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New species of Dolichopodidae (Diptera) from China

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Abstract

Three species are described from China as new to science: *Syntormon xishuiense, Xanthochlorus henanensis* and *Trigonocera guizhouensis*. Keys are given for the Chinese *Syntormon, Xanthochlorus* and *Trigonocera*.

Key words: Dolichopodidae, *Syntormon, Xanthochlorus, Trigonocera,* China, new species.

Introduction

In the present paper, 3 species of Dolichopodidae from Guizhou, Yunnan, Henan and Shaanxi of China are described as new to science. Keys to the species of *Syntormon, Xanthochlorus* and *Trigonocera* from Chinese mainland are given. All specimens are deposited in the Entomological Museum of China Agricultural University, Beijing.

The following abbreviations are used: acr – acrostichal bristle, ad – anterodorsal bristle, av – anteroventral bristle, CuAx ratio – length of m-cu crossvein / distal section CuA, dc – dorsocentral bristle, h – humeral bristle, ih – inner humeral bristle, LI – fore leg, LII – mid leg, LIII – hind leg, npl – notopleural bristle, oc – ocellar bristle, pd – posterodorsal bristle, ph – posthumeral bristle, psa – postero-supraalar bristle, pv – posteroventral bristle, sa – supraalar bristle, su – sutural bristle, v – ventral bristle.

Syntormon Loew, 1857

Syntormon Loew, 1857. Programm K. Realschule Meseritz 1857: 35. Type species: *Rhaphium metathesis* Loew, 1850 (designation by Coquillett, 1910).

Diagnosis: Sympycnincae. The genus *Syntormon* was erected by Loew (1857) with the following diagnostic characters: distinctly elongated first flagellomere with a finger-like apical inner process projected into the basal inner concavity. It is distributed worldwide with 106 species: 43 from the Palaearctic Region, 15 from the Oriental. So far, 15 species have been known from Chinese mainland, including the below new species, and a key for these species is present.

Key to species from Chinese mainland (males)

1. Hind tarsomere 1 with baso-ventral projection...2
– Hind tarsomere 1 without baso-ventral projection...4
2. Acr uniseriate; baso-ventral projection on hind tarsomere 1 with 2 curved spines.....3
– Acr irregularly paired; baso-ventral projection on hind tarsomere 1 with 4 irregularly process. Beijing..... ..... ***S. beijingense***
3. First flagellomere more than 3 times as long as wide; baso-ventral projection on hind tarsomere 1 with equally bifid spines. Beijing, Guizhou, Hebei, Henan, Shaanxi, Xinjiang..... ***S. pallipes***
– First flagellomere less than 3 times as long as wide; baso-ventral projection on hind taosomere 1 with unequally bifid spines. Yunnan..... ***S. dukha***
4. Hind tibia and tarsus flattened laterally. Qinghai..... ***S. zhengi***
– Hind tibia and tarsus normal (not flattened laterally).....5
5. Hind tarsus somewhat shortened.....6
– Hind tarsus normal.....7
6. Fore tarsomere 1 distinctly longer than the total of tarsomeres 2-5, fore tarsomeres 2-5 swollen and shortened. Guizhou..... ***S. guizhouense***
– Fore tarsus normal (tarsomeres 2-5 not shortened). Fujian, Guangdong, Guizhou, Hebei, Jiangsu, Shanghai, Zhejiang; Taiwan, Palearctic region..... .....***S. flexibile***

7. All coxae black 8
– Fore coxa yellow, mid and hind coxae blackish..... 9
8. First flagellomere 1.8 times as long as wide, arista 1.8 times as long as first flagellomere; squama with black hairs. Yunnan..... ***S. luishuiense***
– First flagellomere 3.0 times as long as wide, arista 0.8 times as long as first flagellomere; squama with pale hairs. Tibet..... ***S. xizangense***
9. First flagellomere about 4.2 times as long as wide, arista about 1/5 as long as first flagellomere.....10
– First flagellomere less than 3.5 times as long as wide, arista about as long as first flagellomere.....11
10. Acr uniseriate 7–8; hind tibia with 1 ad and 5 pd. Hebei, Henan, Shaanxi, Yunnan..... ***S. henanense***
– Acr uniseriate 13; hind tibia without 1 ad, but with 2–3 pd. Xinjiang..... ***S. xinjiangense***
11. Acr biseriate 5–6; arista slightly shorter than first flagellomere.....12
– Acr uniseriate 20; arista longer than first flagellomere. Fujian..... ***S. trisetum***
12. Epandrium with large lateral lobe; aedeagus slender, with curved apical portion. Guizhou, Yunnan..... ***S. xishuiense***
– Epandrium without lateral lobe; aedeagus simple (not as above).....13
13. Squama yellow with pale hairs.....14
– Squama yellow with black hairs. Guizhou, Yunnan ..... ***S. luchunense***
14. Five dc, 10–11 irregularly paired acr. Tibet .... ***S. medogense***
– Six dc, 5-6 irregularly paired acr. Sichuan..... ..... ***S. emeiense***

Syntormon xishuiense sp. nov.
(Figs. 1-2)

Diagnosis: First flagellomere 2.8 times longer than wide. Six strong dc, 5-6 irregularly paired acr, hind tibia with 2 ad and 4 pd. Epandrium with large lateral lobe; aedeagus slender, with curved apical portion.

Male. Body length 3.0-3.1 mm, wing length 2.7-2.8 mm.

Head: metallic green, with pale grey pollen, face with shiny white pollen. Hairs and bristles on head black; middle and lower postocular bristles (including ventral hairs) pale. Ocellar tubercle weak, with 2 strong oc and 2 posterior hairs. Antenna black (Fig. 1); first flagellomere 2.8 times longer than wide, with pubescence; arista black (apical segment missing). Proboscis blackish with black hairs; palpus brlack with short black hairs.

Thorax: metallic green, with pale grey pollen except mesonotum with brown pollen medially. Hairs and bristles on thorax black; 6 strong dc, 5-6 irregularly paired acr. 1 long h and 1 short hairs, 1 long ph, 1 short ih, 1 short su, 1 long anterior and 1 slightly short posterior npl, 1 slightly short anterior and 1 long posterior sa, 1 long psa; scutellum with 2 pairs of bristles (basal pair weak, 1/6 as long as apical pair) and 2 short marginal hairs between apical pair. Propleuron with several pale hairs on upper and lower portions.

Legs: yellow; fore coxa yellow, mid and hind coxae (except narrow apex) black; fore and mid tarsi brown to dark brown from segment 1 towards apex, hind tarsus wholly dark brown. Hairs and bristles on legs black; fore coxa with pale anterior hairs and 5 black apical bristles; mid coxa with pale anterior hairs and black apical pairs and bristles; hind coxa pale haired, with 1 outer bristle at base. Fore femur apically with 1 av and 2 pv, mid and hind femora each with 1 preapical bristle, more femur apically with 1 pv, hind femur apically with 1 av and 1 pv. Fore tibia without distinct bristles, mid tibia with 1 ad and 1 pd, apically with 3 bristles; hind tibia with 2 ad, 4 pd, apically with 3 bristles. Hind tarsomere 1 shorter than tarsomere 2. Relative lengths of tibia and 5 tarsomeres LI 4.0 : 2.2 : 0.8 : 0.8 : 0.6 : 0.5; LII 5.8 : 2.5 : 1.2 : 1.0 : 0.6 : 0.6; LIII 6.4 : 1.4 : 1.8 : 1.0 : 0.4 : ?.

Wing: nearly hyaline; veins dark brown, R_{4+5} and M somewhat convergent apically; CuAx ratio 0.6. Squama yellow with yellow hairs. Halter yellow.

Abdomen: metallic green with pale grey pollen. Hairs and bristles on abdomen black. Male genitalia (Fig. 2): Epandrium with large lateral lobe; surstylus with narrow and somewhat acute dorsal lobe bearing 1 long and 1 short dorsal bristles; rather wide and blunt ventral lobe bearing 2 long ventral bristles; cercus somewhat thick with acute apex; hypandrium broad with blunt apex; aedeagus slender, with curved apical portion.

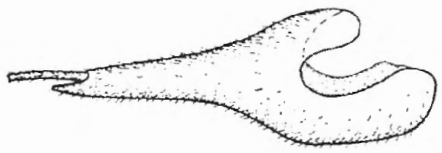
Female. Unknown.

Holotype male, Guizhou, Xishui, Sanchahe, 2001. VII. 14, Ding YANG (CAU). Paratypes: 2 males, same as holotype; 2 males, Guizhou, Libo, Yongkang, Raolan 740m, 2005. VI. 13, Yanling XU.

Distribution: Known only from the type locality in Guizhou (China).

Etymology: The specific epithet derives from the name of the type locality Xishui (Guizhou).

Remarks: This species is similar to *Syntormon luchunense* Yang et Saigusa in having the similar shape of the first flagellomere and legs' colour, but may be separated from latter by having epandrium bearing



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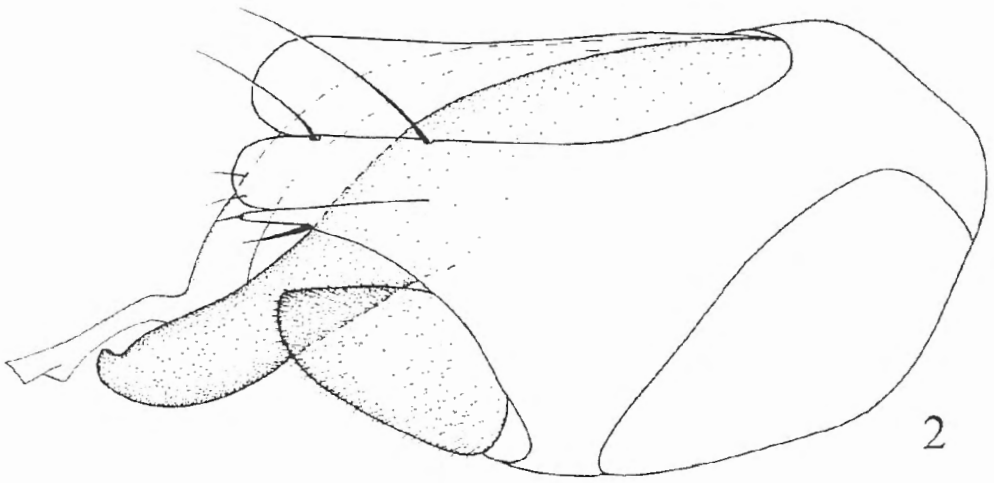

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Figs 1-2 – *Syntormon xishuiense* sp. nov. (male). 1. First flagellomere, lateral view; 2. genitalia, lateral view;

thick lateral lobe and complex aedeagus. In *Syntormon luchunense*, the epandrium has no lateral lobe and the aedeagus is simple (YANG & SAIGUSA, 2001).

Xanthochlorus LOEW, 1857

Xanthochlorus LOEW, 1857. Programm K. Realschule Meseritz 1857: 42. Type species: *Leptopus ornatus* HALIDAY, 1832 (designation by Coquillett, 1910).

DIAGNOSIS: Thorax and abdomen mainly yellow with yellow bristles on pronotum and propleuron. Mesonotum with flat mid-posterior slope. Mid and hind femora without anterior preapical bristle. Hind coxa with 1 outer bristle at basal 1/3. Anal cell present; anal vein reduced apically. Male abdominal tergite 6 large and quadarate with hairs and bristles; tergite 7 without hairs. Male genitalia rather large and mostly exposed, cercus modified. Female abdomen wide and obtuse apically. Sternite 8 enlarged; tergite 9+10 with two hemitergites longer than wide, widely separated, without thick spines.

REMARKS: The genus *Xanthochlorus* Loew is distributed in Palaearctic, Oriental and Nearctic regions with 13 known species. Three species are known from China, Olejníček (2004a) described one Chinese species.

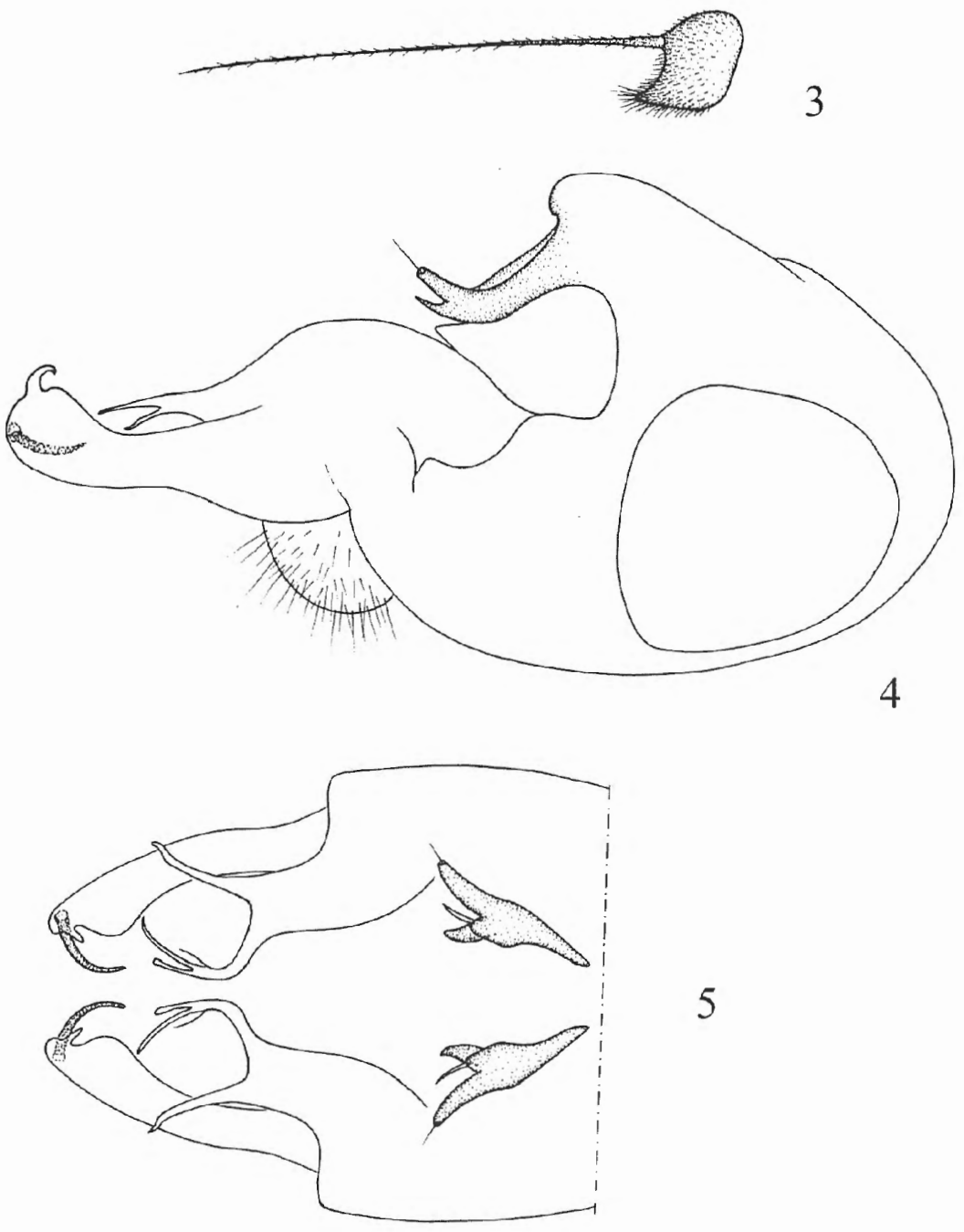
Key to species from China (males)

1. Third antennal segment quadrate; legs with yellow hairs and bristles.....2
– Third antennal segment nearly round; legs with black hairs and bristles..... ***X. chinensis***
2. First flagellomere truncate apically; surstylus without lateral corner.....***X. nigricilius***
– First flagellomere acute apically; surstylus with acute lateral corner at middle.....***X. henanensis***

Xanthochlorus henanensis sp. nov.

(Figs. 3-5)

DIAGNOSIS: Eyes narrowly separated on face; first flagellomere subsquare with acute lower corner, 1.3 times wider than long. Mid tibia with 2 ad and 2 pd, apically with 4 bristles; hind tibia with 4 pd, apically with comb-like hairs and 4 bristles. Mid tarsomere 1 longer than total length of tarsomeres 2-5, with 2 rows of v.



Figs 3-5 – *Xanthochlorus henanensis* sp. nov. (male). 3. first flagellomere, lateral view; 4. genitalia, lateral view; 5. apical portion of genitalia, ventral view.

Male. Body length 2.2-2.4 mm, wing length 2.5-2.7 mm. *Head:* metallic green with pale grey pollen; face yellow with thick pollen, eyes narrowly separated on face. Hairs and bristles on head black, postocular bristles (including postero-ventral hairs) yellow. Ocellar tubercle weak, with 2 long and thick oc and 2 short posterior hairs. Antenna yellow; first flagellomere subsquare (Fig. 3) with acute lower corner, 1.3 times wider than long; arista apical, short pubescent. Proboscis brownish with brown hairs; palpus brownish with pale yellow hairs. *Thorax:* yellow with pale grey pollen. Mesonotum with metallic green spot on mid-posterior area between last acr. Scutellum metallic green with brownish margin. Pteropleuron with black posterior spot, laterotergite with black lateral spot. Hairs and bristles on thorax black; 5 strong dc, acr uniseriate 3-4, short and hair-like; scutellum with 2 pairs of bristles, basal pair short and hair-like; 1 h and 1-2 short hairs, 1 ph, 2 npl and

propleuron with 1 yellow bristle on lower part.
Legs: yellow, all tarsomere 5 dark yellow. Hairs and bristles on legs yellow. Fore coxa with yellow hairs and 4-5 brownish bristles; mid coxa with 4-5 anterial bristles, and 1 black outer bristle; hind coxa with 1 outer bristle at base. Fore femur with 2–3 short pv apically; hind femur with 1 av apically. Fore tibia with 2 short bristles apically; mid tibia with 2 ad and 2 pd, apically with 4 bristles; hind tibia with 4 pd, apically with comb-like hairs and 4 bristles. Mid tarsomere 1 longer than total length of tarsomeres 2-5, with 2 rows of v; hind tarsomeres 1-3 with row of short v. Relative length of tibia and 5 tarsomeres of legs LI 5.5 : 3.7 : 1.6 : 1.1 : 0.8 : 0.4; LII 8.1 : 4.0 : 1.3 : 0.8 : 0.5 : 0.4; LIII 5.2 : 1.6 : 0.9 : 0.5: 0.3: 0.2.
Wing: hyaline; veins yellow brown; R_{4+5} and M somewhat convergent apically, CuAx ratio 0.4. Squama yellow with brown hairs. Halter yellow.
Abdomen: yellow brown or yellow with grey yellow pollen; hairs and bristles on abdomen black. Male genitalia (Figs. 4-5): Epandrium distinctly longer than wide; surstylus long and wide, dorsal lobe curved apically with brown inner process, ventral lobe with furcated apex; cercus somewhat round; hypandrium bifurcated, each lobes thick with apical lateral processes.
Female. Unknown.
Holotype male, Henan, Nanyang, Neixiang, Baotianman, 2004. VII. 24, Kuiyan ZHANG (CAU).
Paratypes: 2 females, Shaanxi, Fuping, Dadianzi, 2006. VII. 25, Yajun ZHU; 2 females, Shaanxi, Fuping, Xigou, 2006. VII. 27, Yajun ZHU(CAU).

Distribution: Henan (Nanyang), Shaanxi(Fuping).

Etymology: The specific epithet refers to the locality of holotype Henan.

Remarks: The new species is similar to *Xanthochlorus chinensis* Yang *et* Saigusa, but may be separated from the latter by having the hairs and bristles on legs yellow and first flagellomere subsquare. But in *chinensis*, the hairs and bristles on legs are black and the first flagellomere nearly round (Yang & Saigusa, 2005).

Trigonocera Becker, 1902

Trigonocera Becker, 1902. Mitt. Zool. Mus. Berl. 2: 57. Type species: *Trigonocera rivosa* Becker, 1902 (monotypy).

Diagnosis: Diaphorinae. Small to large sized. Frons narrow; face wide and parallel-sided. First flagellomere large, usually with acute apex. Arista apical. 5-6 dc, acr biseriate. Femora without preapical bristles. Wing with large anal area. Male tergum 6 bare, genitalia small, hidden within pregenital segments.

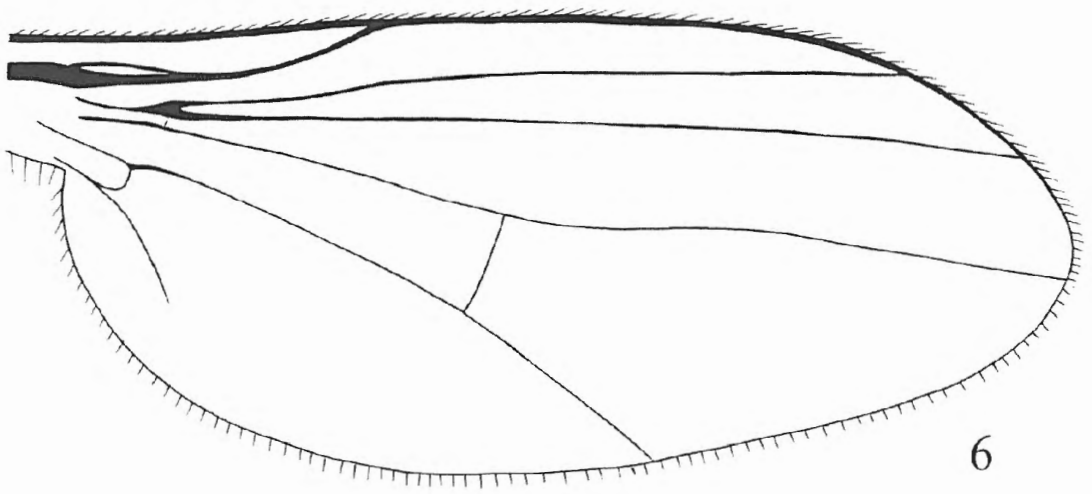
Remarks: There are eight known species for the genus, four of which are known to occur in China. Olejníček (2004b) made a revision of Oriental *Trigonocera* and described one Chinese species.

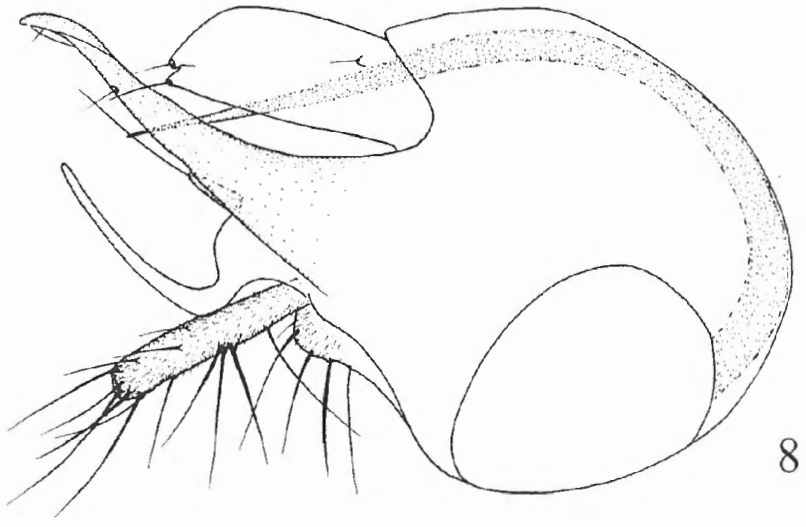
Key to species of *Trigonocera* from Chinese mainland

1. Third antennal segment 2.0 times longer than wide. (Guizhou, Yunnan) ..... ***T. guizhouensis***
– Third antennal segment about as long as wide. (Hainan) ..... ***T. tongshiensis***

Trigonocera guizhouensis sp. nov.
(Figs 6-8)

Diagnosis: Face wide, as wide as width of first flagellomere; first flagellomere 2.0 times longer than wide. Sternite 8 with 4 strong bristles. Sternite 8 with 4 strong bristles.
Male. Body length 5.0-5.2 mm, wing length 4.8-4.9 mm.
Head: metallic green with pale grey pollen; face wide, as wide as width of first flagellomere, narrower downward. Hairs and bristles on head black, mid and lower postocular bristles (including ventral hairs) pale yellow. Ocellar tubercle distinct. Antenna blackish; first flagellomere 2.0 times longer than wide (Fig. 7). Proboscis dark brown with pale hairs, palpus dark brown with 2 black apical bristles.
Thorax: metallic green with pale grey pollen. Hairs and bristles on thorax black; 5 strong dc, 10-11 irregularly paired acr; scutellum with 2 pairs of bristles; propleuron with 1 black hairs on lower part.
Legs: chiefly yellow; fore coxa yellow with blackish base, mid and hind coxae blackish; hind femur with blackish apex; all tarsomere 5 dark brown. Hairs and bristles on legs black. Fore coxa with 4-5 anterial bristles and yellow hairs; mid coxa with 4-6 anterial bristles; hind coxa with 1 outer bristle. Fore femur with 2 short av and 2 pv apically; mid femur with 3-4 av and 2 pv apically; hind femur with 2 av and 2 pv apically. Fore tibia with 2 ad, apically with comb-like hairs; mid





Figs 6-8 – *Trigonocera guizhouensis* sp. nov. (male). 6. wing; 7. antenna (excluding scape), lateral view; 8. genitalia, lateral view.

tibia with 2 ad, 2 pd and 1 v, apically with 4 bristles; hind tibia with 3 ad, apically with comb-like hairs and 4 bristles. Relative length of tibia and 5 tarsomeres of legs LI 2.3: 1.5 : 0.6 : 0.4 : 0.3 : 0.2; LII 2.9 : 1.7 : 0.8 : 0.6 : 0.3 : 0.2; LIII 3.5 : 0.9 : 1.0: 0.6: 0.4 : 0.2.

Wing: hyaline, veins brown; R_{4+5} and M parallel apically, CuAx ratio 0.48 (Fig. 6). Squama yellow with brownish hairs. Halter yellow.

Abdomen: blackish, terga 2-3 with posterior margine blackish. Hairs and bristles black. Sternite 8 with 4 strong bristles. Male genitalia (Fig. 8): Epandrium about as long as wide, lateral lobe long and wide, with 2 apical bristles; surstylus slender, curved apex with 1 short hair. Inner lobe short, with 1 long apical bristle; cercus small with long and thick ventral lobe, aedeagus slender.

Female. Unknown.

Holotype male, Guizhou, Xishui 900m, 2001. IV. 12, Ding YANG (CAU). Paratype: 1 male, Yunnan, Xishuangbanna, Mengyang, 1999. III. 11, Ding YANG (CAU).

DISTRIBUTION: Guizhou (Xishui), Yunnan (Xishuangbanna).

ETYMOLOGY: The specific epithet refers to the locality of the holotype Guizhou.

REMARKS: The new species is similar to *Trigonocera tongshiensis* (Yang), but may be separated from the latter by having first flagellomere 2.0 times longer than wide. In *tongshiensis*, the first flagellomere is as long as wide (Yang, 2002).

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