

New and little known species of Dolichopodidae from China (V)

by Ding YANG and Patrick GROOTAERT

Abstract

18 species of Dolichopodidae from China are described as new to science: *Hercostomus (Gymnopterus) collectivus*, *Hercostomus (Hercostomus) apiculatus*, *H. (H.) serrulatus*, *H. (H.) flatus*, *Argyra (Leucostola) sinensis*, *Machaerium henanense*, *Chaetogonopteron menglonganum*, *C. menglunense*, *Diaphorus alamaculatus*, *D. basiniger*, *D. bisetus*, *D. centriflavus*, *D. elongatus*, *D. hebeiensis*, *D. menglunanus*, *D. mengyananus*, *D. qingchengshanus*, *D. xizangensis*. The species of the genus *Diaphorus* from the mainland of China are reviewed and a key is given for the males.

Key words: Dolichopodidae, new species, China

Introduction

In the present paper, 20 species of Dolichopodidae from China are described. Among them 18 species are new to science, and 2 species (*Diaphorus nigricans* MEIGEN, 1824; *D. parenti* STACKELBERG, 1928) are newly recorded from China. A key to the species of *Diaphorus* from the mainland of China is given. The types of the new species are deposited in the Insect Collection of China Agricultural University except for some paratypes kept in the Royal Belgian Institute of natural Sciences in Brussels.

1. *Hercostomus (Gymnopterus) collectivus* sp. nov. (Figs. 1-3)

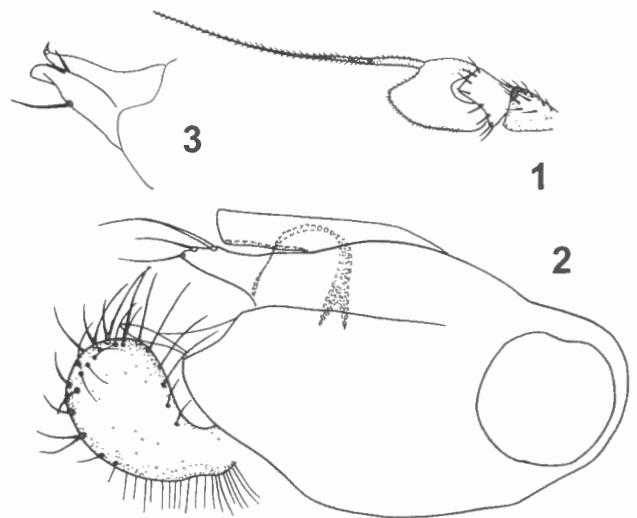
Diagnosis. Antenna blackish, with pedicel and base of first flagellomere brownish yellow. Hind tibia with 2-3 av. Lateral lobe on epandrium rather thick, with apex somewhat acute, with 3 closely bristles set.

Male. Body length 3.0 mm, wing length 3.3 mm.

Head metallic green, with pale grey pollen. Face about as wide as first flagellomere. Hairs and bristles on head black; postocular bristles (including ventral hairs) wholly black. Antenna (Fig. 1) blackish with pedicel and base of first flagellomere brownish yellow; first flagellomere 1.2 times longer than wide, angular apically; arista blackish, distinctly pubescent, with basal segment 0.25 times as

long as apical segment. Proboscis brownish, with black hairs; palpus brownish yellow, with black hairs and 1 apical bristle.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 5 strong dc; 9-10 irregularly paired acr, short and hair-like, backward not reaching to 5th dc; scutellum with chiefly short black hairs on dorsal surface and apical margin. Propleuron pale haired, with 1 long black bristle on lower part. Pteropleuron with a group of fine hairs just in front of posterior spiracle. Legs yellow; coxae yellow, mid coxa with a large black spot; tarsi from tip of tarsomere 1 onward brownish to brown. Hairs and bristles on legs black; all coxae with black hairs and bristles. Mid and hind femora each with 1 preapical bristle. Fore tibia with 1 ad, a row of short ad on apical 2/3 and 2 pd; mid tibia with 3 ad, 2 pd and 1 av; hind tibia with 2 ad, 3 pd and 2-3 av. Relative lengths of segments (excluding coxae, trochanters and femora) of legs LI 3.3: 1.7: 0.8: 0.7: 0.4: 0.4; LII 4.9: 2.2: 1.2: 1.0: 0.9: 0.55; LIII 5.4: 1.4: 2.0: 1.2: 1.0: 0.6.



Figs. 1-3 — *Hercostomus (Gymnopterus) collectivus* sp. nov., male. 1. antenna, lateral view; 2. genitalia, lateral view; 3. apical processes, lateral view.

Wing slightly tinged with greyish; veins blackish, first section of C somewhat thickened medially, R4+5 and M parallel apically; CuAx ratio 0.8. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale grey pollen; hairs black. Hypopygium (Fig. 2-3) rather small: Epandrium distinctly longer than wide, with narrow apex, its lateral lobe rather thick with somewhat acute apex, with 3 bristles set closely; cercus rounded apically; hypandrium thick and more or less straight apically.

Female. Unknown.

Holotype male: Zhejiang: Tianmushan, Sanliting, 1998. V. 30, Hong WU. (CAU)

Distribution. China (Zhejiang).

Etymology: the name alludes to the closely set hairs on the lateral lobe of the epandrium.

Remarks. This species is somewhat similar to *H. zieheni* PARENT from Russia. It can be easily separated from the latter by having the antenna blackish, with pedicel and base of first flagellomere brownish yellow, and hind tibia with 2-3 av. In *H. zieheni*, the antenna is wholly pale, except apex of first flagellomere that is somewhat dark; hind tibia has 1 av (STACKELBERG, 1933). It may be easily separated from *H. jishanensis* WEI from Guizhou and *H. congruens* BECKER from Southern China (including Taiwan) by having the lateral lobe on epandrium short and thick. In *H. jishanensis* and *H. congruens*, the lateral lobe on epandrium is slender (HENNIG, 1941; WEI, 1997).

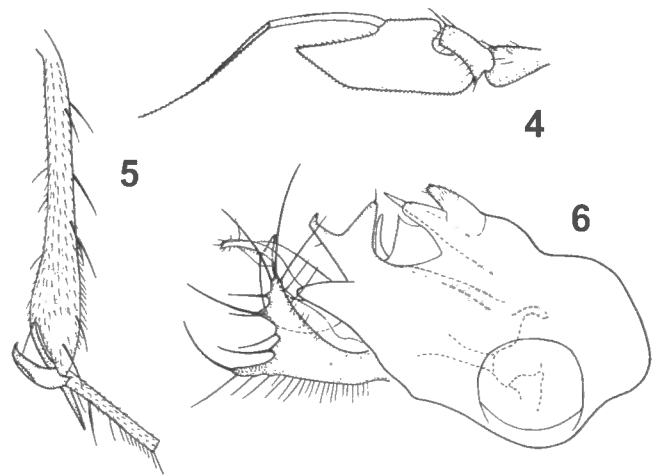
2. *Hercostomus (Hercostomus) apiculatus* sp. nov. (Figs. 4-6)

Diagnosis. First flagellomere distinctly elongated, with acute apex. Hind tibia thickened apically, with a long ventral spine, hind tarsomere 1 basally with a thick ventral spine curved upward.

Male. Body length 3.3 mm, wing length 3.7 mm.

Head metallic green, with pale grey pollen. Face distinctly narrower than first flagellomere. Hairs and bristles on head black; postocular bristles (including ventral hairs) wholly black. Antenna (Fig. 4) black; first flagellomere blackish basally, distinctly elongated (2.3 times longer than wide), acute apically; arista black, very short pubescent, with basal segment 0.7 times as long as apical segment. Proboscis brownish, and palpus black, with blackish hairs; palpus with 1 black apical bristle.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 4-5 irregularly paired acr, short and hair-like, 6-7 strong dc; scutellum without short hairs. Legs yellow; coxae yellow, mid coxa (except apex)



Figs. 4-6 — *Hercostomus (Hercostomus) apiculatus* sp. nov., male. 4. antenna, lateral view; 5. hind tibia and tarsomere 1, lateral view; 6. genitalia, lateral view.

blackish; apical part of hind tibia blackish; fore and mid tarsi, from tip of tarsomere 1 onward, brown to dark brown, hind tarsus wholly dark brown. Hind tibia thickened apically, with a long ventral spine, hind tarsomere 1 basally with a thick ventral spine curved upward (Fig. 5). Hairs and bristles on legs black. 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 2 ad and 3 pd. Relative lengths of segments of legs LI 4.0: 2.2: 1.2: 0.9: 0.65: 0.5; LII 6.0: 4.8: 2.8: 1.5: 1.0: 0.75; LIII 6.8: 2.2: 2.8: 1.7: 1.0: 0.8.

Wing slightly tinged with grey; veins blackish, R4+5 and M convergent apically; CuAx ratio 0.5. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale grey pollen; hairs black. Hypopygium (Fig. 6): Epandrium much longer than wide, more or less acute apically, its lateral lobe rather wide with furcate apex; cercus somewhat triangular, distinctly incised apically with marginal denticles; hypandrium rather short and irregularly furcate.

Female. Unknown.

Holotype male: Zhejiang: Tianmushan, Sanliting, 1998. V. 30, Hong WU. (CAU)

Distribution. China (Zhejiang).

Etymology. The name refers to the ornamentation of hind tarsomere 1.

Remarks. This species is very peculiar. It may be easily separated from other known species of the genus by having the hind tibia thickened apically, with a long ventral spine, and hind tarsomere 1 basally with a thick ventral spine curved upward.

3. *Hercostomus (Hercostomus) serrulatus* sp. nov.
(Figs. 7-9)

Diagnosis. First flagellomere rather short. Abdominal sternum 7 with tiny denticles apically.

Male. Body length 5.7 mm, wing length 5.4 mm.

Head metallic green, with pale grey pollen. Face as wide as first flagellomere. Hairs and bristles on head black; postocular bristles (including ventral hairs) wholly black. Antenna (fig. 7) wholly black; first flagellomere rather short (1.3 times longer than wide), obtuse apically; arista black, with basal segment 0.4 times as long as apical segment. Proboscis and palpus yellow, with black hairs; palpus with 1 black apical bristle.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 7-8 irregularly paired acr, short and hair-like, 6 strong dc. Propleuron pale haired, with 1 black bristle on lower part.

Legs yellow; coxae yellow, mid coxa with a black outer spot; tarsi from tip of tarsomere 1 onward brown to dark brown. Hairs and bristles on legs black; fore coxa with short pale hairs, and apically with some black bristles. Mid and hind femora each with 1 preapical bristle. Fore tibia with 1 ad and 2 pd; mid tibia with 3-4 ad, 2 pd and 3 av; hind tibia with 3-4 ad, 1 d, 4 pd and 6 av. Relative lengths of segments of legs LI 6.2: 3.5: 2.0: 1.5: 1.2: 0.75; LII 10.0: 4.4: 2.7: 2.1: 1.3: 0.8; LIII 11.3: 2.9: 4.1: 2.3: 1.3: 0.9.

Wing grey; veins black, R4+5 and M distinctly convergent apically; CuAx ratio 0.8. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale grey pollen; hairs black. Sternum 7 (Fig. 8) with some tiny denticles. Hypopygium (Fig. 9): Epandrium distinctly longer than wide, wide apically, its lateral lobe distinct, and nearly straight, posteriorly with a distinct projection that is acute

apically; cercus rather large apically, with some strong marginal bristles; hypandrium long, and irregularly furcate.

Female. Body length 4.7-5.0 mm, wing length 5.7-6.0 mm. Similar to male.

Holotype male: Zhejiang: Tianmushan Mountain, Sanlit-ing, 1998. V. 30, Hong Wu.

Paratypes:, Zhejiang: Tianmushan, Canyuanshi, 1998. V. 29, 1 male, 2 females, Zhiyong Yu. (CAU).

Distribution. China (Zhejiang).

Etymology. The name refers to the denticulation on sternum 7 of abdomen.

Remarks. This species is somewhat similar to *H. (H.) dentalis* YANG from Xizang, but may be separated from the latter by having the first flagellomere obtuse apically. In *H. dentalis*, the first flagellomere is acute apically (YANG, 1997).

4. *Hercostomus (Hercostomus) flatus* sp. nov.
(Figs. 10-11)

Diagnosis. First flagellomere rather large with flat apex. Lateral lobe on epandrium rather large.

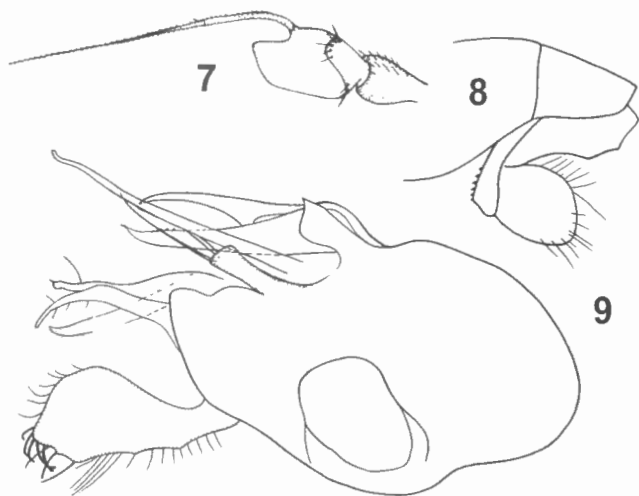
Male. Body length 4.0-4.8 mm, wing length 4.1-4.7 mm.

Head metallic green, with pale grey pollen. Face slightly narrower than first flagellomere. Hairs and bristles on head black; postocular bristles (including ventral hairs) wholly black. Antenna (Fig. 10) yellow; first flagellomere with dorsal surface and apical part black, rather large (1.5 times longer than wide), flat apically; arista black, with basal segment 0.8 times as long as apical segment. Proboscis brownish yellow, and palpus yellow, with black hairs; palpus with 1 black apical bristle.

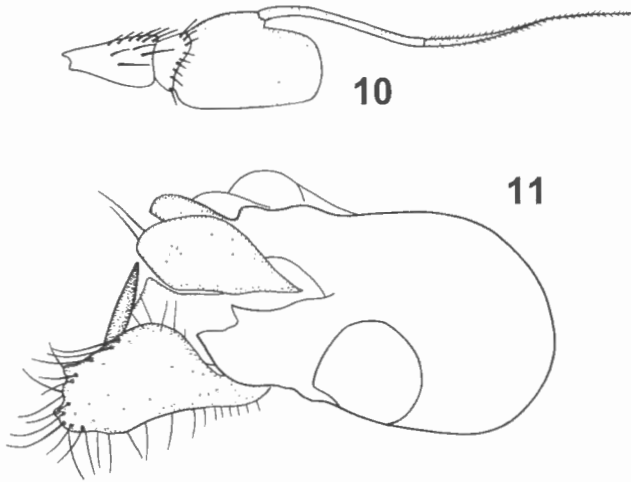
Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 6-7 irregularly paired acr, short and hair-like, 6 strong dc. Propleuron pale haired, with 1 black bristle on lower part.

Legs yellow; coxae yellow, mid coxa with a blackish outer spot; tarsi from tip of tarsomere 1 onward brown to dark brown. Hairs and bristles on legs black. Mid and hind femora each with 1 preapical bristle. Fore tibia with 1 ad, 2 pd and 1 short av; mid tibia with 3 ad, 2 pd and 1 av; hind tibia with 3 ad, 3 pd and 6 av (of which 2 av near apex are stronger); hind tarsomere 1 with 3 v. Relative lengths of segments of legs LI 5.0: 2.7: 1.3: 1.1: 0.8: 0.5; LII 7.0: 3.7: 2.2: 1.9: 1.1: 0.7; LIII 8.0: 2.2: 3.2: 2.1: 1.3: 0.75.

Wing hyaline; veins blackish, R4+5 and M distinctly convergent apically; CuAx ratio 0.7. Squama yellow, with black hairs. Halter yellow.



Figs. 7-9 — *Hercostomus (Hercostomus) serrulatus* sp. nov., male. 7. antenna, lateral view; 8. pregenital segments, lateral view; 9. genitalia, lateral view.



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

Abdomen metallic green, with pale grey pollen; hairs black. Hypopygium (Fig. 11): Epandrium longer than wide, narrow apically, its lateral lobe separated and rather large; cercus rather large, with 1 thick apical bristle directed inward; hypandrium incised medially, with somewhat bent lateral arm.

Female. Unknown.

Holotype male: paratype male, Zhejiang: Tianmushan Mountain, Laodian (1100-1200 m), 1998. V. 30, Hong Wu. (CAU)

Distribution. China (Zhejiang).

Etymology. The name refers to the large epandrial lobe (Lat. *flatus* = blown up, inflated).

Remarks. This species is somewhat similar to *H. (H.) intactus* WEI from Yunnan, but may be separated from the latter by having the first flagellomere yellow basally, and lateral lobe on epandrium rather large. In *H. intactus*, the first flagellomere is dark, the lateral lobe on epandrium is very small (WEI, 1997).

5. *Argyra (Leucostola) sinensis* sp. nov.
(Figs. 12-13)

Diagnosis. Fore coxa with black hairs and bristles. First flagellomere dark yellow, with black basal and dorsal margins.

Male. Body length 3.8 mm, wing length 3.2 mm.

Head metallic green, with pale grey pollen. Face narrower than first flagellomere. Hairs and bristles on head

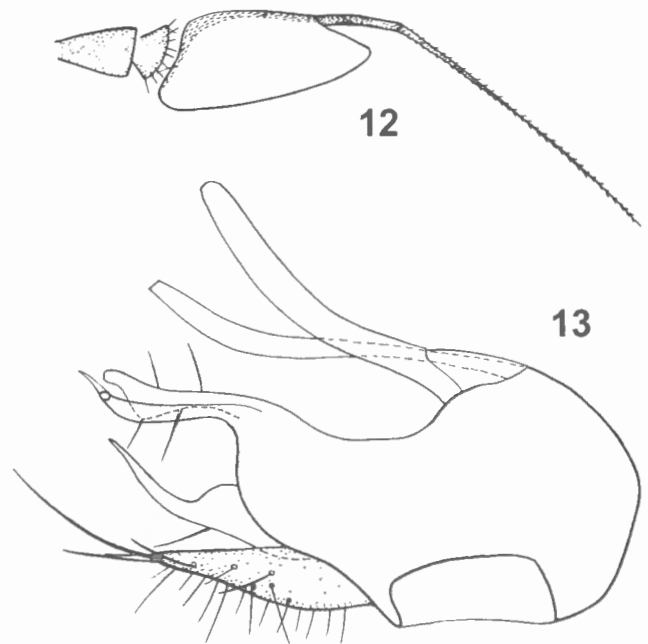
black; middle and lower postocular bristles (including ventral hairs) pale. Antenna (Fig. 12) blackish; first flagellomere dark yellow, with basal and dorsal margin black, slightly elongated (2.1 times longer than wide), somewhat acute apically; arista black, with basal segment 0.25 times as long as apical segment. Proboscis dark brown, with black hairs; palpus yellow, with black hairs, and 1 black apical bristle.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 5-6 irregularly paired acr, short and hair-like, 6 strong dc; scutellum with 2 strong apsc and 2 hair-like lsc. Propleuron black haired.

Legs yellow; all coxae yellow; apex of hind femur brown; mid and hind tarsi from tip of tarsomere 1 onward brown to dark brown. Hairs and bristles on legs black; fore coxa with black hairs and 4 black apical bristles anteriorly, mid coxa with black hairs and 1 black bristle anteriorly; hind coxa with 1 short black hair and 1 long black bristle laterally. Fore tibia with 1 weak pd, tarsomere 1 with 4 short v; mid tibia with 2 ad, 2 short pd and 2 av; hind tibia with 1 short ad and a row of pd. Relative lengths of segments of legs LI 3.2: 2.1: 0.7: 0.5: 0.3: 0.3; LII 4.4: 2.3: 1.0: 0.8: 0.45: 0.3; LIII 6.0: 1.5: 1.4: 1.0: 0.6: 0.4.

Wing weakly tinged with grey; veins blackish, Cell R5 widest behind m-cu, R4+5 and M parallel apically; CuAx ratio 0.4. Squama yellow, with pale hairs. Halter yellow.

Abdomen metallic green, with pale grey pollen; terga 2-3 each with 1 large yellow lateral spot, sternum 1 yellow; hypopygium black, with yellow cercus. Hairs



Figs. 12-13 — *Argyra (Leucostola) sinensis* sp. nov., male. 12. antenna, lateral view; 13. genitalia, lateral view.

on abdomen black. Hypopygium (Fig. 13): Epandrium longer than wide, somewhat narrow apically, surstylus with narrow dorsal lobe (bearing 1 short thick apical bristle) and slightly wider ventral lobe that is distinctly bent; cercus tapering toward apex, with 1 long apical bristle; hypandrium long and slightly curved.

Female. Unknown.

Holotype male: Zhejiang: Tianmushan Mountain, Zhu-tuojing, 1998. V. 31, Zhiyong Yu. (CAU)

Distribution. China (Zhejiang).

Etymology. The name *sinensis* means "Chinese" and refers to the country of origin.

Remarks. This species is similar to *A. vanoyei* PARENT from Shanghai and *A. negrobovi* GRICHANOV and SHAMSHEV from Russia. It differs from *A. vanoyei* in the following points: fore coxa with black bristles, hypopygium with strong bristles, mid tibia with 2 av; *A. vanoyei* has the fore coxa with pale bristles, hypopygium without strong bristles (PARENT, 1927; GRICHANOV & SHAMSHEV, 1993). It may be separated from *A. negrobovi* in the following points: mid coxa completely yellow, abdominal segments I-III black with, large yellow lateral spots on terga 2-3 and yellow sternum 1, hypandrium rather long; *A. negrobovi* has mid coxa with brown spot, abdominal segments I-III yellow, with black stripe on posterior margins, hypandrium rather short (GRICHANOV & SHAMSHEV, 1993).

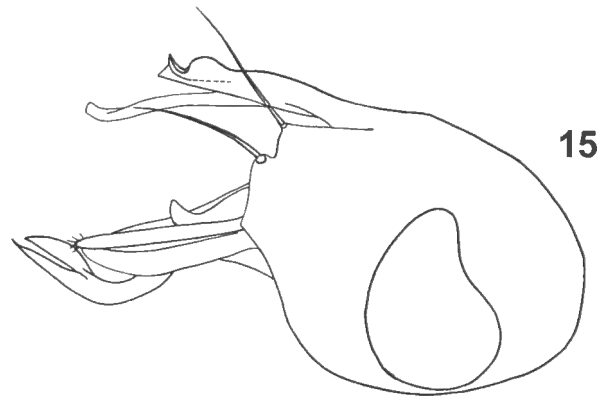
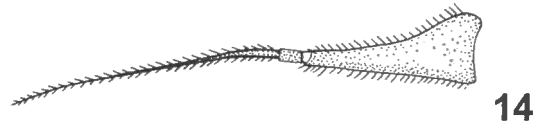
6. *Machaerium henanense* sp. nov. (Figs. 14-15)

Diagnosis. First flagellomere with nearly straight ventral margin; arista longer than first flagellomere. All coxae yellow. Squama with black hairs.

Male. Body length 1.9 mm, wing length 2.2 mm.

Head metallic green, with pale grey pollen; occiput with mid-upper part concave. Face narrowing downward, slightly narrower than first flagellomere. Hairs and bristles on head black; postocular bristles (including ventral hairs) wholly black. Antenna (Fig. 14) wholly black; first flagellomere distinctly elongated (2.6 times longer than wide); arista black, apical, distinctly longer than first flagellomere. Proboscis brownish yellow, with black hairs; palpus brown, with black hairs and 2 black apical bristles.

Thorax pale metallic green, with pale grey pollen. Hairs and bristles on thorax blackish; 5-6 irregularly paired acr, short and hair-like, 5 strong dc; 2 npl, 1 su, 2 sa, 1 pa; scutellum with 2 long apsc and 2 very short hair-like lsc. Propleuron with 1 black bristle on lower part. Legs yellow; all coxae yellow. Hairs and bristles on legs black. Mid and hind coxae each with 1 outer bristle;



Figs. 14-15 — *Machaerium henanense* sp. nov., male. 14. antenna (excluding scape and pedicel), lateral view; 15. genitalia, lateral view.

mid and hind femora each with 1 preapical bristle. Fore tibia with 1 ad at middle; mid tibia with 2 ad and 2 pd; hind tibia with 2-3 pd. Hind tarsomere 1 with 1 acute basal process on inner surface, curved upward. Relative lengths of segments of legs LI 2.6: 1.5: 1.0: 0.9: 0.7: 0.35; LII 3.7: 2.1: 1.2: 1.0: 0.7: 0.35; LIII 4.2: 1.0: 1.7: 1.1: 0.7: 0.35.

Wing hyaline; veins brown, R4+5 and M weakly divergent apically; CuAx ratio 0.35. Squama yellow, with brown margin, bearing black hairs. Halter yellow.

Abdomen pale metallic green, with pale grey pollen; hairs blackish. Hypopygium (Fig. 15): Epandrium longer than wide, its ventral apex incised, and bearing 2 strong bristles; cercus long and furcate; hypandrium with acute ventral tip.

Female. Unknown.

Holotype male: Henan: Neixiang, 1998. VII. 14, Xueyou HU. (CAU)

Distribution. China (Henan).

Etymology. The name refers to the type locality.

Remarks. This species is similar to *M. orientalis* YANG et LI from Zhejiang, but may be easily separated from the latter by having the following characters: first flagellomere with nearly straight ventral margin, arista distinctly longer than first flagellomere, all coxae yellow, squama with black hairs; in *M. orientalis*: first flagellomere without straight ventral margin, arista shorter than first flagellomere, all coxae blackish, squama with pale hairs (YANG & LI, 1998).

7. *Chaetogonopteron menglonganum* sp. nov.

(Figs. 16-18)

Diagnosis. Thorax and abdomen largely brownish yellow. Mesonotum with a large subtriangular spot; scutellum metallic green, with yellow apical margin. Eyes narrowly separated. Acr absent.

Male. Body length 3.5 mm, wing length 4.3 mm.

Head metallic green, with pale grey pollen. Face rather narrow, with medial part very narrow, with dense white pollen. Hairs and bristles on head black; middle and lower postocular bristles (including ventral hairs and bristles) pale. Antenna (Fig. 17) yellow; first flagellomere brown, subtriangular; arista dorsal, black, distinctly pubescent. Proboscis dark brown, with blackish hairs; palpus pale yellow, with black hairs.

Thorax brownish yellow, with pale grey pollen; mesonotum with a large subtriangular metallic green median spot (which extends forward to 1st dc); scutellum metallic green, with yellow apical margin. Pteropleuron just below squama, and metapleuron behind wing base, each with a small black spot. Hairs and bristles on thorax black; 6 strong dc; acr absent, only 3-4 irregular pairs present in front of first dc. Propleuron pale haired, with 1 pale weak bristle on lower aort.

Legs yellow; all coxae brownish yellow to yellow, mid coxa with a small black spot at postero-upper corner. Hairs and bristles on legs black; hairs and bristles on coxae black, fore coxa basally with pale hairs; mid coxa with 2 outer bristles; hind coxa with 1 outer bristle. Mid and hind femora each with 1 anterior preapical bristle, hind femur with a row of 9-10 weak v on basal half. Fore tibia at tip with 1 long brownish yellow lateral bristle, fore tarsus with a row of fine v; mid tibia with 3 ad, 1 pd, and a row of 17-19 long weak v (which are gradually becoming short toward apex), mid tarsomere

1 basally with 1 bent thin v and 2 long thick v; hind tibia with 3 pd medially and 4 long v, set closely on basal 2/5, hind tarsomeres 1-2 (Fig. 16) distinctly shortened, tarsomere 1 flattened and elongated ventrally, tarsomere 2 with 1 pale appendage, incised apically; tarsomere 3 elongated, but gently curved basally. Relative lengths of segments of legs LI 4.8: 6.2: 2.9: 1.6: 0.8: 0.4; LII 9.0: 4.9: 2.8: 1.8: 0.8: 0.35; LIII 10.2: 0.7: 0.7: 3.8: 1.8: 0.4.

Wing hyaline, weakly tinged with yellowish; veins brown, R4+5 and M parallel apically; CuAx ratio 0.9. Squama brownish yellow, with black margin, bearing dark brown hairs. Halter brownish yellow.

Abdomen pale brownish yellow; tergum 2, basal part of terga 3-4 somewhat dark. Hairs on abdomen black. Hypopygium (Fig. 18): Epandrium distinctly longer than wide, somewhat narrow apically, surstylus with slightly narrow dorsal lobe (bearing 2 bristles at middle) and slightly wider ventral lobe (bearing 4 bristles at apex and 2 close bristles on weak basal projection); cercus tapering toward apex, with incised outer margin; hypandrium weakly curved.

Female. Unknown.

Holotype male: Yunnan: Xishuangbanna, Menglong, (1600 m), 1959. VII. 26, Suyong WANG. (CAU)

Distribution. China (Yunnan).

Etymology. The name refers to the type locality.

Remarks. This species is somewhat similar to *luteoviridis* PARENT from Taiwan, but may be separated from the latter by having the eyes narrowly separated. In *luteoviridis*, the eyes are contiguous on the face (PARENT, 932).

8. *Chaetogonopteron menglunense* sp. nov.

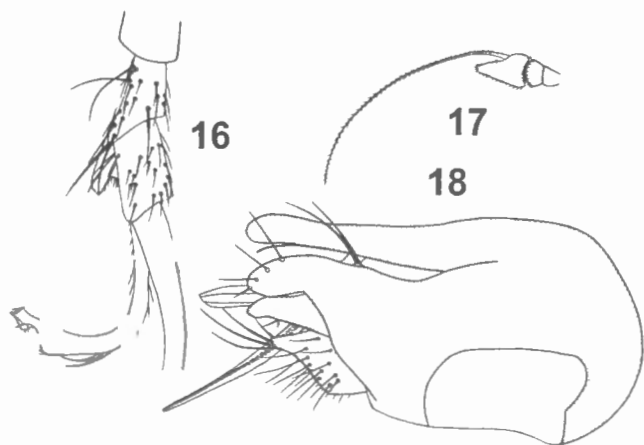
(Figs. 19-21)

Diagnosis. Thorax and abdomen largely yellow. Mesonotum with a large subtriangular spot; scutellum metallic green, with yellow lateral angle. Eyes contiguous. Fore tarsomere 2 somewhat shortened. Wing with a large apical spot occupying whole apex; R4+5 and M feebly convergent apically; CuAx ratio 1.1.

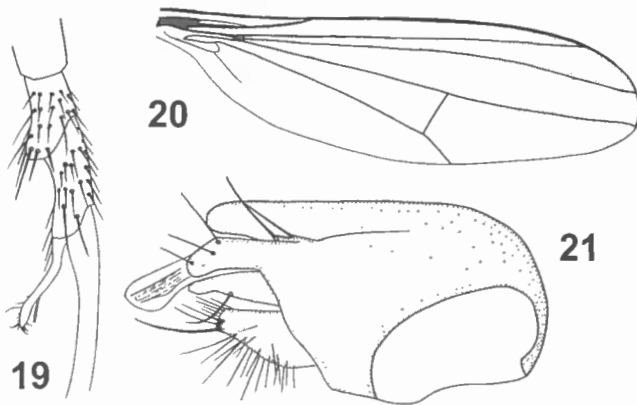
Male. Body length 3.6 mm, wing length 4.0 mm.

Head metallic green, with pale grey pollen. Face very narrow; eyes contiguous on middle of face for some distance. Hairs and bristles on head black; middle and lower postocular bristles (including ventral hairs and bristles) pale. Antenna [first flagellomere missing] yellow. Proboscis dark brown, with blackish hairs; palpus partly visible, dark brown.

Thorax yellow, with pale grey pollen; mesonotum with a large subtriangular metallic green median spot



Figs. 16-1 — *Chaetogonopteron menglonganum* sp. nov., male. 16. basal part of hind tarsomere 1, lateral view; 17. antenna, lateral view; 18. genitalia, lateral view.



Figs. 19-21 — *Chaetogonopteron menglunense* sp. nov., male. 19. basal part of hind tarsomere 1, lateral view; 20. wing; 21. genitalia, lateral view.

(which extends forward to 1st dc and is somewhat pale anteriorly); scutellum metallic green, with yellow lateral angle. Pteropleuron just below wing base, and metapleuron behind wing base each with a small black spot. Hairs and bristles on thorax black; 6 strong dc; 4 irregular paired acr (not reaching 3rd dc). Propleuron pale haired, with 1 black bristle on lower part.

Legs [mid tarsomeres 2-5 missing] yellow; all coxae yellow, mid coxa with a small black spot at postero-upper corner. Hairs and bristles on legs black, but those on coxae also black; mid and hind coxae each with 1 outer bristle. Fore tarsomeres 1-2 with a row of v (but tarsomere 1 basally without v and tarsomere 2 with denser v), tarsomere 1 basally with 1 long v. Mid tibia weakly curved, with 3 ad, 1 pd, a row of long thin av (which are absent basally), a row of thick v (of which 3 bristles near apex are the longest); mid tarsomere 1 basally with 1 bent v and 1 straight v. Hind tibia with 6 pd (of which 2 bristles are short); hind tarsomeres (Fig. 19) 1-2 distinctly shortened, tarsomere 2 with pale, weakly curved clidium; tarsomere 3 elongated. Relative lengths of segments of legs LI 4.7: 4.3: 1.2: 1.6: 0.6: 0.35; LII 7.5: 4.8:?:?:?:?; LIII 9.7: 0.6: 0.9: 3.9: 1.7: 0.35.

Wing (Fig. 20) hyaline, apically with a large black spot, occupying whole apex; veins brown, R4+5 and M little convergent apically; CuAx ratio 1.1. Squama brownish yellow, with black margin, bearing dark brown hairs. Halter brownish yellow.

Abdomen yellow; middle part of terga 2-4 dark brown. Hairs on abdomen black; tergum 1 with a row of bristles at posterior margin (which are longer laterally). Hypogygium (Fig. 21): Epandrium distinctly longer than wide, somewhat narrow apically, surstylus with narrow dorsal lobe (bearing 1 bristle at middle) and slightly wider ventral lobe (bearing 3 bristles at apex and 2 separated bristles on weak basal projection); cercus narrow apically, with truncate apex; hypandrium rather thick, and nearly straight.

Female. Unknown.

Holotype male Yunnan: Xishuangbanna, Menglun (800 m), 1981. IV. 10, Fasheng Li (CAU)

Distribution. China (Yunnan).

Etymology. The name refers to the type locality.

Remarks. MEUFFELS & GROOTAERT (1987) mentioned 4 Oriental species and 1 Australian species with a dark apical wing spot. The present new species is similar to *Ch. sticticum* MEUFFELS & GROOTAERT from New Guinea in having acr, but differs from the latter in the following points: apical spot occupying whole apex, R4+5 and M little convergent apically, fore tarsomere 2 shortened (distinctly shorter than tarsomere 3); in *Ch. sticticum*: apical spot on wing narrower and not reaching M, R4+5 and M parallel apically, fore tarsomere 2 longer than tarsomere 3 (MEUFFELS & GROOTAERT, 1987).

Genus *Diaphorus* MEIGEN, 1824

Diagnosis. Eyes of male narrowly separated or contiguous on frons. Face rather wide and parallel-sided. First flagellomere rather small and short, usually wider than long; arista with very short basal segment. 1 h, 2 npl, 1 su, 2 sa, 1 pa, 5 strong dc, biseriate acr; scutellum with 2 strong apsc and 2 short hair-like lsc. Propleuron haired, with 1 long bristle on lower part. Mid and hind femora without preapical dorsal bristle. Mid coxa with 2 outer bristles; hind coxa with 1 outer bristle. Fore tarsus usually without claws, but rarely with 1 or 2 claws. Wing with rather large anal lobe; R4+5 and M parallel apically. Sternum 8 with 4-8 strong bristles.

The genus *Diaphorus* has a world-wide distribution. Only 3 species were known to occur in the mainland of China: *D. lichtwardti* PARENT, 1925, *D. luteipes* PARENT, 1925 and *D. mandarinus* WIEDEMANN 1830 (NEGROBOV, 1991), and 13 species from Taiwan (DYTE, 1975). The species of the genus *Diaphorus* from the mainland of China are reviewed, with descriptions of 10 new species and 2 species newly recorded from China.

Key to males of the *Diaphorus* species from China (species from Taiwan not included)

1. Fore tarsus without claws 2
 - Fore tarsus with 1 or 2 claws 15
2. Mid and hind tarsi each with 2 claws [unknown in the case of *elongatus*] 3
 - Fore and mid tarsi without claws, only hind tarsus with 2 claws. (Yunnan, Zhejiang, Fujian, Hainan, Taiwan) *mandarinus* NEGROBOV

- 3. Abdominal dorsum wholly black 4
- Abdominal dorsum partly yellow basally 11
- 4. Venter wholly black 5
- Sterna 1-3 yellow; cercus much elongated. (Xin-jiang) *elongatus* sp. nov.
- 5. All femora chiefly black 6
- All femora yellow. (Shanghai) *luteipes* PARENT
- 6. Postocular bristles wholly black 7
- Mid and lower postocular bristles yellow; wing hyaline. (Hebei) *hebeiensis* sp. nov.
- 7. Halter yellow; palpus yellow 8
- Halter black; palpus brown or black 10
- 8. Hind tibia yellow or dark yellow, with dark apex 9
- Hind legs wholly black. (Sichuan)
. *qingchengshanus* sp. nov.
- 9. Hind femur apically with long hairs. (Yunnan)
. *menglunanus* sp. nov.
- Hind femur apically without long hairs. (Yunnan)
. *mengyangensis* sp. nov.
- 10. Wing dark brown. (Henan) *nigricans* MEIGEN
- Wing weakly tinged with greyish. (Yunnan)
. *bisetus* sp. nov.
- 11. At least mid and hind femora partly or mostly black 12
- All femora yellow. (Hebei) *basiniger* sp. nov.
- 12. All femora chiefly black 13
- Fore femur yellow; mid femur black, with apical 1/3 yellow; hind femur yellow, with base and apex black. Hind femur with two rows of very long ventral hairs. (Yunnan) *centriflavus* sp. nov.
- 13. Hind tibia apically partly black 14
- Hind tibia wholly yellow. (Jiangxi)
. *lichwardti* PARENT
- 14. Hind tibia yellow, with black apex; wing hyaline, weakly tinged with greyish. (Xizang)
. *xizangensis* sp. nov.
- Hind tibia black, with basal half brownish yellow; wing dark brown. (Yunnan)
. *alamaculatus* sp. nov.
- 15. All tarsi with 2 claws; legs mainly yellow. (Hainan) *tongshiensis* YANG
- Fore and mid tarsi each with 1 claw, hind tarsus with 2 claws; leg wholly black. (Ningxia, Hebei, Henan) *parenti* STACKELBERG

1. *Diaphorus alamaculatus* sp. nov.
(Figs. 22-23)

Diagnosis. Middle and lower postocular bristles pale yellow. Fore and mid femora blackish to black basally, hind femur wholly black; hind tibia black, with basal half brownish yellow. Wing dark brown, with basal part and outer and posterior margin somewhat pale.

Male. Body length 4.4 mm, wing length 3.8 mm.
Head metallic green, with pale grey pollen. Ocellar tubercle distinct. Eyes contiguous for a long distance (about half as long as frons) on frons, with dorso-anterior

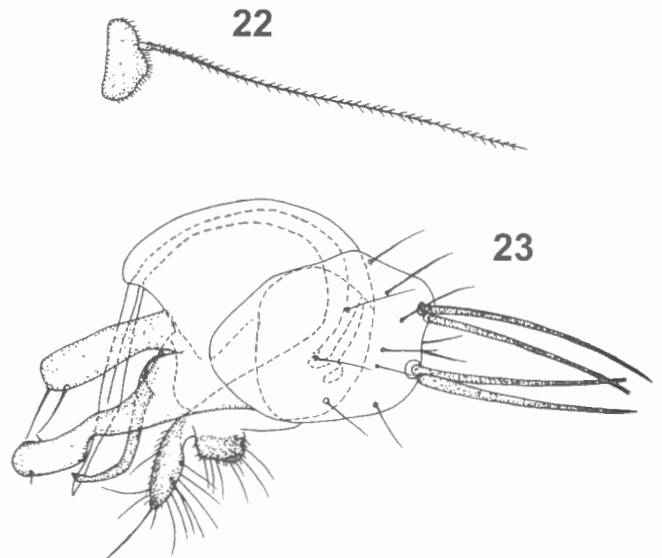
ommatidia somewhat enlarged. Hairs and bristles on head black; middle and lower postocular bristles (including ventral hairs) pale yellow. Antenna (fig. 22) black; first flagellomere rather short, 1.8 times wider than long; arista black, with basal segment rather short. Proboscis dark brown, with black hairs; palpus yellow, with 3 black hairs and 1 black apical bristle.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 6-7 irregularly paired acr, short and hair-like, 5 strong dc. Propleuron with 2 black hairs on upper part, and 2 black hairs and 1 black bristle on lower part.

Legs yellow; all coxae black, trochanters yellow; fore and mid femora with basal part blackish to black, hind femur wholly black; hind tibia black with basal half brownish yellow; fore tarsomere 5 dark brown, mid tarsus from tip of tarsomere 1 onward brownish to brown, hind tarsus entirely dark brown. Hairs and bristles on legs black. Fore coxa with 4-5 bristles, mid coxa with 2 outer bristles and hind coxae with 1 outer bristle; fore femur with a row of short av and a row of longer pv, hind femur apically with a row of av and some long ventral hairs. Fore tibia with 1 ad and 2 pd; mid tibia with 2 ad, 3 pd and 1 av; hind tibia with 2 ad, 6 pd and 6 thin av. Fore tarsus without claws, but with 2 elongated pulvilli nearly as long as tarsomere 5, mid and hind tarsi with 2 small claws. Relative lengths of segments LI 4.4: 2.5: 1.1: 0.9: 0.5: 0.5; LII 5.3: 3.1: 1.4: 1.0: 0.6: 0.25; LIII 6.9: 2.0: 2.0: 1.1: 0.8: 0.3.

Wing dark brown, with basal part and outer and posterior margin somewhat pale; veins dark brown to black, R4+5 and M nearly parallel apically; CuAx ratio 0.45. Squama nearly yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale grey pollen; tergum



Figs. 22-23 — *Diaphorus alamaculatus* sp. nov., male. 22. antenna (excluding scape and pedicel), lateral view; 23. genitalia, lateral view.

2 (except very narrow posterior margin) yellow, tergum 3 brownish yellow, with anterior and posterior margins black; sterna 1-3 yellow. Hairs and bristles on abdomen black, terga 1-5 with a row of bristles on posterior margins. Hypopygium (Fig. 23): sternum 8 with 4 strong bristles; surstylus with dorsal lobe longer, and somewhat incised medially; ventral lobe straight, and uniformly wide, bearing 2 apical bristles.

Female. Unknown.

Holotype male: Yunnan: Mengyang, 1999.III.. 11 (99091, leg. Patrick GROOTAERT, CAU).

Distribution. China (Yunnan).

Etymology. The name refers to the dark brown wing.

Remarks. This new species is somewhat similar to *D. xizangensis* sp. nov., but may be separated from the latter by the dark brown wing. In *D. xizangensis*, the wing is hyaline, tinged weakly with greyish.

2. *Diaphorus basiniger* sp. nov. (Figs. 24-25)

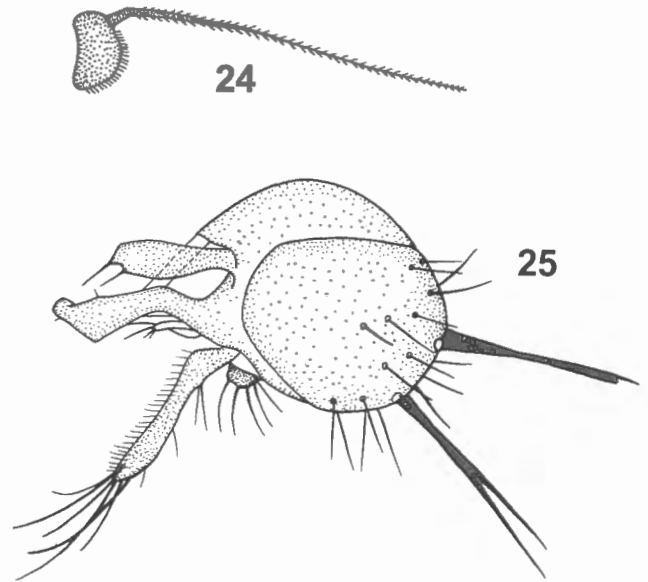
Diagnosis. Middle and lower postocular bristles yellow. Fore coxa yellow, basally narrowly black; mid and hind coxae black; all femora yellow. Abdomen basally partly yellow.

Male. Body length 3.4 mm, wing length 3.7 mm.

Head metallic green, with pale grey pollen. Ocellar tubercle distinct. Eyes contiguous for a short distance on frons, with upper ommatidia enlarged; face rather wide with parallel lateral margins. Hairs and bristles on head black; middle and lower postocular bristles (including ventral hairs) pale. Antenna (Fig. 24) black; first flagellomere rather short, 1.7 times wider than long; arista black, with basal segment very short. Proboscis black, with black hairs; palpus yellow, with 6 black hairs and 1 apical bristle.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 7-8 irregularly paired acr, short and hair-like, 5 strong dc. Propleuron with 1 short black hair and 1 longer black hair on upper part, and 2 short black hairs and 1 long black bristle on lower part.

Legs chiefly yellow; fore coxa yellow, basally narrowly black, mid and hind coxae black; all femora yellow, hind femur with brown apex (except for extreme tip); fore and mid tarsi from tip of tarsomere 1 onward brown to dark brown, hind tarsus dark brown. Hairs and bristles on legs black. Fore coxa with 5 bristles on apical half; mid coxa with 2 outer bristles; hind coxa with 1 outer bristle. Fore femur with two rows of v (of which pv are stronger); mid femur with 1 v at base; hind femur apically with 3-4 av. Fore tibia with 1 ad; mid tibia with 1



Figs. 24-25 — *Diaphorus basiniger* sp. nov., male. 24. antenna (excluding scape and pedicel), lateral view; 25, genitalia, lateral view.

ad, 2pd and 1 v; hind tibia with 1 ad and 5 pd. Fore tarsus without claws, with elongated pulvilli, nearly as long as tarsomere 5; mid and hind tarsi with 2 small claws and 2 small pulvilli. Relative lengths of segments of legs LI 4.7: 2.3: 1.2: 1.0: 0.7: 0.7; LII 5.3: 2.9: 1.5: 1.1: 0.8: 0.7; LIII 6.9: 2.1: 1.9: 1.3: 0.9: 0.75.

Wing hyaline; veins brown, R4+5 and M parallel apically; CuAx ratio 0.4. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale grey pollen; terga 2-3 yellow, with middle sections of posterior margins blackish, sterna 1-3 yellow. Hairs and bristles on abdomen black, terga 1-5 with a row of bristles on posterior margins. Hypopygium (Fig. 25): Sternum 8 with 4 strong bristles; surstylus with dorsal lobe widest near tip, ventral lobe with a narrow apical incision, with 2 apical bristles; cercus moderately long, and weakly bent basally.

Female. Unknown.

Holotype male Hebei: Weixian, Baile (920 m), 1964. VI. 16, Bingqian LI. (CAU)

Distribution. China (Hebei).

Etymology. The name refers to the black base of fore coxa.

Remarks. Using the keys of PARENT (1925, 1938) and STACKELBERG (1928), the species runs to *D. hoffmannseggi* LOEW from the Palaearctic region. It may be easily separated from the latter by having the fore tibia without long ventral hairs. In *D. hoffmannseggi*, the fore tibia bears long ventral hairs (PARENT, 1938).

3. *Diaphorus bisetus* sp. nov.
(Figs. 26-27)

Diagnosis. Postocular bristles wholly black. Palpus dark brown to black. All femora black with extreme tips brownish yellow; all tibiae brownish yellow to yellow. Wing weakly tinged with grey. Halter black, but blackish with pale knob in female.

Male. Body length 2.8-3.3 mm, wing length 2.8-3.3 mm.

Head metallic green, with pale grey pollen. Ocellar tubercle distinct. Eyes contiguous for a long distance (about half as long as frons) on frons, with dorso-anterior ommatidia somewhat enlarged. Hairs and bristles on head black; postocular bristles (including ventral hairs) black. Antenna (Fig. 26) black; first flagellomere rather short, 1.8 times wider than long; arista black, with basal segment rather short. Proboscis dark brown to black, with black hairs; palpus brown, with 5 black hairs and 1 black apical bristle.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 6-7 irregularly paired acr, short and hair-like, 5 strong dc. Propleuron with 1 black bristle-like hair on upper part, and 1 blackish hair and 1 blackish to black bristle on lower part.

Legs black; all coxae black; all femora with extreme tips brownish yellow. Fore and mid tibiae with bases narrowly brownish yellow; tarsi from tip of tarsomere 1 onward brown to dark brown. Hairs and bristles on legs black. Fore coxa with 6 bristles, mid coxa with 2 outer bristles and hind coxa with 1 outer bristle. Fore femur with a row of short av on basal part, and a row of long pv, hind femur apically with 4 av. Mid tibia with 1 ad and 2 pd; hind tibia with 1 ad and 3 pd. Fore tarsus without claws, but with 2 elongated pulvilli, nearly as long as

tarsomere 5, mid and hind tarsi with 2 small claws. Relative lengths of segments LI 3.2: 1.8: 0.85: 0.7: 0.4: 0.4; LII 4.0: 1.9: 1.2: 0.8: 0.4: 0.3; LIII 4.2: 1.3: 1.3: 0.8: 0.6: 0.3.

Wing weakly tinged with greyish; veins dark brown to black, R4+5 and M parallel apically; CuAx ratio 0.5. Squama pale, with brown margin, bearing black hairs. Halter black.

Abdomen metallic green, with pale grey pollen. Hairs and bristles on abdomen black, terga 1-5 with a row of bristles on posterior margins. Hypopygium (Fig. 27): Sternum 8 with 4 strong bristles; surstylus with very narrow dorsal lobe, bearing a short spine apically, and wide ventral lobe, with 2 apical bristles; cercus short and broad, with some hairs; aedeagus apically thin and curved.

Female. Body length 2.2-3.2 mm, wing length 2.3-3.0 mm. Similar to male, but eyes widely separated; palpus black; wing paler; halter blackish, with pale knob.

Holotype male: Yunnan: Menglun, 1999.III. 9 (99083, leg. Patrick GROOTAERT, CAU).

Paratypes: 4 females from the same locality as holotype (IRSN).

Distribution. China (Yunnan).

Etymology. The new species is named after the ventral lobe of surstylus bearing 2 apical bristles.

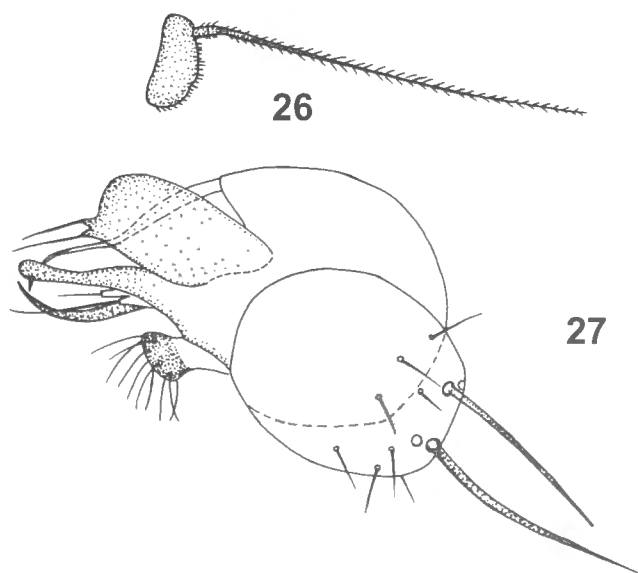
Remarks. This new species is somewhat similar to *D. nigricans* MEIGEN, but may be separated from the latter by the wing that is weakly tinged with greyish. In *D. nigricans*, the wing is dark brown.

4. *Diaphorus centriflavus* sp. nov.
(Figs. 28-29)

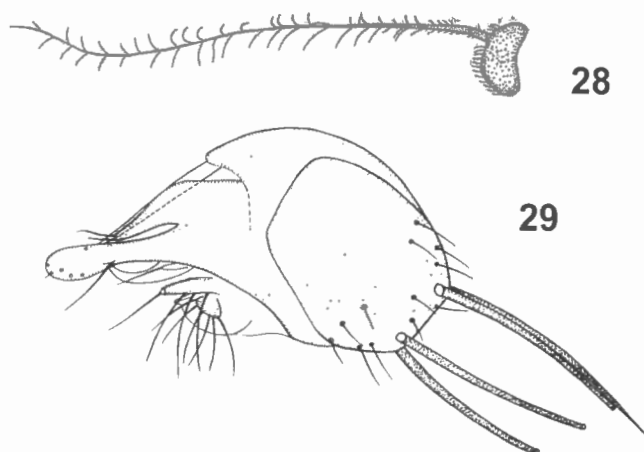
Diagnosis. Eyes separated on frons. Middle and lower postocular bristles pale. Arista with sparse long hairs. Fore femur yellow; mid femur black with apical 1/3 yellow; hind femur yellow, with base and apex black. Hind femur with two rows of rather long ventral hairs on basal half. Abdomen partly yellow basally.

Male. Body length 5.1-5.7 mm, wing length 4.7-5.3 mm.

Head metallic green, with pale grey pollen. Ocellar tubercle distinct. Eyes separated on frons; width of frons at narrowest point distinctly greater than width of median ocellus; face rather wide, with parallel lateral margins. Hairs and bristles on head black; middle and lower postocular bristles (including ventral hairs) pale. Antenna (Fig. 28) black; first flagellomere brownish, rather short, 1.8 times wider than long; arista black, with basal segment very short, with sparse long hairs. Proboscis black,



Figs. 26-27 — *Diaphorus bisetus* sp. nov., male. 26. antenna (excluding scape and pedicel), lateral view; 27. genitalia, lateral view.



Figs. 28-29 — *Diaphorus centriflavus* sp. nov., male. 28. antenna (excluding scape and pedicel), lateral view; 29. genitalia, lateral view.

with black hairs; palpus yellow, with 4-5 black hairs and 1 apical black bristle.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 8-10 irregularly paired acr, short and hair-like, 5 strong dc. Propleuron with 5 short black hairs on upper part, and 3 short black hairs and 1 long black bristle on lower part.

Legs chiefly yellow; fore coxa yellow, with black base, mid and hind coxae and trochanters black; fore femur wholly yellow, mid femur black with apical 1/3 yellow, hind femur yellow, with base and apex black; fore and mid tarsi from tip of tarsomere 1 onward brown to dark brown, hind tarsus black. Hairs and bristles on legs black. Fore coxa with 5-8 bristles on apical half; mid coxa with 2 outer bristles; hind coxa with 1 outer bristle. Fore femur with two rows of v; hind femur with two rows of rather long hairs on basal half, and 3-4 av at apex. Fore tibia with 1 ad and 2 pd; mid tibia with 2 ad, 2pd and 1 v; hind tibia with 4-5 pd. Fore tarsus without claws, with elongated pulvilli slightly longer than tarsomere 5; mid and hind tarsi with 2 small claws and 2 small pulvilli. Relative lengths of segments of legs LI 5.4: 3.3: 1.3: 0.9: 0.75: 0.75; LII 6.9: 3.8: 1.8: 1.2: 0.75: 0.75; LIII 8.4: 2.6: 2.2: 1.4: 0.85: 0.75.

Wing pale greyish brown, with pale basal part; veins black, R4+5 and M parallel apically; CuAx ratio 0.55. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale grey pollen; terga 2-3 yellow, with wide middle section of posterior margins black, tergum 4 laterally yellow; sterna 1-4 yellow. Hairs and bristles on abdomen black, terga 1-5 with a row of bristles on posterior margins. Hypopygium (Fig. 29): Sternum 8 with 4 strong bristles; surstylus with long dorsal lobe weakly thickened apically and with a long bristle at middle; short ventral lobe narrowing toward apex and with 2 closely located bristles at tip; cercus small and thin, with 4-5 long hairs, basally with a short wide separated projection with 6 long hairs.

Female. Unknown.

Holotype male: Yunnan: Xishuangbanna, Mengyang, 1999. III. 5, DING YANG. (CAU).

Paratype: 1 male, from the same locality as holotype.

Distribution. China (Yunnan).

Etymology. The name refers to the colouring of hind femur.

Remarks. The new species is somewhat similar to *D. simulans* BECKER from Taiwan and Sri Lanka, but may be separated from the latter by having the hind femur with base and apex black, with two rows of rather long ventral hairs on basal half. In *D. simulans*, the hind femur is widely black apically, with an outer row of thick hairs (BECKER, 1922).

5. *Diaphorus elongatus* sp. nov.

(Figs. 30-32)

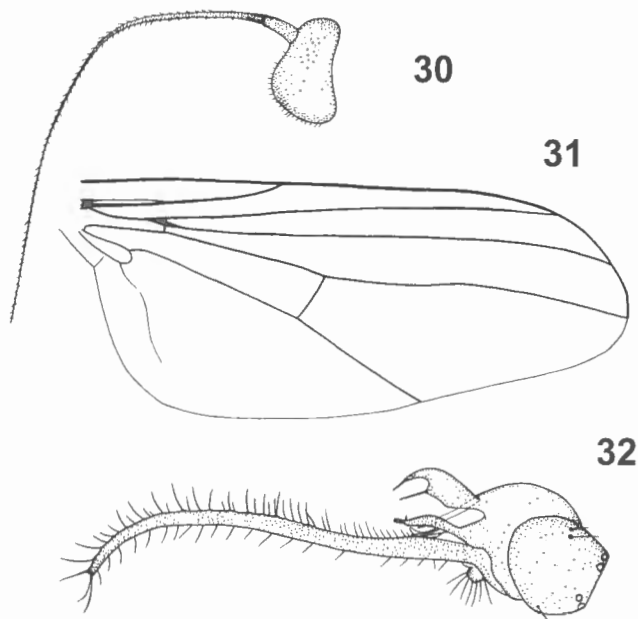
Diagnosis. Middle and lower postocular bristles yellow. Abdomen nearly wholly black. Cercus much elongated.

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

Head metallic green, with pale grey pollen. Ocellar tubercle distinct. Eyes contiguous for a short distance on frons, with upper ommatidia enlarged; face rather wide, with parallel lateral margins. Hairs and bristles on head black; middle and lower postocular bristles (including ventral hairs) pale. Antenna (Fig. 30) black; first flagellomere rather short, 1.5 times wider than long; arista black, with basal segment very short. Proboscis black, with black hairs; palpus yellow.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 6-7 irregularly paired acr, short and hair-like, 5 strong dc. Propleuron with 2 short black hairs on upper part, and 1 short dark hair and 1 long black bristle on lower part.

Legs [mid tarsomeres 2-5 missing] black; all coxae black, but fore coxa with narrow yellow apex; fore trochanter yellow; apex of fore and mid femora, and tip of hind femur yellow; tibiae and tarsi yellow, apex of hind tibia brown; fore and mid tarsi yellow, from tip of tarsomere 1 onward brown to dark brown, hind tarsus dark brown. Hairs and bristles on legs black. Fore coxa with 5 bristles on apical half; mid coxa with 2 outer bristles, hind coxa with 1 outer bristle. Fore femur with two rows of v (of which pv are stronger), hind femur apically with 4 av. Mid tibia with 1 ad, 2pd and 1 v; hind tibia with 1 ad and 5-6 pd. Fore tarsus without claws, with elongated pulvilli, nearly as long as tarsomere 5, hind tarsi with 2 small claws and 2 small pulvilli. Relative lengths of segments of legs LI 3.3: 2.0: 0.9: 0.8: 0.55: 0.5; LII 3.9: 2.75:?:?:?:?; LIII 5.3: 1.8: 1.5: 1.1: 0.75: 0.6.



Figs. 30-32 — *Diaphorus elongatus* sp. nov., male. 30. antenna (excluding scape and pedicel), lateral view; 31, wing; 32, genitalia, lateral view.

Wing (Fig. 31) hyaline; veins brownish, R4+5 and M parallel apically; CuAx ratio 0.35. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale grey pollen; sterna 1-3 yellow. Hairs and bristles on abdomen black, terga 1-5 with a row of bristles on posterior margins. Hypopygium (Fig. 32) black with dark yellow cercus: Sternum 8 with 6 strong bristles; surstylus with dorsal lobe very narrow; ventral lobe rather wide, with a wide apical incision, bearing 2 bristles; cercus much elongated, basally with small short separated projection bearing 7 long hairs.

Female. Unknown.

Holotype male Xinjiang: Manas (400-550 m), 1957. VII. 14, Guang WANG. (CAU)

Distribution. China (Xinjiang).

Etymology. The name refers to the elongated cercus.

Remarks. This species is easily separated from other known species of China by having a much elongated cercus.

6. *Diaphorus hebeiensis* sp. nov.
(Figs. 33-34)

Diagnosis. Middle and lower postocular bristles yellow. Eyes very narrowly separated on frons. Palpus dark

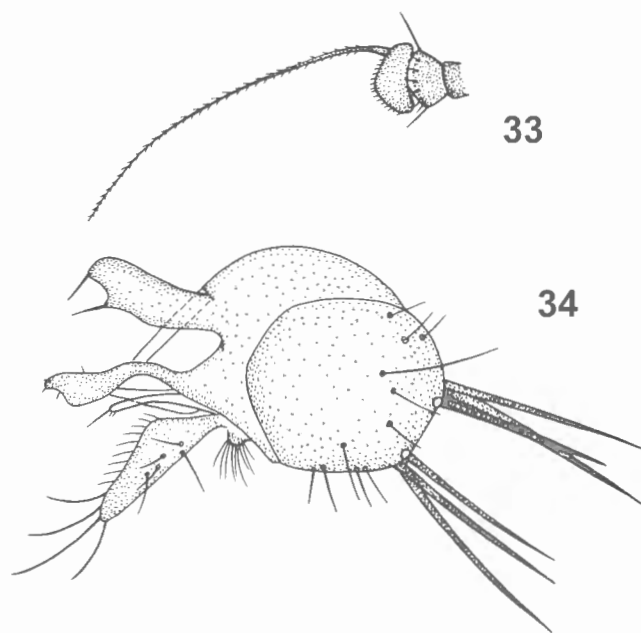
brown. All femora (except narrow apices) black; apical part of hind tibia blackish.

Male. Body length 3.4-3.9 mm, wing length 3.4-3.7 mm.

Head metallic green, with pale grey pollen. Ocellar tubercle distinct. Eyes very narrowly separated (narrower than width of median ocellus) on frons, with upper ommatidia enlarged; face rather wide with parallel lateral margins. Hairs and bristles on head black; middle and lower postocular bristles (including ventral hairs) pale. Antenna (Fig. 33) black; first flagellomere rather short, 1.8 times wider than long; arista black with basal segment very short. Proboscis black, with black hairs; palpus dark brown, with 4 black hairs and 1 black apical bristle.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 7-9 irregularly paired acr short and hair-like, 5 strong dc. Propleuron with 1 blackish long hair on upper part, and 1 short blackish hair and 1 long black bristle on lower part.

Legs black; all coxae black; narrow apices of all femora yellow; tibiae and tarsi yellow, apical part of hind tibia blackish; fore and mid tarsi yellow from tip of tarsomere 1 onward brown to dark brown, hind tarsus dark brown to black. Hairs and bristles on legs black. Fore coxa with 5 bristles on apical half; mid coxa with 2 outer bristles, hind coxa with 1 outer bristle. Fore femur with two rows of v (of which pv are stronger). Fore tibia with 1 ad; mid tibia with 1 ad, 1pd and 1 v; hind tibia with 1 ad and 4-5 pd. Fore tarsus without claws, with elongated pulvilli slightly longer than tarsomere 5, mid and hind tarsi with 2 small claws and 2 small pulvilli. Relative lengths of segments of legs LI 3.9: 2.1: 1.0: 0.7: 0.5: 0.5; LII 4.3: 2.4: 1.3: 0.9: 0.6: 0.35; LIII 5.6: 1.8: 1.7: 1.1: 0.7: 0.4.



Figs. 33-34 — *Diaphorus hebeiensis* sp. nov., male. 33. antenna, lateral view; 34, genitalia, lateral view.

Wing hyaline; veins blackish, R4+5 and M parallel apically; CuAx ratio 0.35. Squama yellow, with black hairs. Halter yellow, with brown base.

Abdomen metallic green, with pale grey pollen; hairs and bristles black, terga 1-5 with a row of bristles on posterior margin. Hypopygium (Fig. 34): Sternum 8 with 6 strong bristles; surstylus with dorsal lobe narrow basally but somewhat wide apically, ventral lobe rather wide, with a wide incision bearing 2 apical bristles.

Female. Unknown.

Holotype male, paratypes: 2 males, Hebei: Weixian, Xiheyang (860 m), 1964. V. 27 - VI. 7, BINGQIAN LI (CAU)

Distribution. China (Hebei).

Etymology. The name refers to the type locality.

Remarks. Using the keys of PARENT (1925, 1938) and STACKELBERG (1928), the species runs to *D. lautus* LOEW from Greece. It may be easily separated from the latter by having the eyes very narrowly separated on frons and antennae black. In *D. lautus*, the eyes are contiguous on frons; the antennae are chiefly reddish (PARENT, 1925).

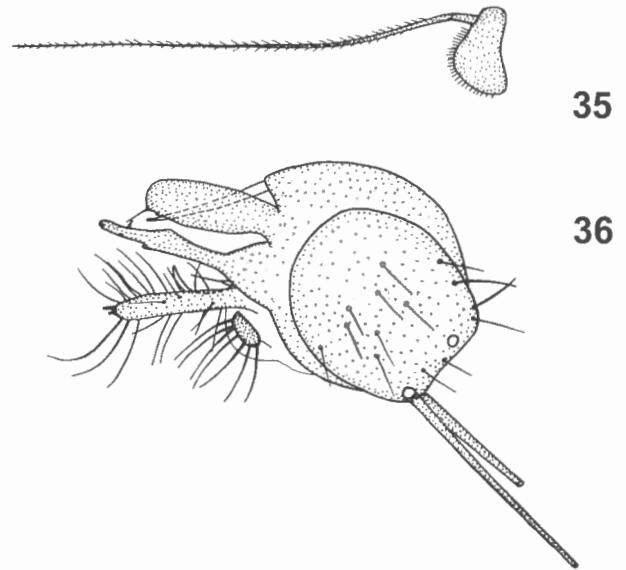
7. *Diaphorus menglunanus* sp. nov. (Figs. 35-36)

Diagnosis. Postocular bristles entirely black. All femora black with apices of fore and mid femora yellow; hind tibia yellow, with black apex. Hind femur apically with somewhat long ventral hairs. Cercus moderately long.

Male. Body length 4.5 mm, wing length 4.1 mm.

Head metallic green, with pale grey pollen. Ocellar tubercle distinct. Eyes contiguous for a short distance (less than half as long as frons) on frons, with dorso-anterior ommatidia enlarged; face rather wide with parallel lateral margins. Hairs and bristles on head black; postocular bristles (including ventral hairs) black. Antenna (Fig. 35) black; first flagellomere rather short, 1.8 times wider than long; arista black with basal segment very short. Proboscis black, with black hairs; palpus yellow, with 4 black hairs and 1 black apical bristle.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 7-8 irregularly paired acr, short and hair-like, 5 strong dc. Propleuron with 1 short black hair on upper part and 1 long black bristle on lower part. Legs [hind tarsomeres 2-5 broken] black; all coxae black, with apex of fore coxa narrowly yellow; apices of fore and mid femora yellow, hind femur wholly black; tibiae and tarsi yellow, apex of hind tibia black; fore and mid tarsi yellow, from tip of tarsomere 1 onward brown to dark brown, hind tarsomere 1 dark brown. Hairs and bristles on legs black. Fore coxa with 4 bristles on apical half; mid coxa with 2 outer bristles; hind coxa with 1 outer bristle. Fore femur with two rows of v, hind femur



Figs. 35-36 — *Diaphorus menglunanus* sp. nov., male. 35. antenna (excluding scape and pedicel), lateral view; 36, genitalia, lateral view.

apically with somewhat long ventral hairs. Mid tibia with 1 ad, 2 pd and 1 v; hind tibia with 1 ad and 5 pd. Fore tarsus without claws, with elongated pulvilli that are a little longer than tarsomere 5, mid tarsus with 2 small claws and 2 small pulvilli. Relative lengths of segments of legs LI 4.2: 2.6: 1.2: 0.8: 0.55: 0.45; LII 5.3: 3.2: 1.7: 1.2: 0.7: 0.4; LIII 6.8: 2.1:?:?:?:?.

Wing hyaline, very weakly tinged with greyish; veins brown, R4+5 and M parallel apically; CuAx ratio 0.5. Squama yellow, with black hairs. Halter yellow, with brown base.

Abdomen wholly metallic green, with pale grey pollen; hairs and bristles black, terga 1-5 with a row of bristles on posterior margin. Hypopygium (Fig. 36): Sternum 8 with 4 strong bristles; surstylus with slender dorsal lobe somewhat thick medially, ventral lobe rather wide, with an indistinct apical incision; cercus moderately long and straight, basally with a short widely separated projection with 7 long hairs.

Female. Unknown.

Holotype male: Yunnan: Xishuangbanna, Menglun, 1999. III. 10, DING YANG (CAU)

Distribution. China (Yunnan).

Etymology. The name refers to the type locality Menglun.

Remarks. This new species is similar to *D. mengyan-ganus* sp. nov., but it may be separated from the latter by having somewhat long ventral hairs apically on the hind femur.

8. *Diaphorus mengyanganus* sp. nov.
(Figs. 37-38)

Diagnosis. Postocular bristles entirely black. All femora black, apices of fore and mid femora yellow, tip of hind femur dark yellow; hind tibia dark yellow, with blackish apex. Cercus small and thin.

Male. Body length 4.5 mm, wing length 4.1 mm.

Head metallic green, with pale grey pollen. Ocellar tubercle distinct. Eyes very closely approaching each other for a short distance (as long as 1/3 of frons) on frons, with dorso-anterior ommatidia enlarged; face rather wide with parallel lateral margins. Hairs and bristles on head black; postocular bristles (including ventral hairs) black. Antenna (Fig. 37) black; first flagellomere rather short, 1.7 times wider than long; arista black with basal segment very short. Proboscis black with black hairs; palpus yellow, with 3-4 black hairs and 1 black apical bristle.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 5-6 irregularly paired acr short and hair-like (of which the most posterior paired acr are longer), 5 strong dc. Propleuron with 2 short black hairs on upper part and 1 short black hair and 1 long black bristle on lower part. Legs black; all coxae black with narrow apex of fore coxa yellow; apices of fore and mid femora yellow, narrow tip of hind femur dark yellow; tibiae and tarsi yellow, apex of hind tibia black; fore and mid tarsi yellow from tip of tarsomere 1 onward brown to dark brown, hind tarsus black. Hairs and bristles on legs black. Fore coxa with 4 bristles on apical half; mid coxa with 2 outer bristle; hind coxa with 1 outer bristle. Fore femur with two rows of v (of which pv are longer), hind

femur apically with 2 av. Fore tibia with 1 ad and 1 pd; mid tibia with 2 ad, 1-2 pd and 1 v; hind tibia with 2 ad, 5 pd and 4-5 short thin v. Fore tarsus without claws, with elongated pulvilli slightly longer than tarsomere 5, mid and hind tarsi with 2 small claws and 2 small pulvilli. Relative lengths of segments of legs LI 4.3: 2.8: 1.2: 0.85: 0.65: 0.65; LII 5.8: 3.2: 1.8: 1.2: 0.7: 0.4; LIII 7.0: 2.1: 2.2: 1.3: 0.8: 0.4.

Wing hyaline, very weakly tinged with greyish; veins brown, R4+5 and M parallel apically; CuAx ratio 0.6. Squama yellow, with black hairs. Halter yellow, with brown base.

Abdomen wholly metallic green, with pale grey pollen; hairs and bristles black, terga 1-5 with a row of bristles on posterior margin. Hypopygium (Fig. 38): Sternum 8 with 4 strong bristles; surstylus with long dorsal lobe, somewhat thick medially, ventral lobe very wide, with 7 apical long hairs; cercus short and thin, basally with short wide separated projection with 5 long hairs.

Female. Unknown.

Holotype male: Yunnan: Xishuangbanna, Mengyang, 1999. III. 11, DING YANG. (CAU)

Distribution. China (Yunnan).

Etymology. The name refers to the type locality Mengyang.

Remarks. This new species is similar to *menglunanus* sp. nov., but may be separated from the latter by having the hind femur without ventral hairs apically, and small thin cercus.

9. *Diaphorus nigricans* MEIGEN
(Figs. 39-40)

Diaphorus nigricans MEIGEN, 1824, Syst. Bechr., 4: 33. Type locality: not given.

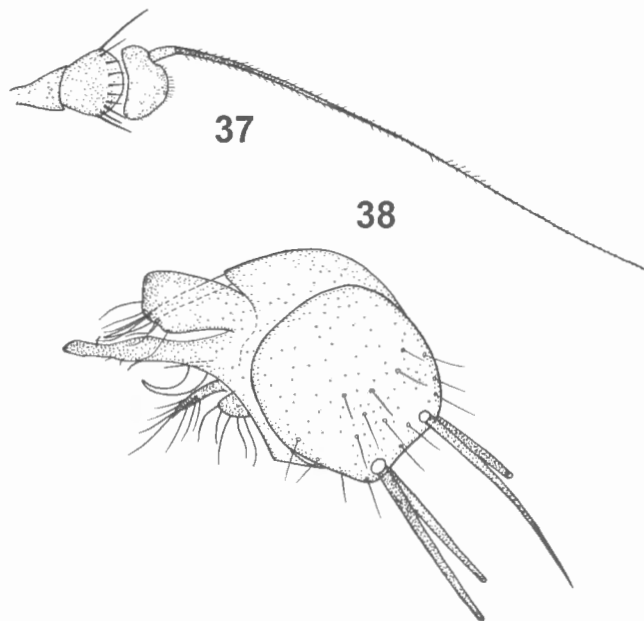
Diaphorus obscurellus ZETTERSTEDT, 1838, Insecta Lapp. : 706. Type locality: Sweden.

Diaphorus skolovi STACKELBERG, 1928, Russk. Ent. Obozr., 22(1-2): 73. Type locality: Siberia orientalis (Russia).

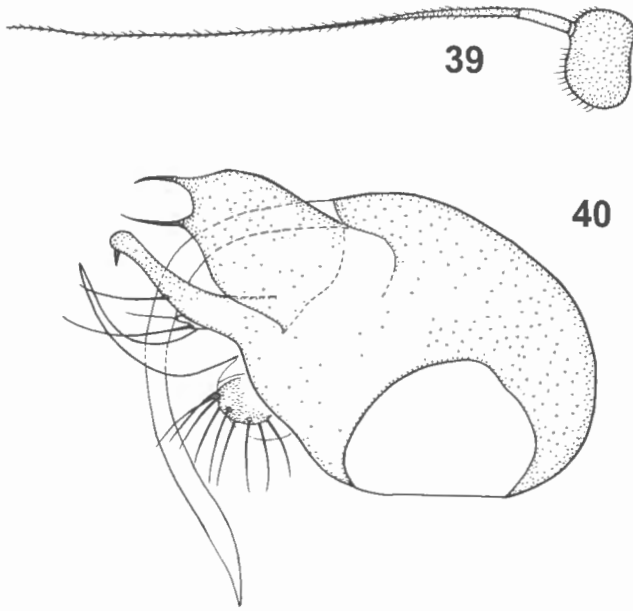
Diagnosis. Postocular bristles wholly black. Palpus black. All femora black with tips dark yellow to yellow; all tibiae yellow. Wing greyish brown. Squama dark brown. Halter black.

Male. Body length 3.2 mm, wing length 3.1 mm.

Head metallic green, with pale grey pollen. Ocellar tubercle distinct. Eyes contiguous for a long distance (about half as long as frons) on frons, with upper ommatidia enlarged; face rather wide with parallel lateral mar-



Figs. 37-38 — *Diaphorus mengyanganus* sp. nov., male. 37, antenna, lateral view; 38, genitalia, lateral view.



Figs. 39-40 — *Diaphorus nigricans* MEIGEN, male. 39. antenna (excluding scape and pedicel), lateral view; 40, genitalia, lateral view.

gins. Hairs and bristles on head black; postocular bristles (including ventral hairs) wholly black. Antenna (Fig. 39) black; first flagellomere rather short, 1.4 times wider than long, not distinctly convex apically; arista black with basal segment very short. Proboscis black with black hairs; palpus black with 4 black hairs and 1 black apical bristle.

Thorax dark metallic green, with pale grey pollen. Hairs and bristles on thorax black; 6-7 irregularly paired acr short and hair-like, 5 strong dc.

Legs black; all coxae black; all femora black with tips dark yellow to yellow; all tibiae yellow except mid and hind tibiae with base narrowly dark brown; tarsi yellow, from tip of tarsomere 2 onward brown to dark brown. Hairs and bristles on legs black. Fore coxa with 5 bristles on apical half; mid coxa with 2 outer bristles, hind coxa with 1 outer bristle. Fore femur with two rows of weak v; hind femur apically with 3-4 av. Mid tibia with 1 ad and 2 pd; hind tibia with 1 ad and 3-4 pd. Fore tarsus without claws, with elongated pulvilli slightly shorter than tarsomere 5, mid and hind tarsi with 2 small claws and 2 small pulvilli. Relative lengths of segments of legs LI 3.3: 1.8: 1.0: 0.7: 0.4: 0.4; LII 4.0: 2.1: 1.2: 0.8: 0.45: 0.3; LIII 4.7: 1.4: 1.3: 0.85: 0.6: 0.35.

Wing greyish brown with outer and posterior margins somewhat pale; veins black, R4+5 and M parallel apically; CuAx ratio 0.6. Squama dark brown with black hairs. Halter black.

Abdomen dark metallic green, with pale grey pollen; hairs and bristles black, terga 1-5 with a row of bristles on posterior margin. Hypopygium (Fig. 36): Sternum 8 with 4 strong bristles; surstylus with narrow dorsal lobe narrow bearing a black apical spine, ventral lobe very wide with a

wide incision bearing 2 apical bristles; cercus reduced, only with short, widely separated projection bearing some long hairs.

Female. Not available.

Specimen examined. 1 male, Henan: Xixia, 1998. VII. 19, Xueyou HU.

Distribution. China (Henan); Palearctic, Nearctic and Neotropical regions.

This species is recorded from China for the first time.

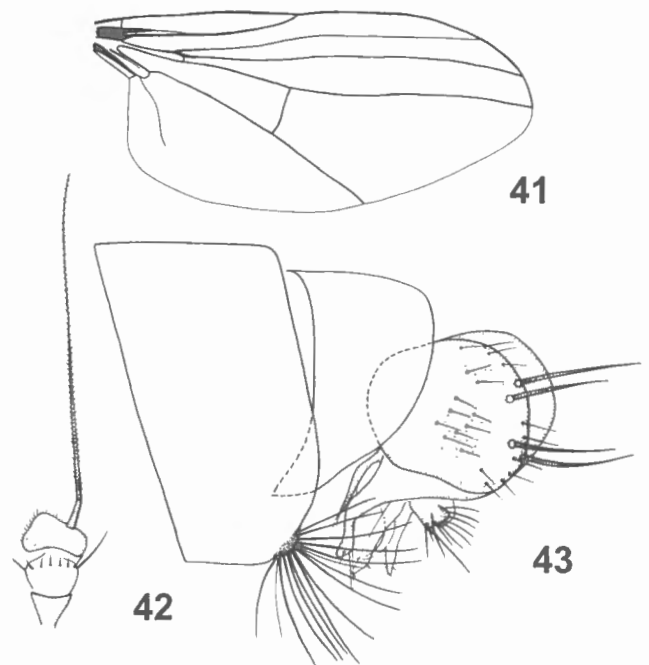
10. *Diaphorus parenti* STACKELBERG (Figs. 41-43)

Diaphorus parenti STACKELBERG, 1928, Russk. Ent. Obozr., 22(1-2): 72. Type locality: Russia (Far East).

Diagnosis. Middle and lower postocular bristles pale. Palpus black. Legs entirely black. Fore and mid tarsi each with 1 claw; hind tarsus with 2 claws. Abdominal tergum 5 with a bundle of very long hairs on postero-lateral corner.

Male. Body length 4.0-4.1 mm, wing length 3.7-4.0 mm.

Head metallic green, with pale grey pollen. Ocellar tubercle distinct. Eyes contiguous for a short distance (less than half as long as frons) on frons, with upper ommatidia enlarged; face rather wide with parallel lateral margins. Hairs and bristles on head black; middle and



Figs. 41-43 — *Diaphorus parenti* STACKELBERG, male. 41. wing; 42. antenna, lateral view; 43, genitalia, lateral view.

lower postocular bristles (including ventral hairs) pale. Antenna (Fig. 42) black; first flagellomere rather short, 1.4 times wider than long; arista black with basal segment very short. Proboscis black with black hairs; palpus black with 5 black hairs and 1-2 black apical bristles.

Thorax dark metallic green, with pale grey pollen. Hairs and bristles on thorax black; 6-7 irregularly paired acr short and hair-like, 5 strong dc. Propleuron with 2-3 short black hairs on upper part and 1 short black hair and 1 long black bristle on lower part.

Legs entirely black. Hairs and bristles on legs black. Fore coxa with 5-6 bristles on apical half; mid coxa with 2-3 outer bristles, hind coxa with 1 outer bristle. Fore femur with two rows of v (of which pv are stronger); mid femur with two rows of v; hind femur apically with 4 av. Fore tibia with 2 pd; mid tibia with 2 ad and 4 pd; hind tibia with 3 ad and 5 pd. Fore and mid tarsi each with 1 claw (as long as elongated pulvilli; pulvilli slightly shorter than tarsomere 5), hind tarsus with 2 claws (as long as somewhat elongated pulvilli; pulvilli shorter than tarsomere 5). Relative lengths of segments of legs LI 4.3: 2.5: 1.1: 0.8: 0.55: 0.55; LII 4.6: 2.7: 1.3: 0.9: 0.5: 0.55; LIII 6.0: 2.0: 1.6: 1.2: 0.7: 0.6.

Wing hyaline; veins black, R4+5 and M parallel apically; CuAx ratio 0.4. Squama dark yellow, with dark brown margin, with black hairs. Halter yellow, with narrow base dark brown.

Abdomen dark metallic green, with pale grey pollen; hairs and bristles black, terga 1-5 with a row of bristles on posterior margin; tergum 5 with a bundle of long hairs on postero-lateral corner. Hypopygium (Fig. 43): Sternum 8 with 4 strong bristles; surstylus with dorsal lobe rather long; ventral lobe short and narrow; cercus very short and thin, with closely located basal projection with some long hairs.

Female. Not available.

Specimens examined: 1 male, Ningxia: Guyuan, 1980. VIII. 18, Fasheng LI; 1 male, Hebei: Xiaowutaishan (1200 m), 1964. VIII.12, Yingheng HAN; 1 male, Hebei: Xiaowutaishan (1500 m), 1964. VII. 16, Bingqian LI; 1 male, Henan: Xixia, 1998. VII. 19, Xueyou HU.

Distribution. China (Ningxia, Hebei, Henan); Russia (Far East).

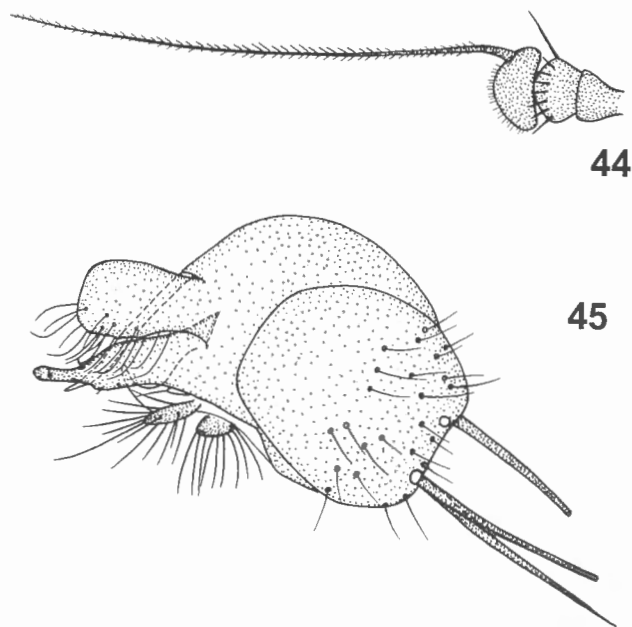
This species is recorded from China for the first time.

11. *Diaphorus qingchengshanus* sp. nov. (Figs. 44-45)

Diagnosis. Postocular bristles wholly black. Palpus yellow. Hind leg wholly black. Fore tarsus with pulvilli slightly longer than tarsomere 5.

Male. Body length 5.1-5.4 mm, wing length 4.7-5.0 mm.

Head metallic green, with pale grey pollen. Ocellar tubercle distinct. Eyes contiguous on frons, with upper



Figs. 44-45 — *Diaphorus qingchengshanus* sp. nov., male. 44. antenna, lateral view; 45, genitalia, lateral view.

ommatidia somewhat enlarged; face rather wide with parallel lateral margins. Hairs and bristles on head black; postocular bristles (including ventral hairs) wholly black. Antenna (Fig. 44) black; first flagellomere rather short, 1.8 times wider than long; arista black with basal segment very short. Proboscis black with black hairs; palpus yellow, with 3-4 black hairs and 1 black apical bristle.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 10-11 irregularly paired acr short and hair-like, 5 strong dc. Propleuron with 3 short black hair on upper part and 3 short black hairs and 1 long black bristle on lower part.

Legs black; all coxae black except apex of fore coxa yellow; apical 1/3 B1/4 of fore femur and apex of mid femur yellow; fore and mid tibiae and tarsi yellow, fore and mid tarsi from tip of tarsomere 1 onward brown to dark brown. Hairs and bristles on legs black. Fore coxa with 7 bristles on apical half; mid coxa with 2 outer bristles; hind coxa with 1 outer bristle. Fore femur with two rows of v (of which av are distinct on basal part and pv are stronger than av); mid femur apically with 4 pv; hind femur apically with 4 av and some somewhat long ventral hairs. Fore tibia with 1 ad, 2 pd and 1 v; mid tibia with 2 ad, 2 pd and 1-2 v; hind tibia with 2 ad, 6 pd and 5 short v. Fore tarsus without claws and with elongated pulvilli slightly longer than tarsomere 5, mid and hind tarsi with 2 small claws and 2 small pulvilli. Relative lengths of segments of legs LI 5.4: 3.1: 1.4: 1.1: 0.7: 0.6; LII 7.1: 3.8: 1.8: 1.2: 0.85: 0.5; LIII 9.0: 2.6: 2.3: 1.5: 0.9: 0.7.

Wing hyaline, weakly tinged with greyish; veins black, R4+5 and M parallel apically; CuAx ratio 0.65. Squama yellow, with black hairs. Halter yellow.

Abdomen wholly metallic green, with pale grey pollen; hairs and bristles black, terga 1-5 with a row of bristles on posterior margin. Hypopygium (Fig. 45): Sternum 8 with 4 strong bristles; surstylus with dorsal lobe rather narrow apically, ventral lobe rather wide with many long hairs; cercus small and thin, with long hairs, basally with short wide separated projection bearing some long hairs.

Female. Unknown.

Holotype male paratype male, Sichuan: Qingcheng Mountain, 1998. VIII. 22, DING YANG. (CAU)

Distribution. China (Sichuan).

Etymology. The name refers to the type locality.

Remarks. In the keys of BECKER (1922) and MEUFFELS & GROOTAERT (1985) this new species runs to *D. wonosobensis* DE MEIJERE from the Oriental region, but may be separated from the latter by having a yellow palpus. In *D. wonosobensis*, the palpus is black (BECKER, 1922).

12. *Diaphorus xizangensis* sp. nov. (Figs. 46-47)

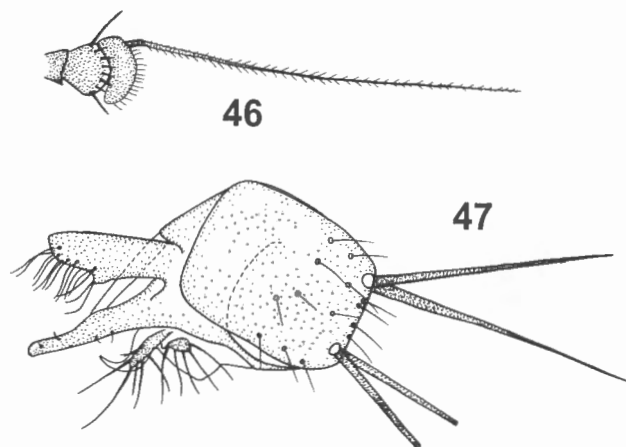
Diagnosis. Postocular bristles wholly black. All femora chiefly black; apical part of hind tibia black. Abdomen partly yellow basally.

Male. Body length 4.6 mm, wing length 4.7 mm.

Head metallic green, with pale grey pollen. Ocellar tubercle distinct. Eyes contiguous for a long distance (about half as long as frons) on frons, with dorso-anterior ommatidia enlarged; face rather wide with parallel lateral margins. Hairs and bristles on head black; postocular bristles (including ventral hairs) black. Antenna (Fig. 46) black; first flagellomere rather short, 1.8 times wider than long; arista black with basal segment very short. Proboscis black with black hairs; palpus yellow, with 4 black hairs and 1 black apical bristle.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 6-7 irregularly paired acr short and hair-like, 5 strong dc. Propleuron with 2 short black hairs on upper part and 1 short black hair and 1 long black bristle on lower part.

Legs [hind tarsomeres 3-5 broken off] black; all coxae black, fore coxa with yellow narrow apex; apices of fore and mid femora yellow, tip of hind femur dark yellow; tibiae and tarsi yellow, hind tibia with black apex; fore and mid tarsi from tip of tarsomere 1 onward brownish to brown, hind tarsus wholly black. Hairs and bristles on legs black. Fore coxa with 6 bristles on apical half; mid coxa with 2 outer bristles; hind coxa with 1 outer bristle. Fore femur with two rows of v (of which pv are stronger); hind femur apically with 3 av. Fore tibia with 1 ad and 2 pd; mid tibia with 1 ad, 1-2 pd and 1 v; hind tibia with 2 ad and 3-4 pd. Fore tarsus without claws, but with 2 elongated pulvilli nearly as long as tarsomere 5; mid



Figs. 46-47 — *Diaphorus xizangensis* sp. nov., male. 42. antenna, lateral view; 43, genitalia, lateral view.

tarsus with 2 small claws and 2 small pulvilli. Relative lengths of segments of legs LI 4.9: 2.9: 1.2: 1.0: 0.6: 0.55; LII 6.3: 3.8: 1.8: 1.2: 0.7: 0.5; LIII 8.1: 2.3: 2.2:?:?:? .

Wing hyaline, weakly tinged with greyish; veins brown, R4+5 and M parallel apically; CuAx ratio 0.45. Squama yellow, with black hairs. Halter yellow, with brown base.

Abdomen metallic green, with pale grey pollen; terga 2-3 yellow, with narrow posterior margin of tergum 2 and wide posterior margin of tergum 3 blackish to black, sterna 1-3 yellow. Hairs and bristles on abdomen black, terga 1-5 with a row of bristles on posterior margin. Hypopygium (Fig. 47): Sternum 8 with 4 strong bristles; surstylus with narrow, finger-like dorsal lobe; wide ventral lobe irregularly incised with some long apical hairs; cercus small and thin, basally with a short wide separated projection bearing 5 long hairs.

Female. Unknown.

Holotype male: Xizang: Zayu (1570 m), 1978. VI. 25, Fasheng LI. (CAU)

Distribution. China (Xizang).

Etymology. The name refers to the type locality.

Remarks. This species is similar to *D. lichtwardti* PARENT from Jiangxi. It may be easily separated from the latter by having the hind tibia with black apex. In *D. lichtwardti*, the hind tibia is wholly yellow (PARENT, 1925; STACKELBERG, 1928).

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