

## New species of *Hercostomus* (Diptera: Dolichopodidae) from China

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### Abstract

Seven new species of *Hercostomus* are described from China: *Hercostomus breviseta* sp. n., *H. huizhouensis* sp. n., *H. longyuwanensis* sp. n., *H. motuoensis* sp. n., *H. nanlingensis* sp. n., *H. nantouensis* sp. n. and *H. subrusticus* sp. n. A key to the new species is given.

**Key words:** Diptera, Dolichopodidae, *Hercostomus*, new species, China

### Introduction

*Hercostomus* is one of the largest and most abundant genera in the subfamily Dolichopodinae, with 470 species actually known in the world (YANG *et al.*, 2006). In the past decade, much attention has been paid to the Chinese fauna (WEI, 1995, 2005-2007; YANG *et al.*, 1995-2007). Presently, 236 species are known in China (including the new species), with 201 species are assigned to 25 species-group (including the new species-group). The taxonomic status of 35 species are still not clear. A new species group, the *Hercostomus nanlingensis*-group is described here, consist of two new species: *Hercostomus nanlingensis* sp. n. and *H. subrusticus* sp. n. In the present paper, seven species are described as new to science from Xinjiang, Henan, Guangdong and Xizang provinces in China.

The following abbreviations are used: acr-acrostichal, ad-anterodorsal, apv-apicoventral, av-anteroventral, dc-dorsocentral, LI-fore leg, LII-mid leg, LIII-hind leg, pd-postdorsal, pv-posteroventral, v-ventral.

### Taxonomic account

#### *Hercostomus breviseta* sp. nov.

(Figs 1-5)

**MATERIAL EXAMINED:** HOLOTYPE - male, CHINA, Xizang, Motuo, 4 June 1980. (leg. Jianyi Wu. Type is deposited

in Institute of Plant Physiology and Ecology, Chinese Academy of Sciences, Shanghai, IPPE).

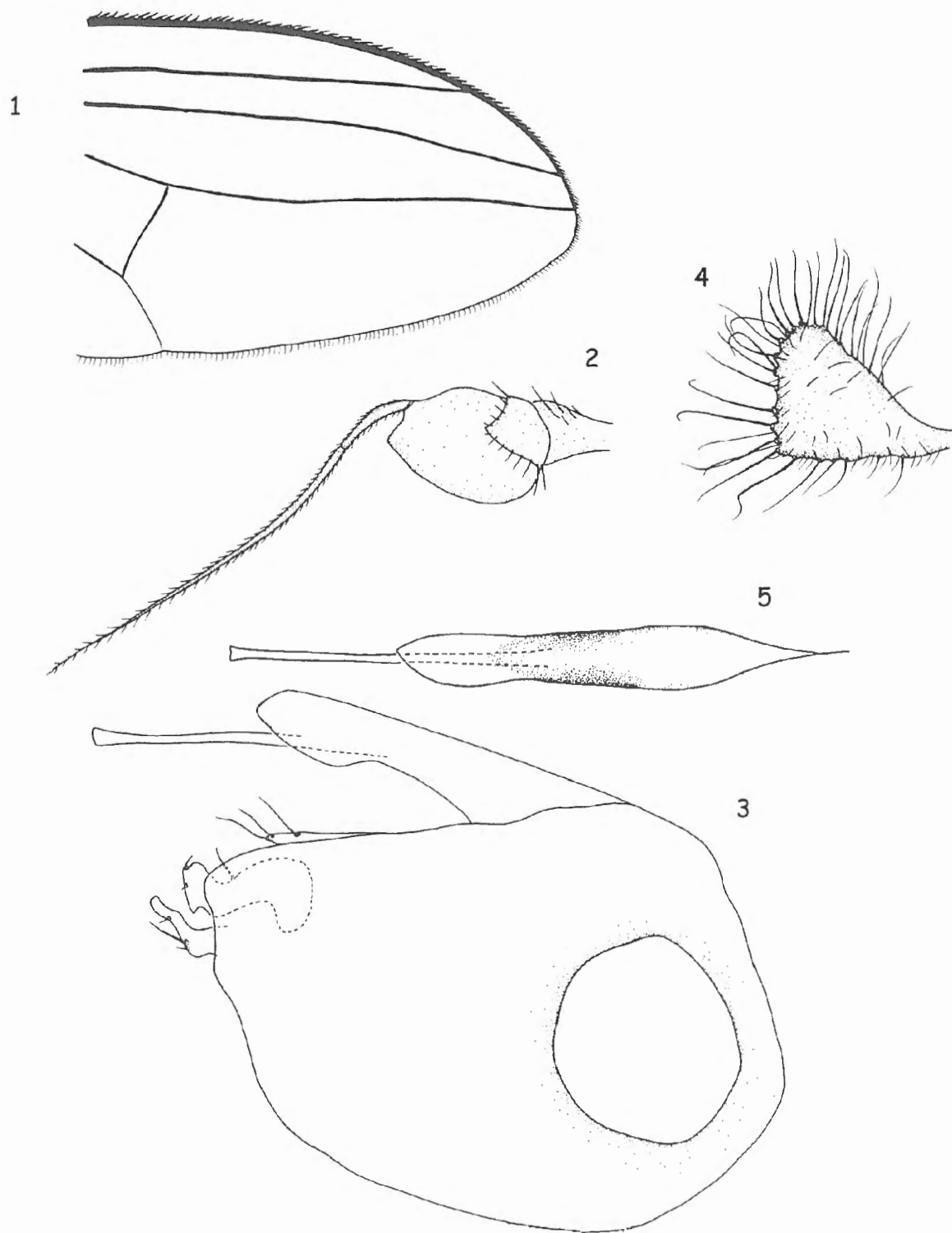
**PARATYPE** - 2 males, same as holotype (Types are deposited in Institute of Plant Physiology and Ecology, Chinese Academy of Sciences, Shanghai, IPPE).

**DIAGNOSIS:** Postocular bristles wholly black. Antenna wholly yellow, first flagellomere 1.4 times longer than wide. Thorax with lateral and posterior margin of mesonotum, humerus pteropleuron and metapleuron yellow, mesopleuron partly yellow; scutellum yellow. Mid femur with 3 preapical bristles and one row of 12-13 black short bristles (shorter than 1/2 thickness of femur). CuAx ratio 1.3.

**DESCRIPTION:** *Male.* Body length 5.6-5.8 mm, wing length 5.7-5.8 mm.

Head metallic green with grey brown pollen. Hairs and bristles on head black. Postocular bristles (including postero-ventral hairs) black. Antenna (Fig. 2) wholly yellow, first flagellomere 1.4 times longer than wide, obtuse apically; arista black, minutely pubescent, with basal segment 0.25 times as long as apical segment. Proboscis brown with black hairs; palpus dark yellow, with black hairs and black apical bristle.

Thorax metallic green with pale grey pollen; lateral and posterior margin of mesonotum, humerus, pteropleuron and metapleuron yellow, mesopleuron partly yellow; scutellum yellow. Hairs and bristles on thorax black. 5 strong dc, 7-8 irregular acr short and hair-like; scutellum with 2 pairs of bristles (basal pair short and hair-like). Propleuron black haired, with 1 black bristle on lower portion. Legs yellow, fore coxa brownish yellow, mid coxa black except the apex, hind coxa mostly brownish yellow, with 1 black spot on upper portion. Hairs and bristles on legs black. Mid and hind coxae each with 1 outer bristle; mid femur with 3



Figs 1-5 – *Hercostomus breviseta* sp. nov. (male). 1. wing, apex; 2. antenna; 3. male genitalia, excluding cercus; 4. cercus; 5. hypandrium, ventral view.

preapical bristles, hind femur with 1 preapical bristle. Mid femur with one row of 12-13 black short bristles (shorter than 1/2 thickness of femur). Fore tibia with 3 ad and 2 pd, apically with 2 bristles; mid tibia with 4 ad, 2 pd, 1 av and 1 pv, apically with 4 bristles; hind tibia with 5 ad, 5 pd and 1 av, apically with 2 bristles. Hind tarsomere 1 with 1 v at base. Relative lengths of tibia and 5 tarsomeres: LI 2.5 : 1.6 : 0.85 : 0.5 : 0.3 : 0.3; LII 3.9 : 1.75 : 1.0 : 0.6 : 0.35 : 0.25; LIII 4.5 : 1.2 : 1.6 : 1.0 : 0.6 : 0.35. Wing (Fig. 1) hyaline, tinged with greyish, veins brown,  $R_{4+5}$  and M distinctly convergent apically; CuAx ratio 1.3. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale grey pollen. Hairs and bristles on abdomen black. Male genitalia (Figs 3-5): Epandrium longer than wide, lateral lobe relatively short, with 3 apical bristles; cercus (Fig. 4) somewhat triangular, straight on outer margin; hypandrium (Fig. 5) acute apically, aedeagus slender.

*Female*. Unknown.

DISTRIBUTION: China (Xizang).

ETYMOLOGY: The specific name refers to the row of short bristles on mid femur.

REMARKS: The new species is similar to *Hercostomus flaviscutellum* Yang with antenna and scutellum wholly yellow. It may be separated from the latter by postocular bristles wholly black, mid femur with 3 preapical bristles and one row of 12-13 short ventral bristles. In *Hercostomus flaviscutellum*, the postocular bristles are wholly yellow, mid femur bears 1 preapical bristle and has no ventral bristles (YANG, 1998). The taxonomic status of *Hercostomus breviseta* sp. nov. is still not clear.

*Hercostomus huizhouensis* sp. nov.  
(Figs 6-10)

MATERIAL EXAMINED: HOLOTYPE - male, CHINA, Guangdong, Huizhou, 11 May 2004. (leg. Patrick Grootaert. Type is deposited in Entomological Museum of China Agricultural University, CAU).

DIAGNOSIS: Postocular bristles black. Antenna brown, first flagellomere 1.2 times longer than wide. Legs yellow; fore coxa blackish, mid and hind coxae black. Male genitalia with very small cercus.

DESCRIPTION: *Male*. Body length 3.4 mm, wing length 3.1 mm.

Head metallic green, with pale grey pollen. Face narrowing downward, narrower than first flagellomere. Hairs and bristles on head black. Postocular bristles (including postero-ventral hairs) black. Antenna (Fig. 7) brown, first flagellomere 1.2 times longer than wide, obtuse apically; arista brown, apical segment broken off, minutely pubescent. Proboscis dark brown, with black hairs; palpus black, with black hairs and 1 black apical bristle.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black, 6 strong dc, 6-7 irregularly paired acr, short and hair-like. Scutellum with one pair of strong bristles. Propleuron black haired, with 1 black bristle at lower portion. Legs yellow; fore coxa blackish, mid and hind coxae black except the apex; fore tarsomere 5 brown, mid tarsus from tip of tarsomere 1 onward brown, hind tarsus 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 and 2 pd, apically with 4 short bristles; hind tibia with 2 ad and 4 pd, apically with 3 bristles. Fore tarsomere 1 with 1 short v at base. Relative lengths of tibia and 5 tarsomeres: LI 1.25 : 0.65 : 0.3 : 0.2 : 0.15 : 0.15; LII 1.7 : 0.9 : 0.5 : 0.3 : 0.2 : 0.2; LIII 2.0 : 0.5 : 0.65 : 0.4 : 0.25 : 0.25. Wing (Fig. 6) hyaline, tinged with greyish, veins brown,  $R_{4+5}$  and M slightly convergent apically; CuAx ratio 0.65. Squama yellow, with black hairs. Halter yellow.

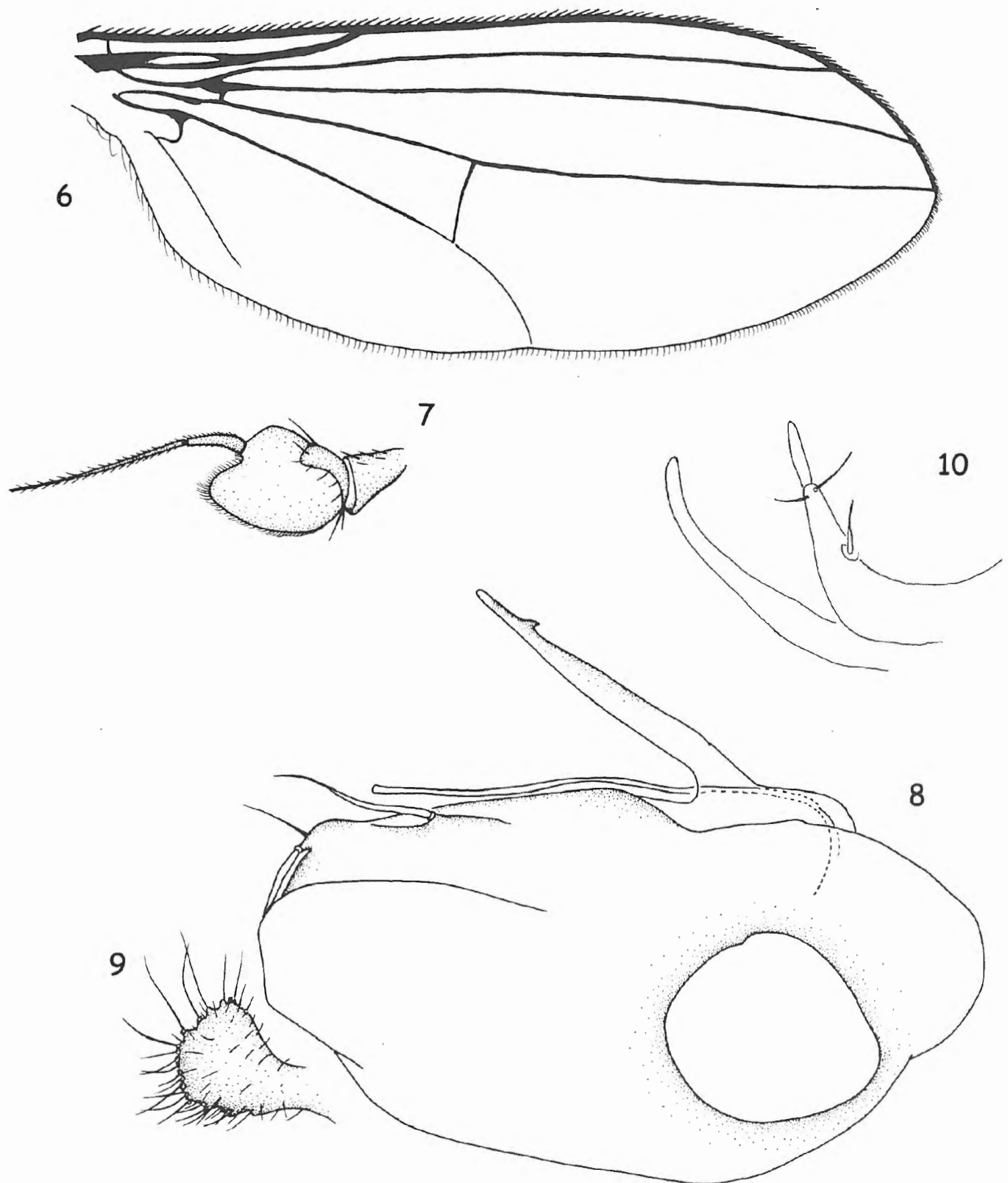
Abdomen metallic green, with pale grey pollen. Hairs and bristles on abdomen black. Male genitalia (Fig. 8-10): Epandrium distinctly longer than wide, lateral wide, with 1 thick apical bristle; cercus (Fig. 9) very small; hypandrium straight, with 1 small denticle near the apex. ig. 10 (subepandrial processes) is 4 times enlarged.

*Female*. Unknown.

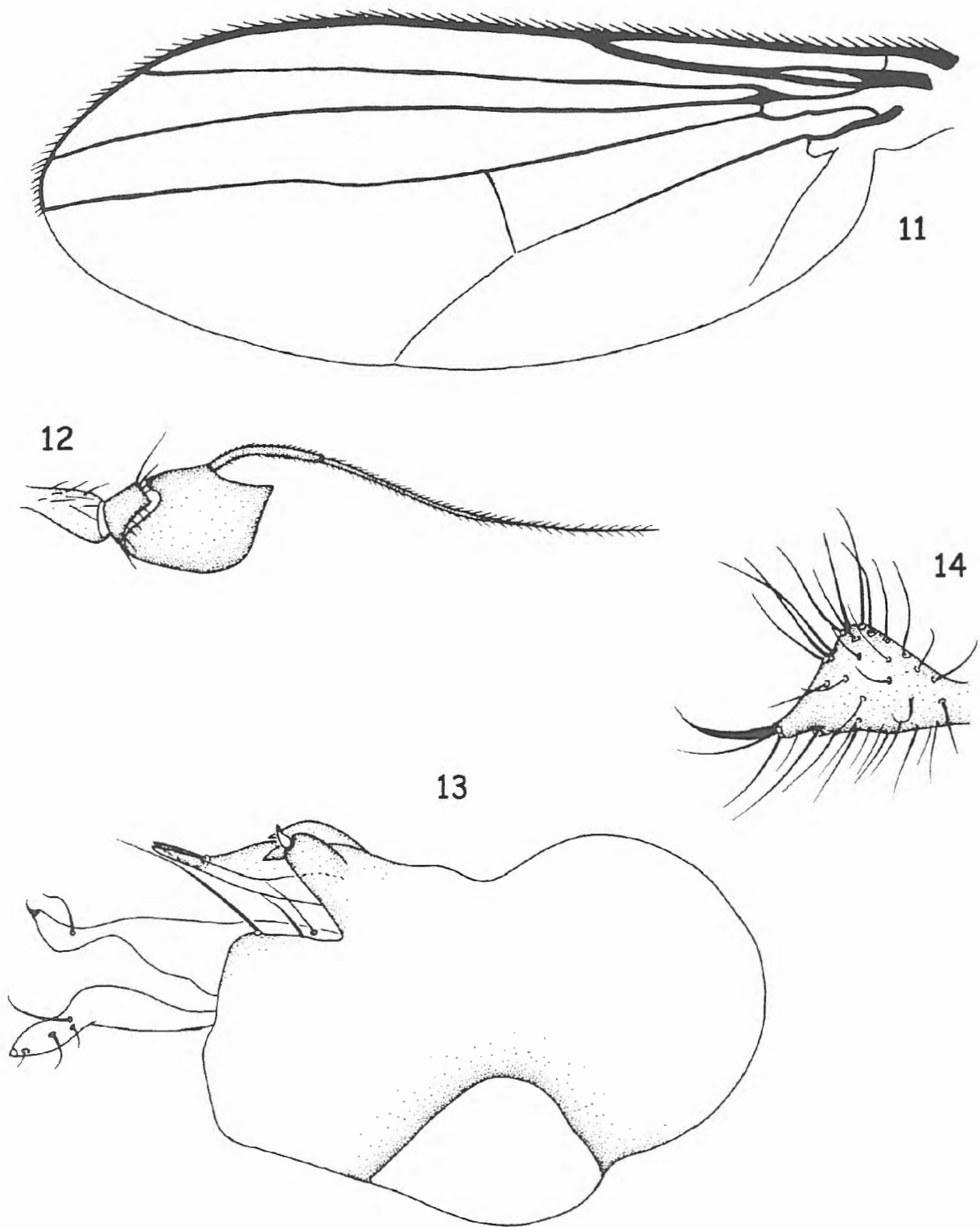
DISTRIBUTION: China (Guangdong).

ETYMOLOGY: The specific name refers to the type locality of Huizhou.

REMARKS: The new species is easily recognized by its very small cercus. It is still not clear that to which species-group this new species belongs to.



Figs 6-10 – *Hercostomus huizhouensis* sp. nov. (male). 6. wing; 7. antenna; 8. male genitalia, excluding cercus and subepandrial processes; 9. cercus; 10. subepandrial processes.



Figs 11-14 – *Hercostomus longyiwanensis* sp. nov. (male). 11. wing; 12. antenna; 13. male genitalia, excluding cercus; 14. cercus.

*Hercostomus longyuwanensis* sp. nov.

(Figs 11- 14)

MATERIAL EXAMINED: HOLOTYPE - male, CHINA, Henan, Longyuwan, 1150 m, 22 May 1999. (leg. Ignac Sivec. Type is deposited in the Natural History Museum of Slovenia).

DIAGNOSIS: Middle and lower postocular bristles (including postero-ventral hairs) yellow. Antenna dark brown, scape yellow; first flagellomere large, nearly quadrate, 1.3 times longer than wide. Thorax with pleuron yellow, pteropleuron with 1 black spot. All coxae yellow.

DESCRIPTION: *Male*. Body length 3.6 mm, wing length 3.6 mm.

Head metallic green, with pale grey pollen. Face narrowing downward, narrower than first flagellomere. Hairs and bristles on head black. Middle and lower postocular bristles (including postero-ventral hairs) yellow. Antenna (Fig. 12) dark brown, scape yellow; first flagellomere large, nearly quadrate, 1.3 times longer than wide, somewhat acute apically; arista dark brown, minutely pubescent, with basal segment 0.3 times as long as apical segment. Proboscis yellow, with brownish hairs; palpus yellow, with brownish hairs and 1 brown apical bristle.

Thorax metallic green, with pale grey pollen, pleura yellow, pteropleuron with 1 black spot. Hairs and bristles on thorax black, 6 strong dc, 7-8 irregularly paired ac short and hair-like; scutellum with 2 pairs of bristles (basal pair short and hair-like). Propleuron pale haired, with 1 black bristle at lower portion. Legs yellow, all coxae yellow. 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 2 weak pd; mid tibia with 2 ad and 2 pd, apically with 4 bristles; hind tibia with 2 ad, 5 pd and 4 v, apically with 3 bristles. Relative lengths of tibia and 5 tarsomeres: LI 1.5 : 1.0 : 0.5 : 0.4 : 0.25 : 0.25; LII 2.1 : 1.05 : 0.55 : 0.55 : 0.35 : 0.25; LIII 2.75 : 0.65 : 1.0 : 0.6 : 0.4 : 0.25. Wing (Fig. 11) hyaline, veins brown,  $R_{4+5}$  and M weakly convergent apically, CuAx ratio 0.55. Squama yellow with brown hairs. Halter yellow.

Abdomen metallic green with pale grey pollen. Hairs and bristles on abdomen black. Male genitalia (Figs 13-14): Epandrium longer than wide; lateral lobe indistinct, with 1 apical bristle; cercus (Fig. 14) triangular, without distinct finger-like marginal processes; aedeagus acute apically; hypandrium furcate, lateral arm with a thick spine-like bristle.

*Female*. Unknown.

DISTRIBUTION: China (Henan).

ETYMOLOGY: The specific name refers to the type locality of Longyuwan.

REMARKS: The new species belongs to the *takagii*-group (= *hamatus*-group), but can be separated from known species by the first flagellomere large, nearly quadrate, with 1 acute corner apically and lateral arm of hypandrium with a spine-like bristle.

Key to the species of *takagii*-group

1. Second section of Costa thickened basally; fore tarsomere 5 with 1 dorsal projection ..... 2
- Costa not thickened; fore tarsomere 5 without dorsal projection..... 4
2. Dorsal projection of fore tarsomere 5 very small ..... *H. prolixus* WEI
- Dorsal projection of fore tarsomere 5 large and wide ..... 3
3. Dorsal projection of fore tarsomere 5 longer than wide, projected like a tongue on anterior margin ..... *H. proctus* WEI
- Dorsal projection of fore tarsomere 5 wider than long, straight on anterior margin ..... *H. guizhouensis* WEI
4. Fore tarsomeres 3-4 usually thickened, tarsomere 5 white or brown ..... 5
- Fore tarsus normal, brown to black ..... 11
5. Tarsomere 5 white ..... 6
- Tarsomere 5 brown ..... *H. acutilobatus* LIAO, ZHOU & YANG
6. Postocular bristles wholly black ..... 7
- Middle and lower postocular bristles pale ..... *H. exacutus* WEI
7. Fore tarsomeres 3-4 distinctly thickened ..... 8
- Fore tarsomeres 3-4 slightly thickened ..... 9
8. Cercus with finger-like processes ..... *H. dissimilis* YANG & SAIGUSA
- Cercus without finger-like processes ..... *H. chiaiensis* ZHANG, YANG & MASUNAGA
9. Arista dorsal to subapical ..... 10
- Arista nearly apical ..... *H. taitungensis* ZHANG, YANG & MASUNAGA
10. First flagellomere obtuse apically ..... *H. dissectus* YANG & SAIGUSA
- First flagellomere acute apically ..... *H. curvispinus* YANG & SAIGUSA
11. Arista apical ..... 12

- Arista subapical to dorsal ..... 15
12. All coxae yellow ..... *H. tianeensis* ZHANG & YANG
- Not all coxae yellow ..... 13
13. Fore and hind coxae yellow, mid coxa blackish ...  
..... 14
- Fore coxa yellow, mid and hind coxae blackish  
brown.....*H. huaiienensis* ZHANG, YANG & MASUNAGA
14. Epandrial lateral lobe uniformly narrow and  
stripe-like ..... *H. furcutus* WEI
- Epandrial lateral lobe narrowing toward apex  
..... *H. apicularis* YANG & GROOTAERT
15. Thorax mostly or partly yellow ..... 16
- Thorax metallic green ..... 19
16. Epandrial lateral lobe indistinct .....  
..... *H. longyuwanensis* sp. nov.
- Epandrial lateral lobe distinct ..... 17
17. Epandrial lateral lobe slightly curved, with 2  
apical bristles .....  
..... *H. xishuangbannensis* YANG & GROOTAERT
- Epandrial lateral lobe straight and finger-like, with  
1 long apical bristle ..... 18
18. Antennal scape and pedicle dark brownish yellow,  
first flagellomere black; scutellum with yellow  
margin .....*H. curvativus* YANG & SAIGUSA
- Antenna wholly black; scutellum wholly metallic  
green..... *H. xanthodes* YANG & GROOTAERT
19. Antennal scape not wholly black, at least with basal  
ventral area yellow .....20
- Antennal scape wholly black .....26
20. Hind coxa yellow, at most with brown base ...21
- Hind coxa dark brown to blackish .....24
21. Cercus at most with 2 distinct finger-like  
processes .....22
- Cercus without distinct finger-like processes .....  
..... *H. erectus* YANG & GROOTAERT
22. Aedeagus with some inner denticles .....  
..... *H. serriformis* LIAO, ZHOU & YANG
- Aedeagus without inner denticles .....23
23. Clypeus invisible in lateral view; M behind m-cu  
slightly curved forward .....  
.....*H. takagii* SMIRNOV & NEGROBOV
- Clypeus visible in lateral view; M nearly straight.....  
..... *H. frondosus* WEI
24. Epandrial lateral lobe shorter than epandrium .....  
..... *H. solutus* WEI
- Epandrial lateral lobe longer than epandrium ... 25
25. Epandrial lateral lobe with 1 distinct, short finger-  
like process ..... *H. fistulus* WEI
- Epandrial lateral lobe not as stated above.....26
26. Epandrial lateral lobe short, just projecting  
beyond epandrium .....*H. gansuensis* YANG
- Epandrial lateral lobe distinctly projecting beyond  
epandrium .....27
27. Epandrial lateral lobe thick and finger-like, wide  
basally.....28
- Epandrial lateral lobe uniformly thick, slightly  
curved downward apically, somewhat acute .....29
28. Cercus leaf-like, weakly concaved apically, with 2  
very short marginal processes .....  
..... *H. concavus* YANG & SAIGUSA
- Cercus with 2 long finger-like marginal processes  
..... *H. litargus* WEI
29. Cercus with 2 short finger-like marginal processes  
.....30
- Cercus with 4 long finger-like marginal processes  
.....*H. wui* WEI
30. Hind tibia with 3 pd .....*H. histus* WEI
- Hind tibia with 4 pd .....*H. wudangshanus* YANG

***Hercostomus motuoensis* sp. nov.**

(Figs 15-20)

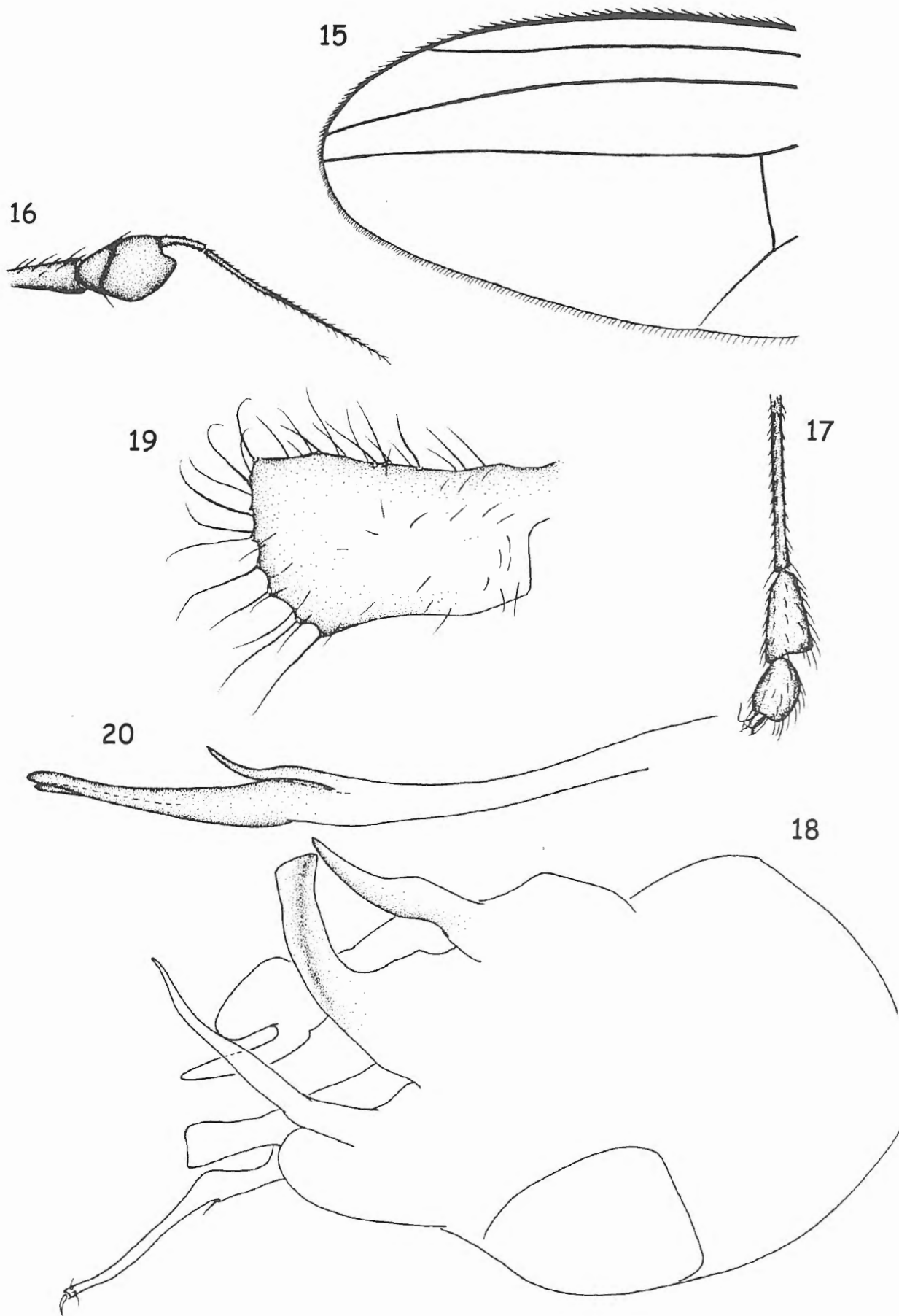
MATERIAL EXAMINED: HOLOTYPE - male, CHINA, Xizang, Motuo, Gedang, 22 March 1980 (leg. Gentao Jin, Jianyi Wu. Type is deposited in Institute of Plant Physiology and Ecology, Chinese Academy of Sciences, Shanghai, IPPE).

DIAGNOSIS: Postocular bristles black. Antenna black, first flagellomere nearly as long as wide. Fore tarsomeres 4-5 distinctly thickened. Halter yellow with blackish stem.

DESCRIPTION: *Male*. Body length 3.7 mm, wing length 3.8 mm.

Head metallic green with pale grey pollen. Face silvery white, distinctly wider than first flagellomere. Hairs and bristles on head black. Postocular bristles (including postero-ventral hairs) black. Antenna (Fig. 16) black, first flagellomere nearly as long as wide; arista black, minutely pubescent with short basal segment. Proboscis blackish brown, with black hairs; palpus black, with black hairs and 1 black apical bristle.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black. 6 strong dc, 5-6 irregularly paired acr, short and hair-like; scutellum with 2 pairs of bristles (basal pair short and hair-like). Propleuron black haired, with 1 black bristle at lower portion. Legs yellow; fore coxa yellow, mid coxa blackish brown, hind coxa black; base of hind tibia blackish and darken to the apex; fore tarsus from tip of tarsomere 1 onward black, tarsomeres 4-5 (Fig. 17) distinctly thickened; mid and hind tarsi black. Hairs and bristles on legs black. Mid



Figs 15-20 – *Hercostomus motuoensis* sp. nov. (male). 15. wing, apex; 16. antenna; 17. fore tarsomeres 3-5; 18. male genitalia, excluding cercus; 19. cercus; 20. hypandrium, ventral view.



and hind coxae each with 1 outer bristle, mid and hind femora each with 1 preapical bristle. Fore tibia with 2 ad and 1 pd, apically with 3 short bristles; mid tibia with 3 ad, 2 pd and 1 v, apically with 4 bristles; hind tibia with 3 ad, 3 pd and 5 v, apically with 3 bristles. Relative lengths of tibia and 5 tarsomeres: LI 2.0 : 1.4 : 1.0 : 0.5 : 0.25 : 0.2; LII 2.5 : 1.5 : 0.9 : 0.5 : 0.25 : 0.25; LIII 3.35 : 1.0 : 1.35 : 0.55 : 0.3 : 0.2. Wing (Fig. 15) hyaline, tinged with greyish; veins brown,  $R_{4+5}$  and M distinctly convergent apically; CuAx ratio 0.8. Squama yellow with black hairs. Halter yellow with blackish stem.

Abdomen dark metallic green, with pale grey pollen. Hairs and bristles on abdomen black. Male genitalia (Figs 18-20): Epandrium longer than wide, with two apical-lateral processes different in shape; cercus (Fig. 19) nearly quadrate; hypandrium (Fig. 20) irregularly furcate.

*Female*. Unknown.

DISTRIBUTION: China (Xizang).

ETYMOLOGY: The specific name refers to the type locality of Motuo.

REMARKS: The new species belongs to *absimilis*-group, and very similar to *Hercostomus xigouensis* Yang et Saigusa by the shape of cercus, but differs from the latter by fore tarsomeres 4-5 distinctly thickened. In *Hercostomus xigouensis*, fore tarsomeres 3-5 are distinctly thickened (YANG & SAIGUSA, 2005).

#### Key to species of *absimilis*-group

1. Antenna wholly black ..... 2
  - Antennal scape and apex of first flagellomere dark brown ..... *H. jiulongensis* ZHANG & YANG
2. First flagellomere elongated, 1.5 times longer than wide ..... 3
  - First flagellomere short, as long as wide ..... 4
3. Arista with basal segment 0.3 times as long as apical segment; fore tarsomeres 3-5 slightly thickened ...
  - ..... *H. emeiensis* YANG
  - Arista with basal segment 0.65 times as long as apical segment; fore tarsomeres 3-5 distinctly thickened ..... *H. longisetus* YANG & SAIGUSA
4. Segments of fore tarsus weakly or distinctly thickened ..... 5
  - Fore tarsus not thickened ..... 10
5. At least apex of fore tarsomeres 5 white ..... 6
  - Fore tarsus brown to black ..... 7
6. Fore tarsomeres 4-5 white .....
  - ..... *H. absimilis* YANG & GROOTAERT

- Narrow apex of fore tarsomere 5 white .....
  - ..... *H. loushanguanensis* YANG & SAIGUSA
- 7. Palpus black; hind tibia partly black ..... 8
  - Palpus yellow; hind tibia wholly yellow ..... 9
- 8. Fore tarsomeres 4-5 distinctly flattened; hind tibia blackish basally, darkened to apex .....
  - ..... *H. motuoensis* sp. nov.
  - Fore tarsomeres 4-5 weakly thickened; apex of hind tibia black ..... *H. dawuishanensis* YANG & SAIGUSA
- 9. Cercus nearly quadrate .....
  - ..... *H. xigouensis* YANG & SAIGUSA
  - Cercus band-like, wide apically .....
    - ..... *H. cuspidiger* YANG & SAIGUSA
- 10. Tip of hind femur brown; apico-lateral projections of epandrium varied in shape .....
  - ..... *H. bigeminatus* YANG & GROOTAERT
  - Hind femur yellow; apico-lateral projections of epandrium similar in shape .....
    - ..... *H. quadratus* YANG & GROOTAERT

#### *Hercostomus nantouensis* sp. nov.

(Figs 21-24)

MATERIAL EXAMINED: HOLOTYPE - male, CHINA, Taiwan, Nantou, 7 July 1997. (leg. T. Saigusa. Type is deposited in the Diptera Collection of the Kyushu University Museum, Fukuoka.)

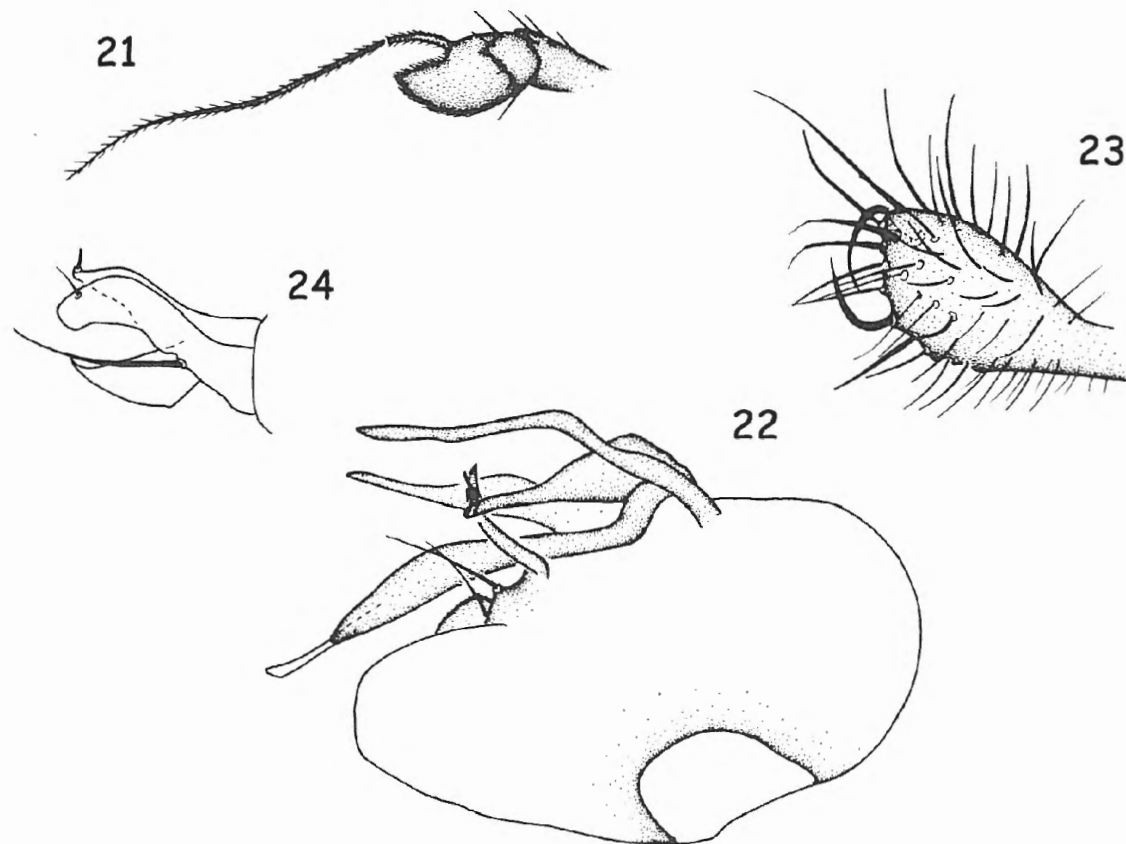
PARATYPE - 1 male, same as holotype; 2 males, Taiwan, Gaoxiong, 500 m, 22 November 1997. (leg. T. Saigusa. Types are deposited in the Diptera Collection of the Kyushu University Museum, Fukuoka)

DIAGNOSIS: Postocular bristles black. Antenna black, first flagellomere 1.6 times longer than wide, acute apically. All coxae yellow. Fore tarsus from tip of tarsomere 1 onward brownish, tarsomere 4-5 white.

DESCRIPTION: *Male*. Body length 2.2-2.3 mm, wing length 2.4-2.5 mm.

Head metallic green with pale grey pollen. Face sliver white, narrowing downward, narrower than first flagellomere. Hairs and bristles on head black. Postocular bristles (including the postero-ventral hairs) black. Antenna (Fig. 21) black, first flagellomere 1.6 times longer than wide, acute apically; arista black, minutely pubescent, with basal segment 0.2 times as long as apical segment. Proboscis yellow, with black hairs; palpus black, with black hairs and black apical bristle.

Thorax metallic green with pale grey pollen. Humerus



Figs 21-24 – *Hercostomus nantouensis* sp. nov. (male). 21. antenna; 22. male genitalia, excluding cercus and subepandrial processes; 23. cercus; 24. subepandrial processes.

and anterior lower corner of metapleuron yellow. Hairs and bristles on thorax black, 6 strong dc, 7 paired acr, short and hair-like; scutellum with 2 pairs of bristles (basal pair short and hair-like). Propleuron black haired, with 1 black bristle at lower portion. Legs yellow; all coxae yellow, mid coxa tinged with brownish. Fore tarsus from tip of tarsomere 1 onward brownish, tarsomere 4-5 white; mid and hind tarsi brownish. 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 2 weak pd, apically with 3 bristles; mid tibia with 2 ad and 2 pd, apically with 4 bristles; hind tibia with 3 ad and 3-4 pd, apically with 3 bristles. Relative lengths of tibia and 5 tarsomeres: LI 1.0 : 0.7 : 0.32 : 0.2 : 0.18 : 0.18; LII 1.5 : 0.76 : 0.5 : 0.3 : 0.25 : 0.25; LIII 1.8 : 0.45 : 0.6 : 0.35 : 0.25 : 0.25. Wing hyaline, tinged with greyish, veins brown,  $R_{4+5}$  and M slightly convergent apically; CuAx ratio 0.5. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale grey pollen.

Hairs and bristles on abdomen black. Male genitalia (Figs 22-24): Epandrium longer than wide, truncated apically; lateral lobe slender; cercus (Fig. 23) band-like, wide apically, with 2 strong inner bristles; hypandrium irregularly furcate.

*Female*. Unknown.

DISTRIBUTION: China (Taiwan).

ETYMOLOGY: The specific name refers to the type locality of Nantou.

REMARKS: The new species belongs to *subnovus*-group, and is very similar to *Hercostomus taipeiensis* ZHANG, YANG & MASUNAGA, but the arista with basal segment 0.2 times as long as apical segment and fore tarsomeres 4-5 wholly white. In *Hercostomus taipeiensis*, the basal segment of arista is 0.36 times as long as apical segment; fore tarsus is white from apical half or tip of tarsomere 4 onward (ZHANG, YANG & MASUNAGA, 2005).

Key to species of *subnovus*-group

1. Sternite 7 without small denticles .....2
- Sternite 7 with small denticles ..... *H. himertus* WEI
2. Fore tarsus with at least tarsomere 5 white ..... 3
- Fore tarsus from tip of tarsomere 5 onward brown to dark brown ..... 4
3. Arista with basal segment 0.3 times as long as apical segment; fore tarsus from apical half or tip of tarsomere 4 onward white.....
- ..... *H. taipeiensis* ZHANG, YANG & MASUNAGA
- Arista with basal segment 0.2 times as long as apical segment; fore tarsomeres 4-5 white..... *H. nantouensis* sp. nov.
4. Middle and lower postocular bristles yellow .....5
- Postocular bristles wholly black .....8
5. Squama with pale hairs .....6
- Squama with brown to blackish hairs .....7
6. Mid tibia with 2 av; hind tibia with 4-5 pd and 5-6 av .....*H. pallipilosus* YANG & SAIGUSA
- Mid tibia with 1 av; hind tibia with 2 pd and 4 v .....*H. sichuanensis* YANG
7. First flagellomere 1.5 times longer than wide; fore tarsomeres 4-5 normal .....*H. latus* YANG & SAIGUSA
- First flagellomere 1.8 times longer than wide; fore tarsomeres 4-5 thickened .....*H. zuoshuiensis* YANG & SAIGUSA
8. Cercus sclerotized apically..... 9
- Cercus not sclerotized apically.....10
9. Epandrial lateral lobe with some long hairs apically..... *H. flavimarginatus* YANG
- Epandrial lateral lobe without long hairs apically.....*H. nudiusculus* YANG
10. Epandrial lateral lobe thick .....11
- Epandrial lateral lobe thin, spine-like or finger-like.....13
11. Epandrial lateral lobe obtuse apically.....12
- Epandrial lateral lobe acute apically.....*H. yunlongensis* YANG & SAIGUSA
12. Arista with basal segment 0.5 times as long as apical segment; cercus truncated apically.....*H. yunnanensis* WEI
- Arista with basal segment 0.8 times as long as apical segment; cercus somewhat rounded apically.....*H. subnovus* YANG & YANG
13. Epandrium with acute apical ventral corner.....*H. acutangulatus* YANG & SAIGUSA
- Epandrium without acute apical ventral corner...14
14. Epandrium without straight projection basally...15
- Epandrium with 1 straight projection basally.....*H. curvispinosus* YANG & SAIGUSA
15. Lateral arm of hypandrium with 1 anterior projection and 1 posterior projection.....16
- Hypandrium not as stated above.....21
16. Posterior projection of hypandrial lateral arm not furcated.....17
- Posterior projection of hypandrial lateral arm furcated.....18
17. Proboscis yellow... *H. bispinifer* YANG & SAIGUSA
- Proboscis dark brown...*H. projectus* YANG & SAIGUSA
18. Epandrial lateral lobe thick basally and acute apically.....*H. henanus* YANG
- Epandrial lateral lobe not as stated above....19
19. Epandrial lateral lobe somewhat short and finger-like.....20
- Epandrial lateral lobe rather long, spine-like.....*H. spiniger* YANG
20. Aedeagus furcated apically.....*H. zunyianus* YANG & SAIGUSA
- Aedeagus not furcated apically.....*H. brevifurcatus* YANG & SAIGUSA
21. Arista with basal segment 0.4 times as long as apical segment.....*H. polleti* YANG & SAIGUSA
- Arista with basal segment 0.6-0.7 times as long as apical segment.....22
22. Epandrial lateral lobe rather long, spine-like.....*H. yadonganus* YANG
- Epandrial lateral lobe short.....23
23. Cercus nearly quadrate; aedeagus slender, curved geniculate, curved apically.... *H. beijingensis* YANG
- Cercus band-like, rounded apically; aedeagus curved downward slightly..... *H. wuhongi* YANG

***Hercostomus nanlingensis*-group**

DIAGNOSIS. Male genitalia: cercus with marginal denticles on both dorsal and ventral margins; outer lateral lobe arm-like, with 1 basal bristle and 2 apical bristles; inner lateral lobe indistinct or finger-like; hypandrium simple, not furcated.

The *nanlingensis*-group is similar to *baishanzuensis*-group, but the lateral lobe is not truncated apically.

Key to the species of *nanlingensis*-group

1. Antenna wholly black, first flagellomere 1.9 times longer than wide, at basal 1/3 of first flagellomere; legs black, all coxae black .....*H. subrusticus* sp. nov.
- Antenna wholly yellow, first flagellomere as long as wide; arista subapical; legs yellow, all coxae yellow .....*H. nanlingensis* sp. nov.

***Hercostomus nanlingensis* sp. nov.**

(Figs 25-30)

MATERIAL EXAMINED: HOLOTYPE - male, CHINA, Guangdong, Ruyuan, Nanling, 25 July 2003. (leg. Shuwen An. Type is deposited in Entomological Museum of China Agricultural University, CAU).

DIAGNOSIS: Postocular bristles wholly black. Antenna yellow, narrow apical dorsal of first flagellomere blackish, as long as wide. All coxae yellow.

DESCRIPTION: *Male*. Body length 3.7 mm, wing length 3.6 mm.

Head metallic green with pale grey pollen. Face distinctly narrower than first flagellomere. Hairs and bristles on head black. Postocular bristles wholly black. Antenna (Fig. 26) yellow, narrow apical dorsal of first flagellomere blackish, as long as wide, obtuse apically; arista brown, minutely pubescent, with very short basal segment. Proboscis brownish, with black hairs; palpus brownish, with pale hairs.

Thorax metallic green, with pale grey pollen. Hairs and bristles on thorax black; 5 strong dc, 7-8 irregularly paired acr, short and hair-like; scutellum with 2 pairs of bristles (basal pair short and hair-like) and several short marginal hairs. Propleuron pale and black haired, with 1 black bristle at lower portion. Legs [mid tarsus and hind tarsomeres 2-5 broken off] yellow; all coxae yellow (mid coxa with 1 blackish spot at anterior lower corner); fore tarsus from tip of tarsomere 1 onward 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 one row of 8 short ad and 2 weak pd; mid tibia with 3 ad, 2 pd and 1 av, apically with 4 bristles; hind tibia with 3 ad, 2 pd and 1 av, apically with 2 bristles. Relative lengths of tibia and 5 tarsomeres: LI 1.6 : 1.25 : 0.55 : 0.45 : 0.3 : 0.25; LII 2.8 : ? : ? : ? : ? : ?; LIII 2.9 : 1.3 : ? : ? : ? : ?. Wing (Fig. 25) hyaline, tinged with greyish, veins brown,  $R_{4+5}$  and M weakly convergent apically; CuAx ratio 0.7. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale grey pollen. Hairs and bristles on abdomen black. Male genitalia (Figs 27-30): Epandrium longer than wide, acute apically; lateral lobe long and arm-like, slightly curved apically, with 1 long basal bristle and 2 apical bristles; cercus long and somewhat oval, with marginal denticles both on dorsal and ventral margin; aedeagus slender, somewhat geniculate, with 2 inner denticles near the base; hypandrium simple, not furcate.

*Female*. Unknown.

DISTRIBUTION: China (Guangdong).

ETYMOLOGY: The specific name refers to the type locality of Nanling.

REMARKS: The new species is similar to *Hercostomus dacicus* Pârnu, but may be separated from the latter by the postocular bristles black and legs yellow. In *Hercostomus dacicus*, the middle and lower postocular bristles are yellow and the hind femur is wholly black (PÂRVU, 1991).

***Hercostomus subrusticus* sp. nov.**

(Figs 31-34)

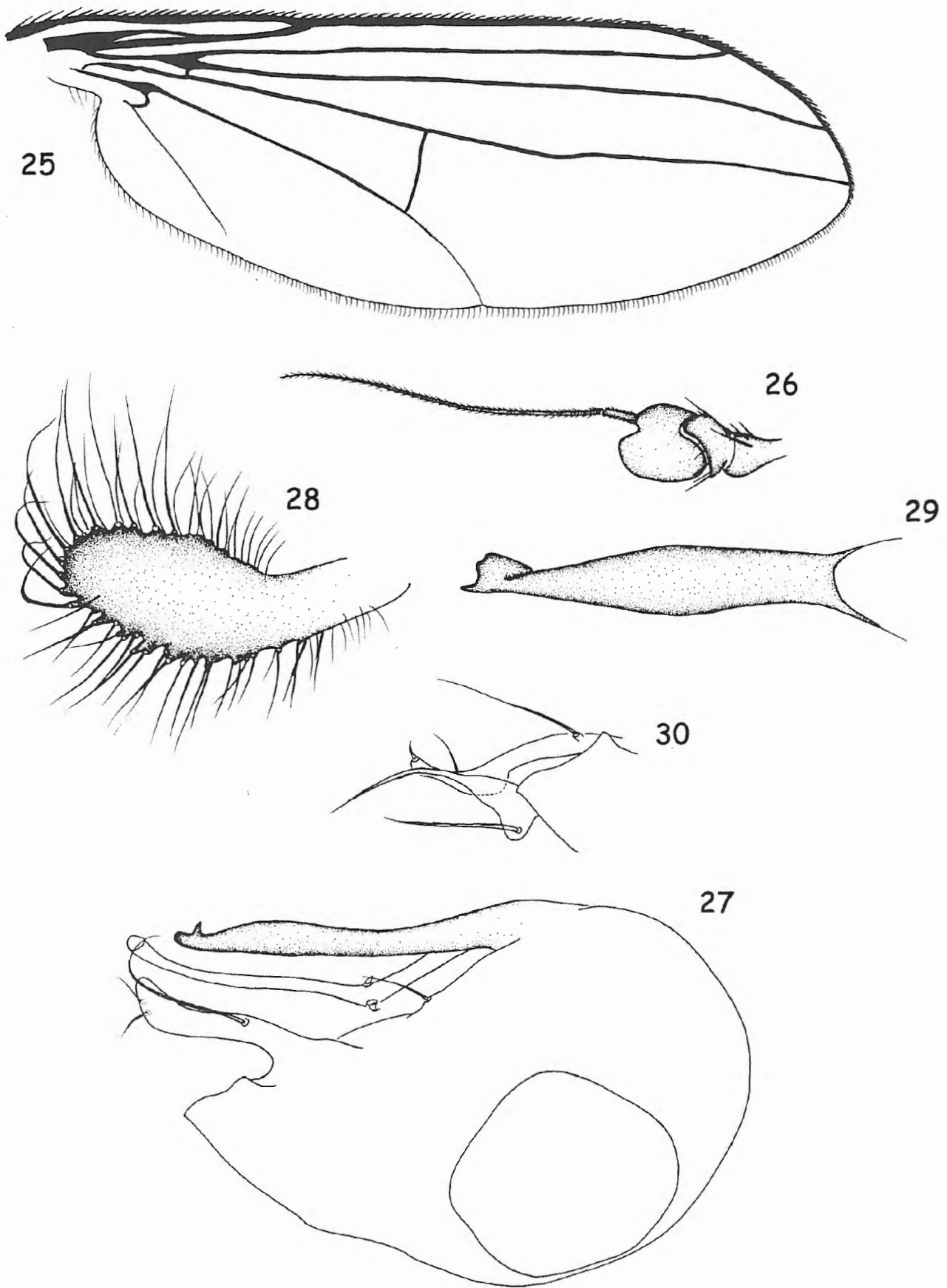
MATERIAL EXAMINED: HOLOTYPE - male, CHINA, Xinjiang, Xinyuan, 850-1200 m, 23 August 1957. (leg. Chunpei Hong. Type is deposited in Entomological Museum of China Agricultural University, CAU).

DIAGNOSIS: Middle and lower postocular bristles pale. Antenna black, first flagellomere 1.9 times longer than wide. Legs black, all coxae black. Fore tibia with 1 slender black apv (2/3 as long as fore tarsomere 1).

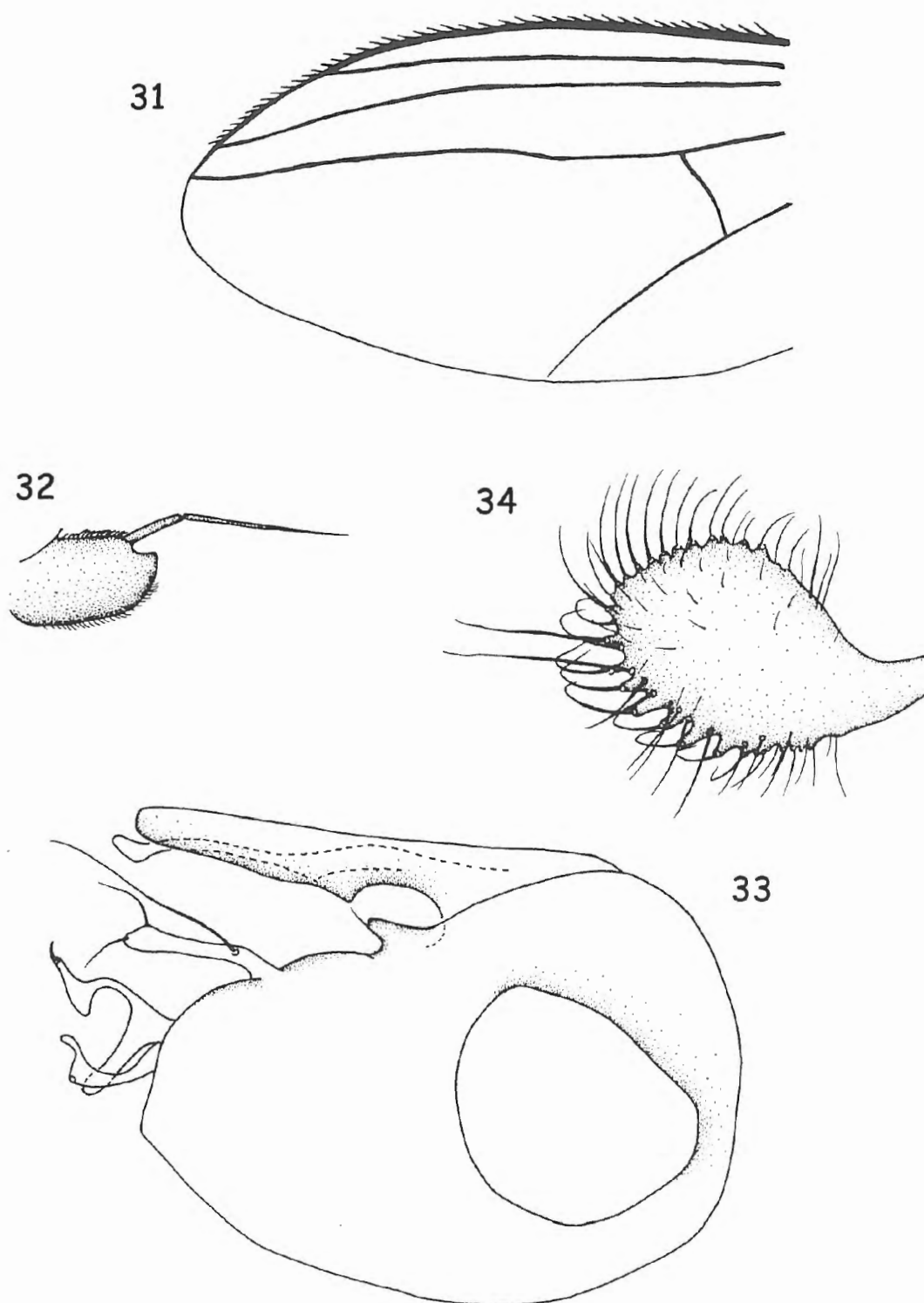
DESCRIPTION: *Male*. Body length 2.8 mm, wing length 2.8 mm.

Head metallic green, with pale grey pollen. Face brown, narrowing downward, narrower than first flagellomere. Hairs and bristles on head black. Middle and lower postocular bristles (including postero-ventral hairs) pale. Antenna (Fig. 32) black, first flagellomere 1.9 times longer than wide, somewhat acute apically; arista black, setting at the apical 1/3 of first flagellomere, nearly bare, with basal segment 0.35 times as long as apical segment. Proboscis black, with black hairs; palpus black, with black hairs and black apical bristle.

Thorax dark metallic green, with pale grey pollen. Hairs and bristles on thorax black, 6 strong dc (the 5th pair slightly divergent from the dc row), 8-9 irregularly paired acr, short and hair-like; scutellum with 2 pairs of bristles (basal pair short and hair-like) and several short marginal hairs. Propleuron with 1 black bristle at the lower portion. Legs [mid tarsomeres 2-5 and hind tarsomeres 3-5 broken off] black, all coxae 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 2 ad, 2 pd and 2 pv, apically with 2 short bristles and 1 slender black apv (2/3 as long as fore tarsomere 1); mid tibia with 4 ad, 2 pd and 1 av, apically with 4 bristles; hind tibia with 3 ad, 3



Figs 25-30 – *Hercostomus nanlingensis* sp. nov. (male). 25. wing; 26. antenna; 27. male genitalia, excluding cercus and subepandrial processes; 28. cercus; 29. hypandrium, ventral view; 30. subepandrial processes.



Figs 31-34 – *Hercostomus subrusticus* sp. nov. (male). 31. wing, apex; 32. antenna, excluding scape and pedicle; 33. male genitalia, excluding cercus; 34. cercus.

pd and 1 av, apically with 3 bristles. Relative lengths of tibia and 5 tarsomeres: LI 1.15 : 0.45 : 0.2 : 0.13 : 0.13 : 0.15; LII 1.5 : 0.7 : ? : ? : ? : ?; LIII 1.8 : 0.5 : 0.75 : ? : ? : ?. Wing (Fig. 31) hyaline; veins brown,  $R_{4+5}$  and M distinctly convergent apically; CuAx ratio 0.4. Squama yellow, with black hairs. Halter yellow.

Abdomen metallic green, with pale grey pollen. Hairs and bristles on abdomen black. Male genitalia (Figs 33-34): Epandrium longer than wide; lateral lobe relatively slender, arm-like, with 1 long basal bristle and 2 apical bristles; cercus with distinct marginal processes, especially on the dorsal margin; aedeagus slender, curved apically, hypandrium thick, with 1 inner denticle near the base.

*Female*. Unknown.

DISTRIBUTION: China (Xinjiang).

ETYMOLOGY: The specific name refers to its similarity to *Hercostomus rusticus* Meigen.

REMARKS: The new species is very similar to *Hercostomus rusticus* MEIGEN, 1824, but may be easily distinguished by the characters of male genitalia. In *Hercostomus rusticus* Meigen, the lateral lobe has an acute process and has no apical bristles apically, the inner lateral lobe is longer and the aedeagus is acute apically (STACKELBERG, 1933-1934). In *Hercostomus subrusticus* sp. nov, the lateral lobe obtuse apically and bears two apical bristles, the inner lateral lobe is shorter and the aedeagus is slender, curved apically.

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