hind coxae each with 1 outer bristle, mid and hind femora each with 1 preapical bristle; fore tibia with 1 ad, 2 pd and 1 short pv; hind tibia with 3 ad, 4 pd and 6 thin av; hind tarsomere 1 with 3 ventral bristles. Relative lengths of segments of legs L_I 5.8: 3.8: 2.1: 1.7: 1.1: 0.85; L_{III} 10.2: 2.8: 4.1: 2.2: 1.7: 1.0. Wing weakly tinged with gray; veins black, R₄₊₅ and M distinctly convergent, CuAx ratio 0.65. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; lateral margin of tergites 1-2 dark yellow and lateral margin of sternite 2 yellow. Hairs on abdomen black. Male genitalia (Fig. 13): Epandrium with acute apical ventral corner, its lateral lobe rather narrow, bearing 1 long bristle; cercus rather large apically, with a black marginal spine directed inward; hypandrium irregularly furcate.

Female. Unknown

Holotype male. Sichuan: Emei Mountain, Linggongli (1300-1400 m), 1998. VIII. 17, Ding YANG. (CAU)

Distribution. China (Sichuan).

Etymology. The new species is named after the acute apical ventral corner on epandrium.

Remarks. This new species is similar to *beijingensis* YANG from Beijing, but may be easily separated from the latter by having the arista with basal segment 0.8 times as long as apical segment, and epandrium with acute apical ventral corner. In *beijingensis*, the arista has somewhat short basal segment (0.6 times as long as apical segment); the epandrium has no acute apical ventral corner (YANG, 1996b).

12. *Hercostomus (Hercostomus) acutatus* YANG et YANG

Hercostomus acutatus YANG et YANG, 1995, In H. WU (ed.): Insects of Baishan Mountain, Eastern China, p. 514. Type locality: Zhejiang.

Specimens examined. 3 males, Sichuan: Emei Mountain, Jingshui (700-750 m), 1998. VIII. 7, Ding YANG.

Distribution. China (Sichuan, Zhejiang).

13. *Hercostomus (Hercostomus) baishanzenensis* YANG et YANG

Hercostomus baishanzenensis YANG et YANG, 1995, In H. WU (ed.): Insects of Baishan Mountain, Eastern China, p. 515. Type locality: Zhejiang.

Specimens examined. 1 male, Sichuan: Emei Mountain, Leidongping (2480 m), 1998. VIII. 8, Ding YANG; 1 male,

Guangxi: Maoershan (1700 m), 1992. VIII. 19, Chi-kun YANG.

Distribution. China (Sichuan, Zhejiang, Guangxi).

14. *Hercostomus (Hercostomus) basiflavus* YANG

Hercostomus basiflavus YANG, 1996. Entomofauna 17(18): 317. Type locality: Zhejiang.

Specimens examined. 6 males 7 females, Sichuan: Emei Mountain, Maziba (1100-1300 m), 1998. VIII. 16, Ding YANG; 6 males 7 females, Sichuan: Emei Mountain, Linggongli (1300-1400 m), 1998. VIII. 17, Ding YANG.

Distribution. China (Sichuan, Zhejiang).

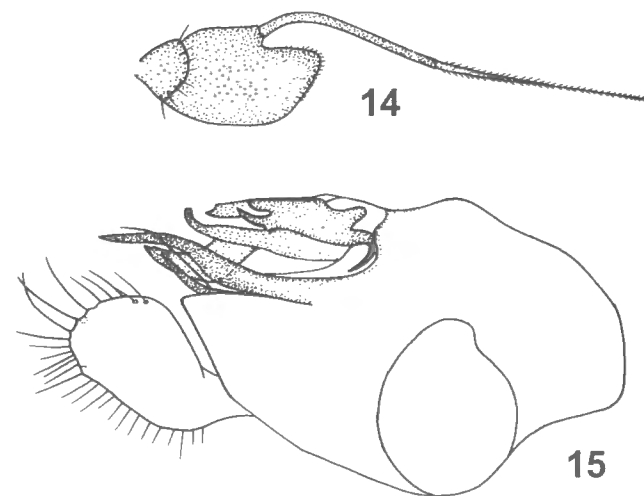
15. *Hercostomus (Hercostomus) bispinifer* sp. nov. (Figs. 14-15)

Diagnosis. First flagellomere moderately long (1.5 times longer than wide). Arista with basal segment very long (0.9 times as long as apical segment). Epandrium with 2 lateral spines.

Male. Body length 3.7 mm, wing length 4.3 mm.

Head metallic green, with pale gray pollen. Face as wide as first flagellomere. Hairs and bristles on head black; postocular bristles (including ventral hairs) black. Antenna (Fig. 14) wholly black; first flagellomere 1.5 times longer than wide, obtuse apically; arista black, short pubescent, with basal segment 0.9 times as long as apical segment. Proboscis yellow, and palpus black, with black hairs.

Thorax metallic green, with pale gray pruinosity; antero-lower corner and postero-upper corner of hypopleuron



Figs. 14-15 — *Hercostomus (Hercostomus) bispinifer* sp. nov., male. 14. antenna (excluding scape), lateral view; 15. genitalia, lateral view.

dark yellow, metapleuron yellow. Hairs and bristles on thorax black; 5-6 irregularly paired acr, short and hair-like; 6 strong dc; scutellum without thin hairs. Legs yellow; all coxae yellow; tarsi from tip of tarsomere 1 onward brown to dark brown. Hairs and bristles on legs black; mid and hind coxae each with 1 outer bristle, mid and hind femora each with 1 preapical bristle; fore tibia with 1 ad, 2 pd and 1 short pv; mid tibia with 4 ad, 2 pd and 2 av; hind tibia with 3 ad, 4-5 pd and 4 av; hind tarsomere 1 with 3 ventral bristles. Relative lengths of segments of legs L_I 4.3: 3.0: 1.7: 1.3: 1.0: 0.8; L_{II} 6.8: 4.0: 2.3: 1.85: 1.1: 0.85; L_{III} 7.8: 2.8: 3.4: 1.9: 1.1: 0.85. Wing hyaline; veins black, R4+5 and M convergent, CuAx ratio 0.5. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; sternites 1-3 blackish; hairs black. Male genitalia (Fig. 15): Epandrium distinctly longer than wide, somewhat acute apically, with two lateral spines; cercus rather large apically, with two black marginal spines, directed inward; hypandrium irregularly furcate.

Female. Unknown

Holotype male. Sichuan: Emei Mountain, Linggongli (1300-1400 m), 1998. VIII. 17, Ding YANG. (CAU)

Distribution. China (Sichuan).

Etymology. This new species is named after the epandrium, bearing two lateral spines.

Remarks. This new species is similar to *spiniger* YANG from Xizang, but may be easily separated from the latter by having the epandrium with two lateral spines. In *spiniger*, the epandrium has only one lateral spine (YANG, 1997).

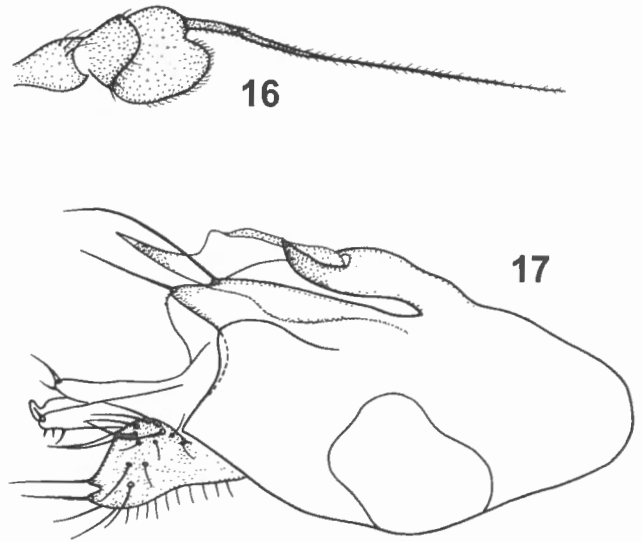
16. *Hercostomus (Hercostomus) concavus* sp. nov.
(Figs. 16-17)

Diagnosis. First flagellomere rather short, and obtuse apically. Arista with very short basal segment.

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

Head metallic green, with pale gray pollen. Face slightly wider than first flagellomere. Hairs and bristles on head black; postocular bristles (including ventral hairs) black. Antenna (Fig. 16) wholly black; first flagellomere as long as wide, obtuse apically; arista black, short pubescent, with basal segment 0.15 times as long as apical segment. Proboscis and palpus yellow, with black hairs.

Thorax metallic green, with pale gray pruinosity. Hairs and bristles on thorax black; 5-6 irregularly paired acr, short and hair-like; 6 strong dc; scutellum without short hairs. Legs yellow; fore coxa yellow, mid coxae (except apex) blackish, hind coxa dark yellow; tip of hind femur brown; tarsi from tip of tarsomere 1 onward brown to



Figs. 16-17 — *Hercostomus (Hercostomus) concavus* sp. nov., male. 16. antenna, lateral view; 17. genitalia, lateral view.

dark brown. Hairs and bristles on legs black; mid and hind coxae each with 1 outer bristle, mid and hind femora each with 1 preapical bristle; fore tibia with 1 ad and 2 pd; mid tibia with 3 ad, 2 pd and 1 av; hind tibia with 4 ad, 4 pd and 2 av. Relative lengths of segments of legs L_I 3.8: 2.3: 1.6: 0.9: 0.6: 0.5; L_{II} 5.3: 2.7: 1.8: 1.2: 0.6: 0.5; L_{III} 6.6: 1.5: 2.6: 1.3: 0.8: 0.5. Wing hyaline; veins black, R4+5 and M distinctly convergent, CuAx ratio 0.65. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; hairs black. Male genitalia (Fig. 17): Epandrium distinctly longer than wide, with distinct lateral lobe bearing two long bristles; cercus lobe-like, with a small apical incision; hypandrium acute apically, with a short spine-like lateral arm.

Female. Unknown

Holotype male. Sichuan: Emei Mountain, Maziba (1100-1300 m), 1998. VIII. 16, Ding YANG. (CAU)

Distribution. China (Sichuan).

Etymology. This new species is named after the lobe-like cercus with a small apical incision.

Remarks. This new species is similar to *litargus* WEI from Guizhou, but may be easily separated from the latter by having with black ventral hairs on its head. In *litargus*, the head has pale ventral hairs (WEI, 1997).

17. *Hercostomus (Hercostomus) curvativus* sp. nov.
(Figs. 18-19)

Diagnosis. Thorax chiefly yellow. First flagellomere

rather short and obtuse apically. Cercus rather small and finger-like.

Male. Body length 2.6–2.8 mm, wing length 2.7–2.8 mm.

Head metallic green, with pale gray pollen. Face narrower than first flagellomere. Hairs and bristles on head black; postocular bristles (including ventral hairs) black. Antenna (Fig. 18) dark brownish yellow; first flagellomere black, 1.3 times longer than wide, more or less obtuse apically; arista black, long pubescent, with basal segment 0.3 times as long as apical segment. Proboscis and palpus black, with black hairs.

Thorax yellow, with grayish yellow pollen; mesonotum with a triangular metallic green mid-posterior spot, scutellum (except margin) metallic green; pteropleuron with upper part black. Hairs and bristles on thorax black; 6–7 irregularly paired acr, short and hair-like; 6 strong dc; scutellum without short hairs. Legs yellow; all coxae yellow; tarsi from tip of tarsomere 1 onward brown to dark brown. Hairs and bristles on legs black; mid and hind coxae each with 1 outer bristle, mid and hind femora each with 1 preapical bristle; fore tibia with 1 ad and 2 pd; mid tibia with 3 ad, 2 pd and 1 av; hind tibia with 3 ad, 4 pd and 3–4 av. Relative lengths of segments of legs L_I 3.7: 1.8: 1.0: 0.8: 0.6: 0.6; L_{II} 5.0: 2.3: 1.7: 1.3: 1.1: 0.7; L_{III} 5.7: 1.3: 2.6: 1.5: 1.1: 0.8. Wing hyaline, slightly tinged with gray; veins black, R₄₊₅ and M distinctly convergent apically, CuAx ratio 0.5. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; tergites 1–2 yellow (except mid-anterior area). Hairs on abdomen black. Male genitalia (Fig. 19): Epandrium longer than wide, its apical ventral corner finger-like, with a long apical bristle, basally with a inner spine curved backward; cercus rather small and finger-like;

hypandrium distinctly elongated with curved tip, with a long lateral arm.

Female. Body length 2.3–2.8 mm, wing length 2.7–3.1 mm. Similar to male, but face wider than first flagellomere.

Holotype male, paratype female. Sichuan: Emei Mountain, Jingshui (650 m), 1998. VIII. 10, Ding YANG. Paratypes 7 males 2 females, Sichuan: Emei Mountain, Wuxiangang (700 m), 1998. VIII. 14, Ding YANG. (CAU & IRSN)

Distribution. China (Sichuan).

Etymology. This new species is named after the inner spine on epandrium, curved backward.

Remarks. This new species is somewhat similar to *ulrichi* YANG from Gansu and Sichuan, but may be easily separated from the latter by having R₄₊₅ and M distinctly convergent (YANG, 1996c). It may be separated from *luteipleuratus* PARENT by having the postocular bristles wholly black (PARENT, 1944).

18. *Hercostomus (Hercostomus) curvispinosus* sp. nov.
(Figs. 20–21)

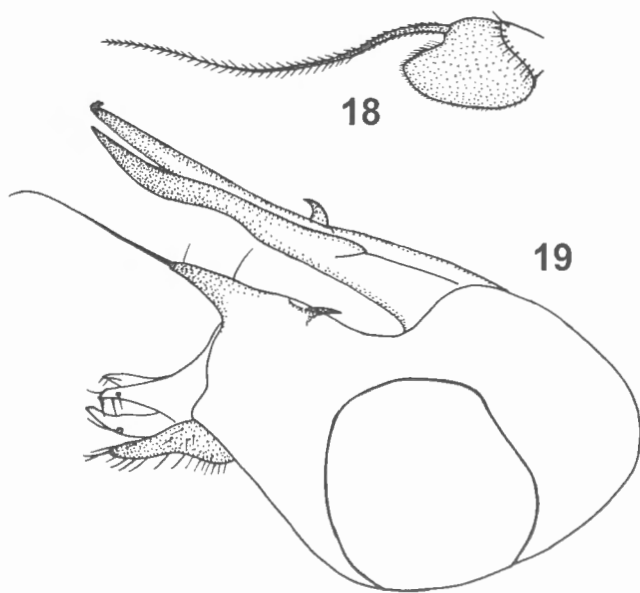
Diagnosis. First flagellomere rather long (1.9 times longer than wide). Arista with basal segment very long (as long as apical segment).

Male. Body length 4.3 mm, wing length 4.3 mm.

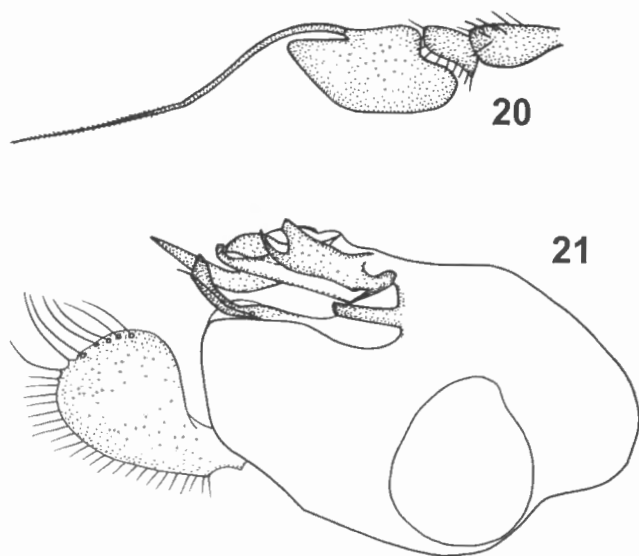
Head metallic green, with pale gray pollen. Face slightly narrower than first flagellomere. Hairs and bristles on head black; postocular bristles (including ventral hairs) black. Antenna (Fig. 20) wholly black; first flagellomere 1.9 times longer than wide, obtuse apically; arista black, very short pubescent, with basal segment as long as apical segment. Proboscis yellow, and palpus black, with black hairs.

Thorax metallic green, with pale gray pruinosity; antero-lower corner and postero-upper corner of hypopleuron dark yellow, metapleuron yellow. Hairs and bristles on thorax black; 5–6 irregularly paired acr, short and hair-like; 6 strong dc; scutellum without short hairs. Legs yellow; all coxae yellow; tarsi from tip of tarsomere 1 onward brown to dark brown. Hairs and bristles on legs black; mid and hind coxae each with 1 outer bristle, mid and hind femora each with 1 preapical bristle; fore tibia with 1 ad, 2 pd and 1 pv; mid tibia with 4 ad, 2 pd and 3 av; hind tibia with 3 ad, 4 pd and 4 av; hind tarsomere 1 with 3 ventral bristles. Relative lengths of segments of legs L_I 4.9: 3.2: 2.0: 1.6: 1.2: 0.9; L_{II} 7.3: 4.2: 2.6: 2.0: 1.2: 1.0; L_{III} 9.0: 3.0: 3.8: 2.2: 1.2: 1.0. Wing hyaline; veins black, R₄₊₅ and M convergent apically, CuAx ratio 0.7. Squama yellow with black hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; hairs



Figs. 18–19 — *Hercostomus (Hercostomus) curvativus* sp. nov., male. 18. antenna (excluding scape), lateral view; 19. genitalia, lateral view.



Figs. 20-21 — *Hercostomus (Hercostomus) curvispinosus* sp. nov., male. 20. antenna, lateral view; 21. genitalia, lateral view.

black. Male genitalia (Fig. 21): Epandrium longer than wide, with curved lateral lobe, basally with a straight projection; cercus rather large apically, with a black spine directed inward; hypandrium irregularly furcate.

Female. Unknown

Holotype male. Sichuan: Emei Mountain, Linggongli (1300-1400 m), 1998. VIII. 17, Ding YANG. (CAU)

Etymology. This new species is named after the hypandrium with spine-like projections.

Distribution. China (Sichuan).

Remarks. This new species is similar to *bispinifer* sp. nov., but may be easily separated from the latter by having basal segment of arista as long as apical segment.

19. *Hercostomus (Hercostomus) dissectus* sp. nov.
(Figs. 22-23)

Diagnosis. First flagellomere rather short (as long as wide). Arista with very short basal segment. Fore tarsomeres 3-4 black and weakly thickened, tarsomere 5 white.

Male. Body length 2.9-3.1 mm, wing length 2.7-3.1 mm.

Head metallic green, with pale gray pollen. Face narrower than first flagellomere. Hairs and bristles on head black; postocular bristles black, ventral hairs yellow. Antenna (Fig. 22) wholly black; first flagellomere as long as wide, obtuse apically; arista black, short pubescent, with basal segment 0.14 times as long as apical segment. Proboscis and palpus yellow, with black hairs.

Thorax metallic green, with pale gray pruinosity. Hairs and bristles on thorax black; 4-5 irregularly paired acr, short and hair-like; 6 strong dc; scutellum without short hairs. Legs yellow; fore coxa yellow, mid and hind coxae brownish yellow; fore tarsus with apex of tarsomere 1 and entire tarsomere 2 brown, tarsomeres 3-4 black and weakly thickened, tarsomere 5 white; mid tarsus from tip of tarsomere 1 onward brown to dark brown, hind tarsus dark brown. Hairs and bristles on legs black; mid and hind coxae each with 1 outer bristle, mid and hind femora each with 1 preapical bristle; fore tibia with 1 ad and 2 pd; mid tibia with 3 ad, 2 pd and 1 av; hind tibia with 4 ad, 4 pd and 3 av. Relative lengths of segments of legs L_I 3.4: 2.1: 1.4: 0.8: 0.45: 0.45; L_{II} 4.5: 2.3: 1.8: 1.2: 0.7: 0.5; L_{III} 5.8: 1.4: 2.3: 1.2: 0.75: 0.6. Wing weakly tinged with gray; veins black, R₄₊₅ and M convergent apically, CuAx ratio 0.6. Squama yellow, with black hairs. Halter yellow.

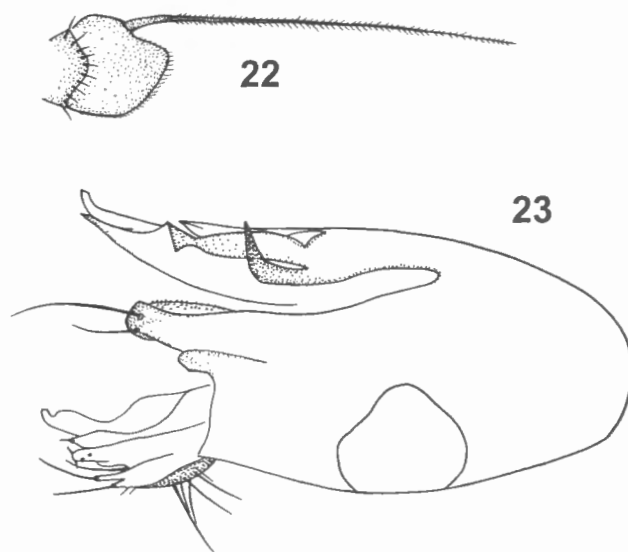
Abdomen metallic green, with pale gray pollen; hairs black. Male genitalia (Fig. 23): Epandrium longer than wide, with thick lateral lobe, bearing 2 bristles; cercus small, with 2 finger-like marginal projections; hypandrium irregularly furcate, with a strongly curved lateral spine near base.

Female. Unknown

Holotype male. Sichuan: Emei Mountain, Jingshui (700-750 m), 1998. VIII. 7, Ding YANG. Paratypes 5 males, Sichuan: Emei Mountain, Maziba (1100-1300 m), 1998. VIII. 16, Ding YANG. (CAU & IRSN)

Distribution. China (Sichuan).

Etymology. This new species is named after the furcate hypandrium.



Figs. 22-23 — *Hercostomus (Hercostomus) dissectus* sp. nov., male. 22. antenna (excluding scape), lateral view; 23. genitalia, lateral view.

Remarks. This new species is somewhat similar to *emeiensis* YANG from Sichuan, but may be easily separated from the latter by having the first flagellomere rather short (as long as wide), with obtuse apex. In *emeiensis*, the first flagellomere is distinctly elongated (1.7 times as long as wide), with acute apex (YANG, 1997).

20. *Hercostomus (Hercostomus) dissimilis* sp. nov.
(Figs. 24-26)

Diagnosis. First flagellomere rather short (as long as wide). Arista with very short basal segment. Fore tarsomeres 3-4 black and distinctly flattened, tarsomere 5 white.

Male. Body length 3.3-3.5 mm, wing length 3.2-3.5 mm.

Head metallic green, with pale gray pollen. Face slightly narrower than first flagellomere. Hairs and bristles on head black; postocular bristles wholly black, ventral hairs yellow. Antenna (Fig. 24) wholly black; first flagellomere as long as wide, obtuse apically; arista black, short pubescent, with basal segment 0.15 times as long as apical segment. Proboscis and palpus yellow, with black hairs.

Thorax metallic green, with pale gray pruinosity. Hairs and bristles on thorax black; 6-7 irregularly paired acr, short and hair-like; 6 strong dc; scutellum without short hairs. Legs yellow; fore coxa yellow, mid and hind coxae black; tip of hind femur blackish; fore tarsus with apex of tarsomere 1 and entire tarsomere 2 dark brown, tarsomeres 3-4 black and distinctly flattened, tarsomere 5 white; mid tarsus from tip of tarsomere 1 onward brown to dark brown, hind tarsus dark brown. Hairs and bristles on legs black; mid and hind coxae each with 1 outer bristle, mid and hind femora each with 1 preapical bristle; fore tibia

with 1 ad and 2 pd; mid tibia with 3 ad, 2 pd and 1 av; hind tibia with 4 ad, 4 pd and 2 thin av. Relative lengths of segments of legs L_I 4.4: 2.4: 2.6: 0.8: 0.5: 0.6; L_{II} 6.1: 3.2: 2.6: 1.6: 0.8: 0.7; L_{III} 7.8: 1.9: 3.6: 1.8: 1.0: 0.8. Wing weakly tinged with gray; veins black, R4+5 and M convergent apically, CuAx ratio 0.5. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; hairs black. Male genitalia (Fig. 26): Epandrium longer than wide, with thick lateral lobe, bearing 2 bristles; cercus with 2 finger-like marginal projections; hypandrium very thick and irregularly furcate.

Female. Unknown

Holotype male, paratypes 2 males. Sichuan: Emei Mountain, Maziba (1100-1300 m), 1998. VIII. 16, Ding YANG. (CAU)

Distribution. China (Sichuan).

Etymology. This new species is named after the unusual shape of its hypandrium.

Remarks. This new species is similar to *dissectus* sp. nov., but may be easily separated from the latter by having the fore tarsomere 3-4 distinctly flattened.

21. *Hercostomus (Hercostomus) emeiensis* YANG

Hercostomus (Hercostomus) emeiensis YANG, 1997, Stud. Dipt. 4(1): 116. Type locality: Sichuan.

Distribution. China (Sichuan).

22. *Hercostomus (Hercostomus) furcutus* WEI

Hercostomus (Hercostomus) furcutus WEI, 1997, J. Guizhou Agric. Coll. 16(2): 48. Type locality: Guizhou.

Specimens examined. 4 males, Sichuan: Emei Mountain, Maziba (1100-1300 m), 1998. VIII. 16, Ding YANG; 2 males, Sichuan: Emei Mountain, Jingshui (650 m), 1998. VIII. 10, Ding YANG.

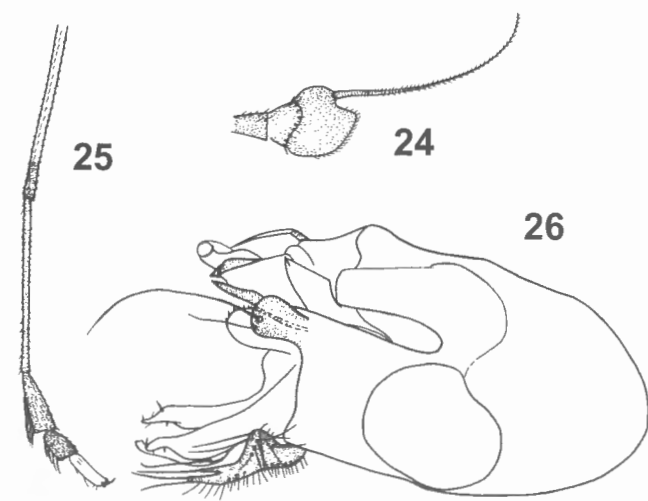
Distribution. China (Sichuan, Guizhou).

23. *Hercostomus (Hercostomus) gansuensis* YANG

Hercostomus (Hercostomus) gansuensis YANG, 1996, Dtsch. ent. Z. 43(2): 238. Type locality: Gansu.

Specimens examined. 13 males, Sichuan: Emei Mountain, Jingshui (700-750 m), 1998. VIII. 7, Ding YANG.

Distribution. China (Sichuan, Gansu).



Figs. 24-26 — *Hercostomus (Hercostomus) dissimilis* sp. nov., male. 24. antenna, lateral view; 25. fore tarsus, lateral view; 26. genitalia, lateral view.

24. *Hercostomus (Hercostomus) hunanensis* YANG

Hercostomus (Hercostomus) hunanensis YANG et YANG, 1998, Bull. Inst. R. Sci. Nat. Belg. Ent. 68: 151. Type locality: Hunan.

Specimens examined. 7 males 2 females, Sichuan: Emei Mountain, Linggongli (1300-1400 m), 1998. VIII. 17, Ding YANG.

Distribution. China (Sichuan, Hunan).

25. *Hercostomus (Hercostomus) lateralis* sp. nov. (Figs. 27-28)

Diagnosis. Antenna, postocular bristles and legs black. Cercus strap-like with a short projection at middle.

Male. Body length 2.8 mm, wing length 3.0 mm.

Head metallic green, with pale gray pruinosity. Face slightly narrower than first flagellomere. Hairs and bristles on head black; postocular hairs wholly black. Antenna (Fig. 27) wholly black; first flagellomere 1.2 times longer than wide, obtuse apically; arista black, very short pubescent, with basal segment 0.35 times as long as apical segment. Proboscis blackish, and palpus black, with black hairs.

Thorax metallic green, with pale gray pruinosity. Hairs and bristles on thorax black; 4-5 acr nearly uniserial, short and hair-like; 6 strong dc; scutellum without short hairs. Legs entirely black. Hairs and bristles on legs black; mid and hind coxae each with 1 outer bristle, mid and hind

femora each with 1 preapical bristle; fore tibia with 1 ad, 2 pd and 1 long apv; mid tibia with 3 ad, 2 pd and 1 av; hind tibia with 3 ad, 4 pd and 1 av. Relative lengths of segments of legs LI 3.2: 1.6: 0.6: 0.4: 0.25: 0.35; LII 4.2: 2.0: 1.0: 0.9: 0.6: 0.55; LIII 5.2: 1.5: 1.55: 1.1: 0.7: 0.6. Wing slightly tinged with gray; veins black, R4+5 and M slightly convergent apically, CuAx ratio 0.5. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; hairs black. Male genitalia (Fig. 28): Epandrium longer than wide, with flattened lateral lobe; cercus strap-like, with a short lateral projection at middle; hypandrium rather thick; aedeagus nearly geniculate apically.

Female. Body length 2.3 mm, wing length 2.9 mm. Similar to male, but face wider than first flagellomere.

Holotype male, paratype female. Sichuan: Emei Mountain, Leidongping (2480 m), 1998. VIII. 8, Ding YANG. (CAU)

Distribution. China (Sichuan).

Etymology. This new species is named after its strap-like cercus with a short lateral projection at middle;

Remarks. This unique species may be easily separated from other known species of the genus from China by having the legs wholly black, and cercus strap-like, with a short lateral projection at middle.

26. *Hercostomus (Hercostomus) nudus* YANG

Hercostomus (Hercostomus) nudus YANG, 1996, Bull. Inst. R. Sci. Nat. Belg. Ent. 66: 86. Type locality: Sichuan.

Distribution. China (Sichuan).

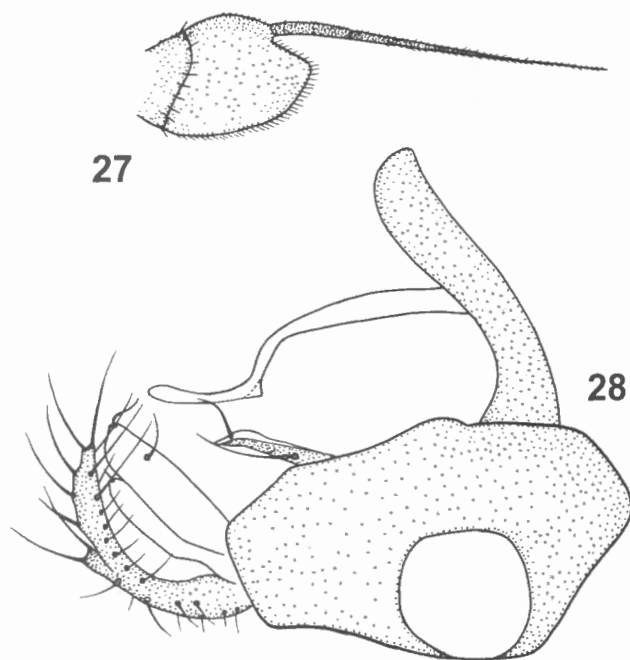
27. *Hercostomus (Hercostomus) polleti* sp. nov. (Figs. 29-30)

Diagnosis. Thorax laterally and abdomen basally partly yellow. First flagellomere moderately long (1.5 times longer than wide), acute apically.

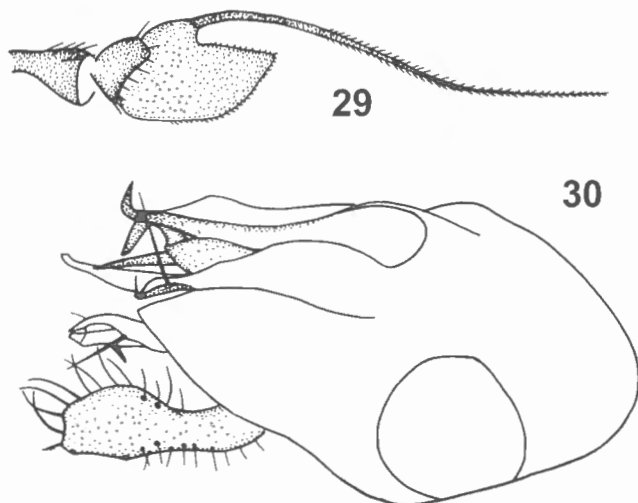
Male. Body length 2.7-3.3 mm, wing length 3.2-4.0 mm.

Head metallic green, with pale gray pollen. Face nearly as wide as first flagellomere. Hairs and bristles on head black; postocular bristles black, ventral hairs yellow. Antenna (Fig. 29) wholly black; first flagellomere 1.5 times longer than wide, acute apically; arista black, short pubescent, with basal segment 0.4 times as long as apical segment. Proboscis dark yellow, and palpus yellow, with black hairs.

Thorax metallic green, with pale gray pruinosity; humeri dark yellow, anterior part and postero-upper corner



Figs. 27-28 — *Hercostomus (Hercostomus) lateralis* sp. nov., male. 27. antenna (excluding scape), lateral view; 28. genitalia, lateral view.



Figs. 29-30 — *Hercostomus (Hercostomus) polleti* sp. nov., male. 29. antenna, lateral view; 30. genitalia, lateral view.

of hypopleuron yellow, metapleuron yellow. Hairs and bristles on thorax black; 5-6 irregularly paired acr, short and hair-like; 6 strong dc. Legs yellow; all coxae yellow; tarsi from tip of tarsomere 1 onward brown to dark brown. Hairs and bristles on legs black; mid and hind coxae each with 1 outer bristle, mid and hind femora each with 1 preapical bristle; fore tibia with 1 ad, 2 pd and 1 short apv; mid tibia with 3 ad, 2 pd and 1-2 av; hind tibia with 3 ad, 3-4 pd and 3 av; hind tarsomere 1 with 2 v. Fore tibia (except basal part) and tarsomeres 1-4 with ventral hairs obliquely curved. Relative lengths of segments of legs L_I 4.0: 2.0: 1.1: 1.0: 0.8: 0.7; L_{II} 5.3: 3.1: 1.3: 1.2: 1.0: 0.7; L_{III} 6.5: 2.1: 2.2: 1.6: 1.1: 0.8. Wing slightly tinged with gray; veins black, R₄₊₅ and M distinctly convergent apically, CuAx ratio 0.5. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; lateral portions of tergites 1-3 yellow, sternites 1-3 yellow; hairs black. Male genitalia (Fig. 30): Epandrium longer than wide, acute apically, with flattened lateral lobe; cercus quadrate apically; hypandrium acute and curved apically, with lateral arm somewhat acute and bent apically.

Female. Body length 3.7 mm, wing length 4.0 mm. Similar to male, but mid coxa with 1 black spot.

Holotype male, paratypes 1 male 1 female. Sichuan: Emei Mountain, Linggongli (1300-1400 m), 1998. VIII. 17, Ding YANG. (CAU)

Distribution. China (Sichuan).

Etymology. This new species is named after Dr. M. POLLET (Brussels).

Remarks. This new species is somewhat similar to *bispini*

nifer sp. nov., but may be easily separated from the latter by having arista with short basal segment (0.4 times as long as apical segment).

28. *Hercostomus (Hercostomus) proctus* WEI

Hercostomus (Hercostomus) proctus WEI, 1997, J. Guizhou Agric. Coll. 16(2): 45. Type locality: Guizhou.

Specimens examined. 1 male, Sichuan: Emei Mountain, Wuxiangang (700 m), 1998. VIII. 14, Ding YANG.

Distribution. China (Sichuan, Guizhou).

29. *Hercostomus (Hercostomus) prolixus* WEI

Hercostomus (Hercostomus) prolixus WEI, 1997, J. Guizhou Agric. Coll. 16(2): 44. Type locality: Guizhou.

Specimens examined. 1 male, Sichuan: Emei Mountain, Maziba (1100-1300 m), 1998. VIII. 16, Ding YANG.

Distribution. China (Sichuan, Guizhou).

30. *Hercostomus (Hercostomus) prolongatus* YANG

Hercostomus (Hercostomus) prolongatus YANG, 1996, Ann. Soc. Entomol. Fr.(N.S.) 32(4): 414. Type locality: Xizang.

Specimens examined. 2 males, Sichuan: Emei Mountain, Maziba (1100-1300 m), 1998. VIII. 16, Ding YANG.

Distribution. China (Sichuan, Xizang).

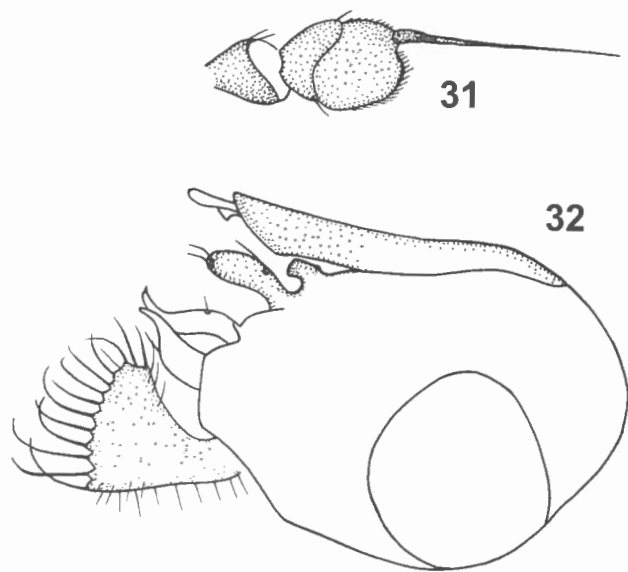
31. *Hercostomus (Hercostomus) rotundatus* sp. nov. (Figs. 31-32)

Diagnosis. Eyes contiguous on lower portion of face. First flagellomere short (as long as wide), rounded apically, with upper apical arista. Legs black.

Male. Body length 2.5-2.8 mm, wing length 2.8-3.0 mm.

Head metallic green, with grayish brown pollen; eyes contiguous on lower portion of face. Hairs and bristles on head black; postocular bristles (including ventral hairs) black. Antenna (Fig. 31) wholly black; first flagellomere as long as wide, rounded apically; arista black, indistinct pubescent, with basal segment 0.2 times as long as apical segment. Proboscis and palpus black, with black hairs.

Thorax metallic green, with grayish brown pollen; pleura with pale gray pollen. Hairs and bristles on thorax black; 6 uniserial acr, hair-like; 6 strong dc; scutellum with short marginal hairs. Legs black; femora with tips dark brownish yellow. Hairs and bristles on legs black;



Figs. 31-32 — *Hercostomus (Hercostomus) rotundatus* sp. nov., male. 31. antenna, lateral view; 32. genitalia, lateral view.

mid and hind coxae each with 1 outer bristle, mid and hind femora each with 1 preapical bristle; fore tibia with 2 pd, 2 pv and 1 long apv; mid tibia with 3 ad, 2 pd and 1 av; hind tibia with 3 ad, 4 pd and 3-4 av; tarsomeres 2-4 with 1 distinct av. Relative lengths of segments of legs L_1 2.7: 1.3: 0.3: 0.3: 0.2: 0.4; L_{II} 4.2: 1.8: 0.8: 0.65: 0.4: 0.6; L_{III} 4.3: 1.4: 1.2: 0.8: 0.6: 0.7. Wing grayish brown; veins black, R4+5 and M parallel apically, CuAx ratio 0.5. Squama yellow, or dark brownish yellow with black hairs. Halter yellow or brownish yellow.

Abdomen metallic green, with gray pollen; hairs black. Male genitalia (Fig. 32): Epandrium longer than wide, with 2 long or short lateral lobes; cercus nearly triangular, with weak marginal denticles; hypandrium thick, with oblique and somewhat acute apex.

Female. Unknown

Holotype male, paratype male. Sichuan: Emei Mountain, Linggongli (1300-1400 m), 1998. VIII. 17, Ding YANG. Paratype 1 male, Sichuan: Emei Mountain, Jingshui (700-750 m), 1998. VIII. 15, Ding YANG. (CAU)

Etymology. This new species is named after its first flagellomere, short and rounded apically.

Distribution. China (Sichuan).

Remarks. This new species is somewhat similar to *nigrilamellatus* MACQUART from Europe, but may be easily separated from the latter by having R4+5 and M parallel apically, and cercus with weak marginal denticles. In *nigrilamellatus*, R4+5 and M are convergent apically; the cercus has finger-like marginal denticles (STACKELBERG, 1933-1934; PARENT, 1938).

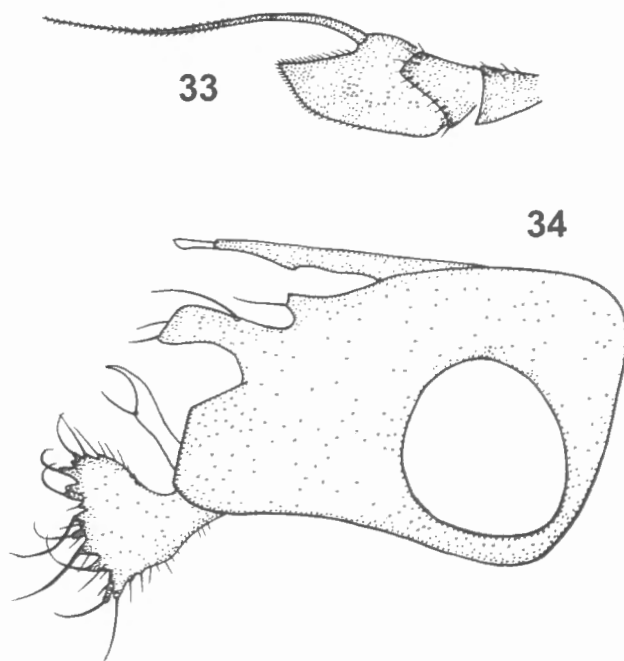
32. *Hercostomus (Hercostomus) serratus* sp. nov.
(Figs. 33-34)

Diagnosis. Antenna and postocular bristles black. Legs chiefly black. Cercus with distinct marginal denticles

Male. Body length 2.9-3.1 mm, wing length 3.4-3.5 mm.

Head metallic green, with pale gray pruinosity. Face nearly as wide as first flagellomere. Hairs and bristles on head black; postocular bristles (including ventral hairs) black. Antenna (Fig. 33) wholly black; first flagellomere 1.5 times longer than wide, acute apically; arista black, very short pubescent, with basal segment 0.4 times as long as apical segment. Proboscis blackish, and palpus black, with black hairs.

Thorax metallic green, with pale gray pruinosity. Hairs and bristles on thorax black; 5-6 irregularly paired acr, short and hair-like; 6 strong dc; scutellum without short hairs. Legs black; tips of femora brownish yellow, tibiae yellow (sometimes tip of hind tibia blackish); fore and mid tarsi from tip of tarsomere 1 onward dark brown to black, hind tarsus wholly black. Hairs and bristles on legs black; mid and hind coxae each with 1 outer bristle, mid and hind femora each with 1 preapical bristle; fore tibia with 1 ad, 2 pd and 1 short apv; mid tibia with 3 ad, 2 pd and 1 av; hind tibia with 2 ad, 4 pd and 1 av. Relative lengths of segments of legs L_1 3.6: 1.4: 0.8: 0.7: 0.4: 0.5; L_{II} 4.9: 2.1: 1.25: 1.1: 0.8: 0.6; L_{III} 5.2: 1.7: 2.1: 1.3: 1.0: 0.75. Wing slightly tinged with gray; veins black, R4+5 and M slightly convergent apically, CuAx ratio 0.45. Squama yellow, with black hairs. Halter yellow.



Figs. 33-34 — *Hercostomus (Hercostomus) serratus* sp. nov., male. 33. antenna, lateral view; 34. genitalia, lateral view.

Abdomen metallic green, with pale gray pollen; hairs black.

Male genitalia (Fig. 34): Epandrium longer than wide, with thick lateral lobe; cercus nearly triangular, with distinct marginal denticles; hypandrium with a denticle near apex.

Female. Body length 2.5-2.9 mm, wing length 3.4-3.6 mm. Similar to male.

Holotype male, paratype 7 males 9 females. Sichuan: Emei Mountain, Leidongping (2480 m), 1998. VIII. 8, Ding YANG. (CAU & IRSN)

Distribution. China (Sichuan).

Etymology. This new species is named after its cercus, with distinct marginal denticles.

Remarks. This new species is similar to *H. baishanzuensis* YANG et YANG, but may be separated from the latter by having the acr. In *baishanzuensis*, acr are absent (YANG & YANG, 1995).

33. *Hercostomus (Hercostomus) tianmushanus* YANG

Hercostomus (Hercostomus) tianmushanus YANG, 1998, Entomofauna 19(13): 235. Type locality: Zhejiang.

Specimen examined. 1 male, Sichuan: Emei Mountain, Lianghekou-Wuxiangang (700 m), 1984. VIII. 11, Ding YANG.

Distribution. China (Sichuan, Guizhou).

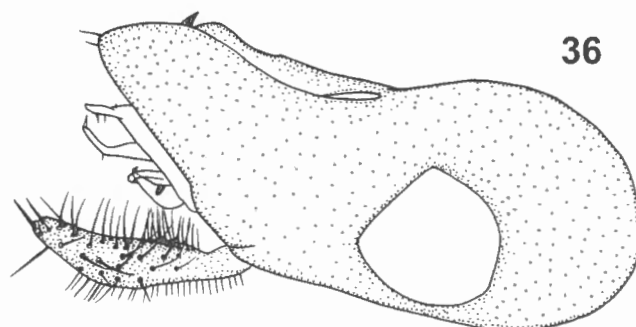
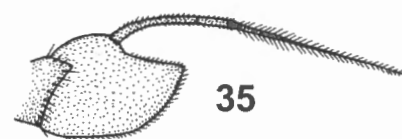
34. *Hercostomus (Hercostomus) ventralis* sp. nov. (Figs. 35-36)

Diagnosis. Mid and hind femora with long ventral hairs. Epandrium much elongated.

Male. Body length 2.7 mm, wing length 3.1 mm.

Head metallic green, with pale gray pollen. Face narrower than first flagellomere. Hairs and bristles on head black; postocular bristles (including ventral hairs) black. Antenna (Fig. 35) black, scape brown ventrally; first flagellomere 1.4 times longer than wide, somewhat acute apically; arista black, short pubescent, with basal segment 0.65 times as long as apical segment. Proboscis blackish, and palpus black, with black hairs.

Thorax metallic green, with pale gray pruinosity. Hairs and bristles on thorax black; 6-7 irregularly paired acr, short and hair-like; 6 strong dc; scutellum with short black dorsal and marginal hairs. Legs yellow; coxae yellow, mid coxa slightly tinged with black; tarsi from tip of tarsomere 1 onward brown to dark brown. Hairs and bristles on legs black; mid and hind coxae each with 1



Figs. 35-36 — *Hercostomus (Hercostomus) ventralis* sp. nov., male. 35. antenna (excluding scape), lateral view; 36. genitalia, lateral view.

outer bristle, mid and hind femora each with 1 preapical bristle and long ventral hairs; fore tibia with 1 ad, 2 pd and 1 long apv; mid tibia with 3 ad, 2 pd and 1 av; hind tibia with 2 ad, 4 pd and 2 thin av. Relative lengths of segments of legs Li 3.8: 2.8: 0.8: 0.7: 0.4: 0.4; LII 5.0: 2.3: 1.2: 1.1: 0.8: 0.6; LIII 5.1: 1.9: 2.0: 1.2: 0.9: 0.6. Wing tinged with gray; veins black, R4+5 and M slightly convergent apically, CuAx ratio 0.5. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; hairs black. Male genitalia (Fig. 36): Epandrium much elongated; cercus strap-like; hypandrium partly visible in lateral view.

Female. Unknown

Holotype male. Sichuan: Emei Mountain, Jingshui (650 m), 1998. VIII. 10, Ding YANG. (CAU)

Distribution. China (Sichuan).

Etymology. This new species is named after the long ventral hairs on mid and hind femora.

Remarks. This new species is peculiar. It may be easily separated from other known species of the genus by having the mid and hind femora with long ventral hairs and epandrium much elongated.

35. *Condylostylus geniculatus* YANG

Condylostylus geniculatus YANG, 1998. Acta Ent. Sin. 41 (Suppl.), p. 184. Type locality: Sichuan.

Distribution. China (Sichuan).

36. *Rhaphium apicinigrum* sp. nov.
(Figs. 37-39)

Diagnosis. First flagellomere rather long (4.3 times longer than wide). 4 strong dc.

All coxae yellow; apex of hind femur black. Fore tibia with a row of 7 ad.

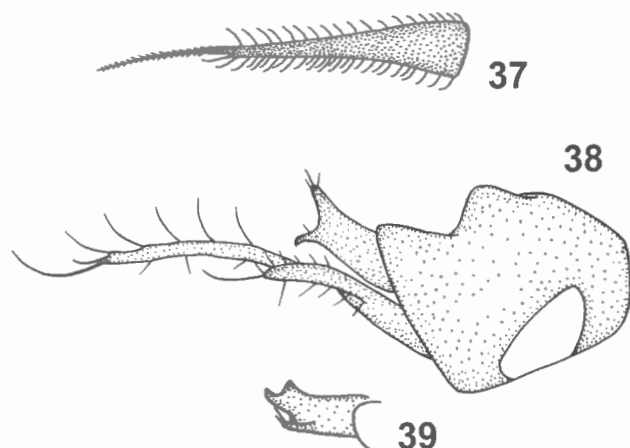
Male. Body length 1.7 mm, wing length 2.1 mm.

Head metallic green, with pale gray pollen. Hairs and bristles on head black; middle and lower postocular bristles (including ventral hairs) pale. Antenna (Fig. 37) blackish; first flagellomere distinctly elongated, 4.3 times longer than wide; arista apical, black, short pubescent, 0.55 times as long as first flagellomere. Proboscis blackish with blackish and pale hairs; palpus black, with black hairs.

Thorax metallic green, with pale gray pollen. Hairs and bristles on thorax black; 2-3 irregularly paired acr present between most anterior 2 dc; 4 strong dc. Legs yellow; all coxae yellow; apex of hind femur black; fore and mid tarsi from tip of tarsomere 1 onward brownish to brown, hind tarsus wholly dark brown. Hairs and bristles on legs black; hairs and bristles on all coxae black, hind coxa with 1 outer bristle. Fore tibia with a row of 7 ad; mid tibia with 1 ad, 2 pd and 1 pv; hind tibia with 2 ad and 2-3 pd. Relative lengths of segments of legs L_1 2.0: 1.0: 0.35: 0.35: 0.2: 0.25; L_{II} 3.0: 1.3: 0.65: 0.45: 0.3: 0.3; L_{III} 3.8: 1.1: 1.1: 0.8: 0.6: 0.4. Wing slightly tinged with grayish; veins blackish, R4+5 and M weakly convergent apically, CuAx ratio 0.4. Squama yellow with pale hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; hairs black. Male genitalia (Fig. 38-39): Epandrium slightly longer than wide, surstylus rather wide with furcate apex; cercus slender, basally with short lateral lobe.

Female. Unknown



Figs. 37-39 — *Rhaphium apicinigrum* sp. nov., male. 37. antenna (excluding scape and pedicel), lateral view; 38, genitalia lateral view; 39. surstylus, ventral view.

Holotype male. Sichuan: Emei Mountain, Jingshui (700-750 m), 1998. VIII. 15, Ding YANG. (CAU)

Distribution. China (Sichuan).

Etymology. This new species is named after the hind femur with black apex.

Remarks. This new species is somewhat similar to *ensicorne* MEIGEN from Europe, but may be easily separated from the latter in the following points: apex of hind femur black, all coxae yellow, fore coxa with black hairs, fore tibia with a row of 7 ad; in *ensicorne*, hind femur wholly yellow, hind coxa dark, fore coxa with pale hairs, fore tibia with 1 ad (NEGROBOV, 1979).

37. *Rhaphium sichuanense* sp. nov.
(Figs. 40-41)

Diagnosis. First flagellomere very long (8.2 times as long as wide). 4 strong dc; acr absent. Hairs and bristles on all coxae yellow.

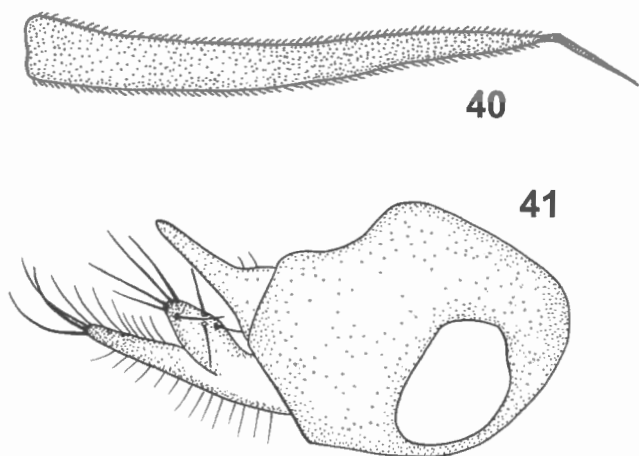
Male. Body length 2.1 mm, wing length 2.5 mm.

Head metallic green, with pale gray pollen. Hairs and bristles on head black; middle and lower postocular bristles (including ventral hairs) pale. Antenna (Fig. 40) black; first flagellomere very elongated, 8.2 times longer than wide; arista apical, black, indistinct pubescent, very short (0.2 times as long as first flagellomere). Proboscis brownish yellow and palpus black, with black hairs.

Thorax metallic green, with pale gray pollen. Hairs and bristles on thorax black; acr absent; 4 strong dc; scutellum with 2 lsc very short and hair-like. Legs yellow; fore coxa yellow with black base; mid and hind coxae black; apex of hind tibia brown; fore and mid tarsi from tip of tarsomere 1 onward dark brown to black, hind tarsus wholly black. Hairs and bristles on legs black, but those on all coxae yellow; hind coxa with 1 outer bristle. Fore tibia with 1 ad, 2 thin pd and 1 distinct pv; mid tibia with 2 ad, 2 pd and 1 pv; hind tibia with 2 ad, 2 pd and 2-3 pv. Fore tarsomere 1 with a row of 14-15 short v; mid tarsomere 5 weakly thickened. Relative lengths of segments of legs L_1 2.8: 1.6: 0.8: 0.5: 0.3: 0.4; L_{II} 3.4: 1.8: 1.0: 0.7: 0.6: 0.3; L_{III} 4.4: 1.2: 1.3: 0.9: 0.6: 0.4. Wing hyaline; veins black, R4+5 and M convergent apically, CuAx ratio 0.4. Squama yellow, with pale hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; hairs black. Male genitalia (Fig. 41): Epandrium slightly longer than wide, its surstylus long and finger-like; cercus with short outer lobe and long inner lobe.

Female. Body length 2.4 mm, wing length 3.2 mm. Similar to male, but first flagellomere rather short and conical.



Figs. 40-41 — *Rhaphium sichuanense* sp. nov., male. 40. antenna (excluding scape and pedicel), lateral view; 41. genitalia, lateral view.

Holotype male. Sichuan: Emei Mountain, Jingshui (700-750 m), 1998. VIII. 15, Ding YANG; paratype female, Sichuan: Emei Mountain, Maziba (1100-1300 m), 1998. VIII. 16, Ding YANG. (CAU)

Distribution. China (Sichuan).

Etymology. This new species is named after its type locality Sichuan.

Remarks. This new species is somewhat similar to *sichotense* NEGROBOV from Russia, but may be easily separated from the latter by having the mid and hind coxae black. In *sichotense*, the mid and hind coxae are yellow (NEGROBOV, 1979).

38. *Syntormon emeiensis* sp. nov.
(Figs. 42-43)

Diagnosis. Arista nearly apical, and rather long (0.75 times as long as first flagellomere).

Male. Body length 2.2 mm, wing length 2.4 mm.

Head metallic green, with pale gray pollen. Face distinctly narrower than first flagellomere. Hairs and bristles on head black; middle and lower postocular bristles (including ventral hairs) pale. Antenna (Fig. 42) black; first flagellomere distinctly elongated, 3.3 times longer than wide; arista nearly apical, black, very short pubescent, 0.75 times as long as first flagellomere. Proboscis and palpus black, with black hairs.

Thorax metallic green, with pale gray pruinosity. Hairs and bristles on thorax black; 5-6 nearly paired acr; 6 strong dc; scutellum with 2 strong apsc, 2 hair-like lsc, and 2 pale apical hairs (between apsc). Propleuron pale haired. Legs yellow; fore coxa yellow, mid and hind

coxae black; fore and mid tarsi from tip of tarsomere 1 onward dark brown to black, hind tarsus wholly black. Hairs and bristles on legs black; fore coxa with pale hairs and 4 apical bristles; mid coxa basally with pale hairs, apically with black hairs and bristles, hind coxa with pale hairs and 1 black outer bristle. Fore tibia without distinct d; mid tibia with 3 ad and 1 pd; hind tibia with 2 ad and 4 pd. Relative lengths of segments of legs LI 2.9: 1.6: 0.7: 0.6: 0.4: 0.4; LII 4.1: 1.9: 0.9: 0.8: 0.5: 0.45; LIII 4.9: 1.2: 1.2: 0.9: 0.55: 0.45. Wing hyaline; veins blackish, R4+5 and M slightly convergent apically, CuAx ratio 0.85. Squama yellow, with pale hairs. Halter yellow.

Abdomen metallic green, with pale gray pollen; hairs black, tergite 1 with pale lateral hairs, sternite 1 with pale hairs. Male genitalia (Fig. 43): Epandrium longer than wide, narrow apically, with dorsal lobe somewhat tapering (its apex very narrow), and ventral lobe rather wide; hypandrium rather thick and nearly straight; cercus lobe-like.

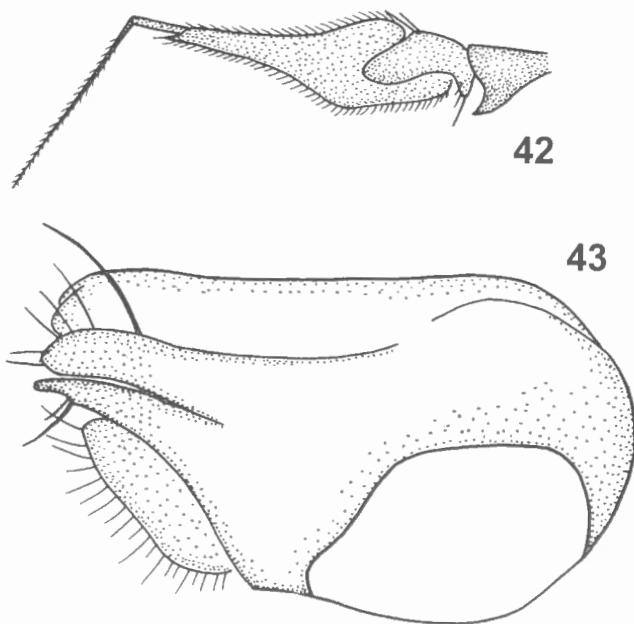
Female. Unknown

Holotype male. Sichuan: Emei Mountain, Linggongli (1300-1400 m), 1998. VIII. 17, Ding YANG. (CAU)

Distribution. China (Sichuan).

Etymology. This new species is named after its type locality Emei Mountain.

Remarks. This new species is somewhat similar to *ama* HOLLIS from Nepal, but may be easily separated from the



Figs. 42-43 — *Syntormon emeiensis* sp. nov., male. 42. antenna, inner lateral view; 43. genitalia, lateral view.

latter in the following points: arista nearly apical and 0.75 times as long as first flagellomere, hind femur and tibia wholly yellow; in ama, arista apical and half as long as first flagellomere, hind femur and tibia darkened apically (HOLLIS, 1964).

39. *Diostracus emeiensis* YANG

Diostracus emeiensis YANG, 1998, Bull. Inst. R. Sci. Nat. Belg. Ent. 68: 156. Type locality: Sichuan.

Distribution. China (Sichuan).

40. *Diostracus nishiyamai* SAIGUSA

Diostracus nishiyamai SAIGUSA, 1995, Bull. Grad. Sch. Soc. Cul. Stud, Kyushu Univ. 1: 78. Type locality: Sichuan.

Diostracus zhangjiajiensis YANG, 1998, Bull. Inst. R. Sci. Nat. Belg. Ent. 68: 158. Type locality: Hunan. Syn. nov.

Specimens examined. 1 male, Sichuan: Emei Mountain, Jingshui (650 m), 1998. VIII. 10, Ding YANG; 1 female, Linggongli (1300-1400 m), Sichuan: Emei Mountain, 1998. VIII. 17, Ding YANG.

Distribution. China (Sichuan, Hunan).

41. *Liancalus lasius* WEI et LIU

Liancalus lasius WEI et LIU, 1995, J. Guizhou Agric. Coll. 14(4): 36. Type locality: Guizhou.

Specimens examined. 3 males, Sichuan: Emei Mountain, Jingshui (700-750 m), 1998. VIII. 15, Ding YANG; 2 males 7 females, Sichuan: Emei Mountain, Wuxiangang (700 m), 1998. VIII. 14, Ding YANG.

Distribution. China (Sichuan, Guizhou).

Acknowledgements

Our sincere thanks are due to Drs. P. GROOTAERT and H. MEUFFELS (Institut Royal des Sciences naturelles, Brussels), Dr. H. ULRICH (Zoologisches Forschungsinstitut und Museum A. Koenig, Bonn), Dr. H. MEYER (Zoologisches Institut, Kiel) for their generous help in many ways. The research is funded by the National Natural Science Foundation of China.

References

- HOLLIS, D. 1964. On the Diptera of Nepal (Stratiomyidae, Therevidae and Dolichopodidae). *Bulletin of the British Museum (Natural History) Entomology*, 15(5): 83-116.
- NEGROBOV, O. P. 1979. 29. Dolichopodidae. In LINDNER, E. (ed.): *Die Fliegen der Palaearktischen Region*. 4(5), Lief. 322: 475-530.
- PARENT, O. 1926. Dolichopodides nouveaux de l'extrême orient paléarctique. *Encyclopédie entomologique (B II) Diptera*, 3: 111-149.
- PARENT, O. 1934. Diptères Dolichopodides exotiques. *Mémoires de la Société Nationale des Sciences Naturelles et Mathématiques de Cherbourg*. 41: 257-308.
- PARENT, O. 1938. Diptères Dolichopodidae. *Faune de France*. 35: 720pp.
- SAIGUSA, T. 1995. New species of the genus *Diostracus* from Eastern Asia (Insecta, Diptera, Dolichopodidae). *Bulletin of the Graduate School of Social and Cultural Studies, Kyushu University*. 1: 73-85.
- STACKELBERG, A. A. 1933-1934. 29. Dolichopodidae. In LINDNER E. (ed.), *Die Fliegen der Palaearktischen Region*. 4(5), Lief. 71: 65-128; Lief. 82: 129-176.
- WEI, L. 1997. Dolichopodidae (Diptera) from Southwestern China II. A study on the genus *Hercostomus* Loew 1857. *Journal of Guizhou Agricultural College*. 16(1): 29-41; 16(2): 36-50; 16(4): 32-43.
- WEI, L. & LIU, G. 1995. Studies on the family Dolichopodidae in Southwest China, A new species of *Liancalus* from Guizhou Province (Diptera). *Journal of Guizhou Agricultural College*. 14(4): 35-38.
- YANG, D. 1996a. Six new species of Dolichopodinae from China (Diptera, Dolichopodidae). *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique Entomologie*, 66: 85-89.
- YANG, D. 1996b. New species of Dolichopodinae from China (Diptera, Dolichopodidae). *Entomofauna*, 17(18): 317-324.
- YANG, D. 1996c. New species of *Hercostomus* and *Ludovicium* from North China (Diptera: Dolichopodidae). *Deutsche Entomologische Zeitschrift*, 43(2): 235-244.
- YANG, D. 1996d. New species of the genus *Hercostomus* from Xizang (Diptera: Dolichopodidae). *Annales de la Société entomologique de France (N. S.)* 32(4): 411-417.
- YANG, D. 1997. Eight new species of *Hercostomus* from China (Diptera, Dolichopodidae). *Studia dipterologica* 4(1): 115-124.
- YANG, D. 1998a. Six new species of Dolichopodidae from China (Diptera). *Acta Entomologica Sinica* 41 (Supplement): 180-185.
- YANG, D. 1998b. New and little known species of Dolichopodidae from China (I-III). *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique, Entomologie*, 68: 151-164, 165-176, 177-183.
- YANG, D. 1998c. New species of Dolichopodidae from South China (Diptera, Dolichopodidae). *Entomofauna*, 19(13): 233-240.
- YANG, D. & LI, Z. 1998. Diptera: Dolichopodidae. In Wu, H. (ed.): *Insects of Longwangshan Nature Reserve*, p. 318-323. China Forestry Publishing House.
- YANG, D. & YANG, C. 1995. Diptera: Dolichopodidae. In Wu, H. (ed.): *Insects of Baishanzu Mountain, Eastern China*, p. 510-519. China Forestry Publishing House.

HOLLIS, D. 1964. On the Diptera of Nepal (Stratiomyidae,

YANG, D., YANG, C. & LI, Z. 1998. Three new species of Dolichopodidae from Henan (Diptera). In SHEN, X. & SHI, Z. (eds): *Insects of the Funiu Mountains region (1)*: 81-85. China Agricultural Sciencetech Press.

Ding YANG
Department of Entomology
China Agricultural University
Haidian, Beijing 100094
China

Toyohei SAIGUSA
Biosystematics Laboratory
Department of Evolution of Earth Environments
Graduate School of Social and Cultural Studies
Kyushu University
Ropponmatsu, Fukuoka 810, Japan