

## **New Species of *Hercostomus absimilis* Group from Yunnan, China (Diptera: Dolichopodidae)**

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# NEW SPECIES OF *HERCOSTOMUS ABSIMILIS* GROUP FROM YUNNAN, CHINA (DIPTERA: DOLICHOPODIDAE)

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**Abstract.**— Two species of *Hercostomus absimilis* group are described as new to science: *Hercostomus gongshanensis* sp. nov. and *H. mengyangensis* sp. nov. A key to the species of the *absimilis*-group from China is given.



**Key words.**— Diptera, Dolichopodidae, *Hercostomus*, new species, China.

## INTRODUCTION

The genus *Hercostomus* Loew, 1857, is one of the biggest genera in Dolichopodinae. The species are worldwide distributed and 470 species are recorded in the world catalogue by Yang *et al.* (2006). From the year 2006 to 2009, 27 new species of *Hercostomus* are described from the Oriental Realm by Zhang *et al.* (2007–2009), Liao *et al.* (2006, 2007, 2009). Zhang *et al.* (2009) reviewed the Dolichopodinae from the southwest China and 16 synonyms of *Hercostomus* are listed. Presently, there are 481 species of *Hercostomus* around the world, including 238 species from China. The fauna of *Hercostomus* of Yunnan is very rich. Among the known *Hercostomus* species of China, 76 species are recorded in Yunnan and most of them are endemic. During the examination of collecting specimens, more new species are still expected.

The species of *absimilis*-group are characterized by the following features: antenna wholly black or mostly black; first flagellomere rather short and obtuse apically; epanthrium with much expanded lateral lobe and 2 apico-lateral projections; cercus large and nearly quadrate.

In the present paper, two species of *absimilis*-group from Yunnan are described as new to science

and a key to the group from China is given. The types are deposited in the Entomological Museum of China Agricultural University, Beijing.

The following abbreviations are used:

acr – acrostichal,  
ad – anterodorsal,  
av – anteroventral,  
dc – dorsocentral,  
LI – fore leg,  
LII – mid leg,  
LIII – hind leg,  
pd – posterodorsal,  
v – ventral.

## TAXONOMY

### Key to the species of *absimilis*-group from China

1. Antenna wholly black . . . . . **2**
- . Antennal scape and apex of first flagellomere dark brown . . . . . *jiulongensis* Zhang et Yang
2. First flagellomere elongated (at least 1.5 times longer than wide) . . . . . **3**
- . First flagellomere rather short, as long as wide . . . **5**

3. Arista with basal segment short, 0.3 times as long as apical segment . . . . . *emeiensis* Yang  
 –. Arista with basal segment long, more than 0.5 times as long as apical segment . . . . . 4  
 4. Fore tarsomeres 3–5 slightly thickened . . . . .  
 . . . . . *gongshanensis* sp. nov.  
 –. Fore tarsomeres 3–5 distinctly thickened . . . . .  
 . . . . . *longisetus* Yang et Saigusa  
 5. Fore tarsomeres 3 (or 4) –5 slightly thickened . . . 6  
 –. Fore tarsus not thickened . . . . . 9  
 6. At least apex of tarsomere 5 white . . . . . 7  
 –. Fore tarsus brown to black . . . . . 8  
 7. Fore tarsomeres 4–5 white . . . . .  
 . . . . . *absimilis* Yang et Grootaert  
 –. Only apex of tarsomere 5 white . . . . .  
 . . . . . *loushanquanamus* Yang et Saigusa  
 8. Palpus yellow; hind femur and tibia wholly yellow . . . . . *cuspidiger* Yang et Saigusa  
 –. Palpus black; narrow tip of hind femur and apex of hind tibia black . . . *daweishamus* Yang et Saigusa  
 9. Hind femur with brown apex . . . . .  
 . . . . . *bigeminatus* Yang et Grootaert  
 –. Hind femur not darkened apically . . . . . 10  
 10. Apico-lateral projections of epandrium similar in shape, slender . . . . . *mengyangensis* sp. nov.  
 –. Apico-lateral projections of epandrium different in shape, large and wide . . . . .  
 . . . . . *quadratus* Yang et Grootaert

*Hercostomus gongshanensis* sp. nov.  
 (Figs 1–5)

**Diagnosis.** Antenna black; first flagellomere 1.5 times longer than wide; arista with basal segment 0.5 times as long as apical segment. Apex of hind femur brown; tip of tarsomere 1 and entire tarsomeres 2–4 black, tarsomere 5 brownish yellow. Fore tarsomeres 3–5 slightly thickened.

The new species is somewhat similar to *Hercostomus emeiensis* Yang, but may be separated from the latter by the arista with the basal segment 0.5 times as long as the apical segment. In *emeiensis*, the basal segment is short, 0.3 times as long as the apical segment (Yang 1997). The new species is also similar to *Hercostomus longisetus* Yang and Saigusa, but may be separated from it by fore tarsomeres 3–5 slightly thickened (Yang and Saigusa 1999).

**Description.** Male. Body length 4.5 mm, wing length 4.8 mm.

Head metallic green with pale gray pollen. Face narrowing downward, slightly narrower than first flagellomere. Hairs and bristles on head black; postocular bristles wholly black, postero-ventral hairs pale. Antenna (Fig. 2) black; first flagellomere 1.5 times longer than wide; arista minutely pubescent, with basal

segment 0.5 times as long as apical segment. Proboscis brownish yellow with black hairs. Palpus brownish yellow with black hairs and 1 black apical bristle.

Thorax metallic green with pale gray pollen. Hairs and bristles on thorax black. 6 strong dc, 8 paired acr. Scutellum with 2 pairs of bristles (basal pair short and weak, apical pair long and strong). Propleuron with 1 black bristle on lower portion. Legs yellow; fore coxa yellow, mid and hind coxae brown; apex of hind femur brown; hind tibia tinged with blackish; tip of tarsomere 1 and entire tarsomeres 2–4 black, tarsomere 5 brownish yellow, mid tarsus from tip of tarsomere 1 onward black, hind tarsus black. Fore tarsomeres 3–5 slightly thickened. Hairs and bristles on legs black; mid and hind coxae with 1 outer bristle; mid and hind femora each with 1 preapical bristle. Fore tibia with 1 ad and 2 pd, apically with 2 bristles; mid tibia with 2 ad, 2 pd and 1 av, apically with 5 bristles; hind tibia with 3 ad, 4 pd and one row of 8 v, apically with 4 bristles. Relative lengths of tibia and 5 tarsomeres: LI 4.2 : 2.5 : 1.5 : 1.1 : 0.6 : 0.5; LII 6.0 : 3.0 : 2.2 : 1.1 : 0.6 : 0.5; LIII 7.0 : 1.8 : 2.7 : 1.4 : 0.7 : 0.5. Wing (Fig. 1) hyaline, tinged with grayish; veins black.  $R_{4+5}$  and M convergent apically; CuAx ratio 1.0. Squama yellow with black hairs. Halter yellow.

Abdomen metallic green with pale gray pollen. Hairs and bristles on abdomen black. Male genitalia (Figs 3–5): Epandrium longer than wide, with 2 apico-lateral projections different in shape, lateral lobe rounded apically; hypandrium irregularly furcated.

Female. Unknown.

**Type material.** Holotype ♂, Yunnan: Gongshan, Dulongjiang, Bapo, 1400 m, 22. 05. 2007, Xingyue Liu.

**Distribution.** China: Yunnan.

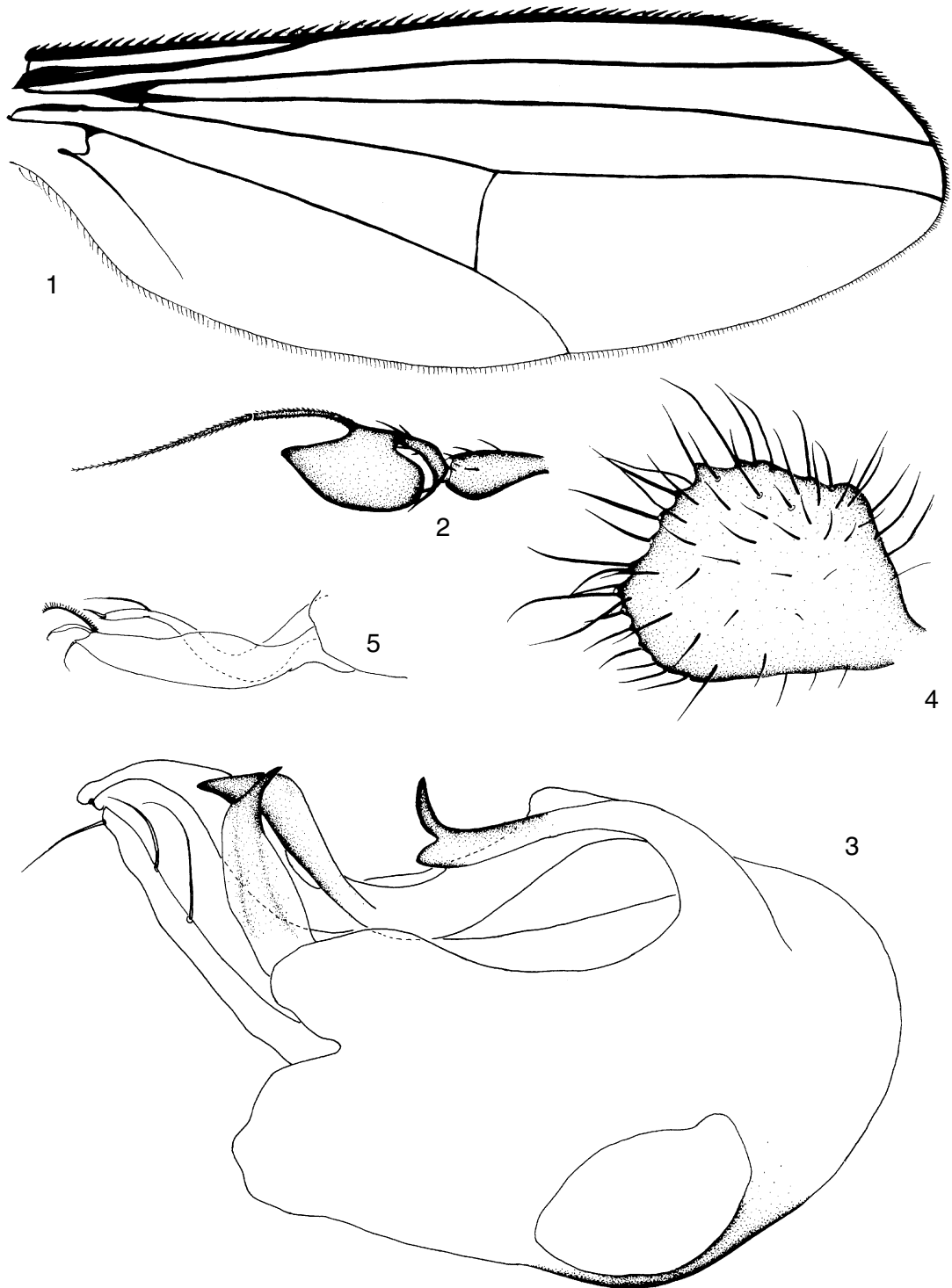
**Etymology.** The specific name refers to the type locality of Gongshan, Yunnan.

*Hercostomus mengyangensis* sp. nov.  
 (Figs 6–10)

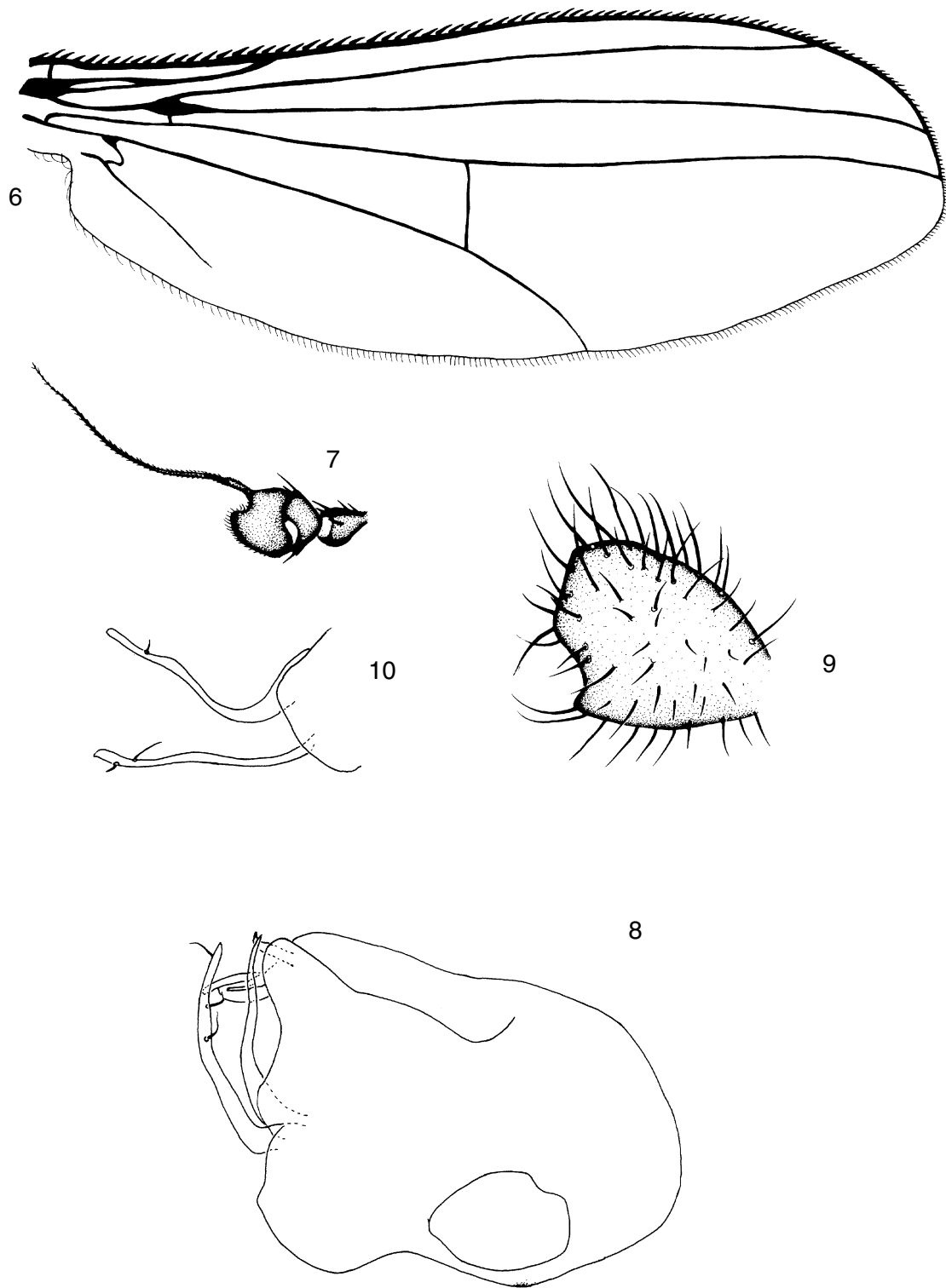
**Diagnosis.** Antenna black, first flagellomere short, 0.9 times as long as wide, arista with very short basal segment, 0.2 times as long as apical segment. Epandrium with 2 apico-lateral projections similar in shape; cercus nearly quadrate with a weak apical incision.

The new species is somewhat similar to *Hercostomus quadratus* Yang et Grootaert, but may be separated from the latter by the apico-lateral projections of the epandrium slender and similar in shape, the lateral lobe rounded apically. In *quadratus*, the apico-lateral projections of the epandrium are different in shape and the lateral lobe is large, truncated apically (Yang and Grootaert 1999).

**Description.** Male. Body length 2.1–2.3 mm, wing length 2.2–2.3 mm.



Figures 1–5. *Hercostomus gongshanensis* sp. nov. (1) Wing; (2) antenna; (3) male genitalia (excluding cercus and subepandrial processes); (4) cercus; (5) subepandrial processes.



Figures 6–10. *Hercostomus mengyangensis* sp. nov. (6) wing; (7) antenna; (8) male genitalia (excluding cercus and subepandrial processes); (9) cercus; (10) subepandrial processes.

Head metallic green with pale gray pollen. Face narrowing downward, slightly narrower than first flagellomere. Hairs and bristles on head black; postocular bristles wholly black, postero-ventral hairs pale. Antenna (Fig. 7) black; first flagellomere short, 0.9 times as long as wide, obtuse apically; arista black, minutely pubescent, with very short basal segment, 0.2 times as long as apical segment. Proboscis dark yellow with black hairs. Palpus yellow with black hairs and 1 black apical bristle.

Thorax metallic green with pale gray pollen. Hairs and bristles on thorax black. 6 strong dc, 7 paired acr. Scutellum with one pair of strong bristles. Propleuron with 1 black bristle on lower portion. Legs yellow; fore coxa yellow, mid coxa blackish brown, hind coxa brownish yellow. Fore tarsus from tip of tarsomere 1 onward brownish, mid and hind tarsi from tip of tarsomere 1 onward blackish to black. Hairs and bristles on legs black; mid and hind coxae with 1 outer bristle; mid and hind femora each with 1 preapical bristle. Fore tibia with 1 ad and 2 pd, apically with 2 short bristles; mid tibia with 2 ad, 2 pd and 1 av, apically with 4 bristles; hind tibia with 3 ad, 4 pd and 2 v, apically with 4 bristles. Relative lengths of tibia and 5 tarsomeres: LI 2.0 : 1.1 : 0.6 : 0.5 : 0.3 : 0.3; LII 2.8 : 1.5 : 0.9 : 0.6 : 0.5 : 0.4; LIII 3.5 : 1.0 : 1.2 : 0.7 : 0.6 : 0.4. Wing (Fig. 6) hyaline, tinged with grayish; veins black.  $R_{4+5}$  and M convergent apically; CuAx ratio 0.6. Squama yellow with black hairs. Halter yellow.

Abdomen metallic green with pale gray pollen. Hairs and bristles on abdomen black. Male genitalia (Figs 8–10): Epandrium longer than wide, with 2 apicolateral projections similar in shape, lateral lobe rounded apically; cercus nearly quadrate with a weak apical incision; hypandrium irregularly furcated.

Female. Similar to Male. Body length 2.2–2.3 mm, wing length 2.3–2.4 mm.

**Type material.** Holotype ♂, Yunnan; Mengyang, Yexianggu, Xiangtang (760 m), 19. 04. 2007, Wenliang Li. Paratypes 5♂♂ 7♀♀, Yunnan: Mengyang, Yexianggu, 17.04.2007, Wenliang Li; 2♂♂ 1♀, Yunnan: Mengyang, Yexianggu (760 m), 17.04.2007, Hui Dong.

**Distribution.** China: Yunnan.

**Etymology.** The specific name refers to the type locality of Mengyang, Yunnan.

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## REFERENCES

- Liao, Y., Zhou, S. and D. Yang. 2006. Two new species of the *Hercostomus hamatus* group (Diptera: Dolichopodidae) from China. Bulletin de L'Institut Royal Des Sciences Naturelles de Belgique, Entomologie, 6: 49–53.
- Liao, Y., Zhou, S. and D. Yang. 2007. Species of the *Hercostomus fatuus*-group from China (Diptera: Dolichopodidae). Transactions of the American Entomological Society, 133 (3+4): 335–339.
- Liao, Y., Zhou, S. and D. Yang. 2009. Two new species of *Hercostomus* from Oriental China (Diptera: Dolichopodidae). Transactions of the American Entomological Society, 135(1–2): 185–188.
- Yang, D. 1997. Eight new species of *Hercostomus* from China (Diptera, Dolichopodidae). Studia Dipterologica, 4(1): 115–124.
- Yang, D. and P. Grootaert. 1999. Dolichopodidae (Diptera: Empidoidea) from Xishuangbanna (China, Yunnan province): the Dolichopodinae and the genus *Chaetogonopteron* (1). Bulletin de l'Institut Royal des Sciences Naturelles de Belgique Entomologique, 69: 251–277.
- Yang, D. and T. Saigusa. 1999. New species of Dolichopodidae from Henan (Diptera: Empidoidea). In: Shen, X. & H. Pei. (eds.): Insects of the Mountains Funiu and Dabie regions: 189–210. China Agricultural Sciencetech Press, Beijing, 414 pp.
- Yang, D., Zhu, Y., Wang, M. and L. Zhang. 2006. World catalog of Dolichopodidae (Insecta: Diptera). China Agricultural University Press, Beijing, 704 pp., 44 pls.
- Zhang, L. and D. Yang. 2007. Species of *Hercostomus crassivena*-group (Diptera: Dolichopodidae). Transactions of the American Entomological Society, 133 (1+2): 155–159.
- Zhang, L. and D. Yang. 2008. Two new species of Dolichopodidae from Henan (Diptera). In: Shen, X. & Lu, C. (eds.): The fauna and taxonomy of insects in Henan. Vol. 6: Insects of Baotianman National natural reserve: 17–20. China Agricultural. Science and Technology Press, 431 pp.
- Zhang, L., Wei, L. and D. Yang. 2009. Two new species of *Hercostomus* from China (Diptera: Dolichopodidae), with some new synonyms. Bulletin de L'Institut Royal Des Sciences Naturelles de Belgique, Entomologie, 77: 243–249.
- Zhang, L., Yang, D. and K. Masunaga. 2007. The *Hercostomus ulrichi* group from Palaearctic China (Diptera: Dolichopodidae). Entomologica Fennica, 18(1): 32–3.
- Zhang, L., Yang, D. and P. Grootaert. 2007. New Dolichopodinae (Diptera: Dolichopodidae) from Pulau Tioman, Malaysia, with description of four new species. Bulletin de L'Institut Royal Des Sciences Naturelles de Belgique, Entomologie, 77: 243–249.
- Zhang, L., Yang, D. and P. Grootaert, P. 2008a. Mangrove *Hercostomus sensulato* (Diptera: Dolichopodidae) of Singapore. The Raffles Bulletin of Zoology, 56(1): 17–28.

Zhang, L., Yang, D. and P. Grootaert. 2008b. New species of *Hercostomus* (Diptera: Dolichopodidae) from China.

Bulletin de L'Institut Royal Des Sciences Naturelles de Belgique, Entomologie, 78: 259–274.

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