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Source: Florida Entomologist, 98(2) : 752-758

Published By: Florida Entomological Society

URL: https://doi.org/10.1653/024.098.0253

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New and little known species of Dolichopodidae (Diptera) in Taiwan

Mengqing Wang[1,2,], Hongyin Chen[1,2], and Ding Yang[3]*

Abstract

Two genera, *Acropsilus* and *Chrysotimus* (Diptera: Dolichopodidae), and 14 species are recorded for the first time from Taiwan. One species of *Chrysotimus* is described as new from Taiwan. A key to the genus *Chrysotimus* species from China is presented.

Key Words: *Acropsilus*; *Chrysotimus*; Diaphorinae; Oriental Region; Peloropeodinae; Sympycninae

Resumen

Se registran dos géneros, *Acropsilus* y *Chrysotimus* (Diptera: Dolichopodidae), y 14 especies por primera vez de Taiwán. Se describe una especie de *Chrysotimus* como nueva para Taiwán. Se presenta una clave para las especies del género *Chrysotimus* de China.

Palabras Clave: *Acropsilus*; *Chrysotimus*; Diaphorinae; región Oriental; Peloropeodinae; Sympycninae

There are only 1 genus and 4 species of Peloropeodinae in Taiwan even though 39 genera and 170 species of Dolichopodidae are recorded worldwide (Yang et al. 2011). Here we present 2 first-record genera of Peloropeodinae, *Acropsilus* and *Chrysotimus*, and also several first-record species of Diaphorinae and Sympycninae from Taiwan. Two species of these genera broaden their distribution range to the Oriental Region.

The genus *Chrysotimus* is distributed worldwide—except the Afrotropical Region—with more than 70 known species, of which 14 species are known from the Palaearctic (Negrobov 1991) and 25 species from the Oriental Region (Dyte 1975; Yang et al. 2006, 2011; Wang et al. 2012). This paper deals with a new species of *Chrysotimus* from Taiwan, *Chrysotimus taiwanensis* **sp. nov.**, and presents a key of the genus in China.

Materials and Methods

The specimens used in this study were collected by different collectors with sweep nets in Taiwan from 2007 to 2011. Specimens were studied and illustrated under a Zeiss Stemi 2000–c stereo microscope. Genitalic preparations were made by macerating the apical portions of the abdomens in warm 10% NaOH for 17–20 min, examining them, transferring them to 75% ethanol, and individually storing each of them in a micro-vial pinned below the corresponding specimen. Most specimens are deposited in the Entomological Museum of Chinese Agricultural University (CAU), China, except some are deposited in the Royal Belgian Institute of Natural Sciences, Belgium.

Abbreviations are as follows: acr = acrostichal bristles, ad = anterodorsal bristles, av = anteroventral bristles, d = dorsal bristles, dc = dorsocentral bristles, LI = fore leg, LII = mid leg, LIII = hind leg, oc = ocellar bristles, pd = posterodorsal bristles, pv = posteroventral bristles, v = ventral bristles, CuAx ratio = length of m-cu / length of distal portion of CuA.

Results

1. *Acropsilus zengchengensis* Wang, Yang & Grootaert, 2007

Acropsilus zengchengensis Wang, Yang & Grootaert, 2007. Biologia 62 (1): 93.

TYPE LOCALITY

Guangdong, Zengcheng, Huizhou, Fugang.

MATERIAL EXAMINED

HOLOTYPE, 1 male CHINA: Guangdong, Zengcheng, Nankunshan, 12-V-2004, Mengqing Wang. PARATYPES, 1male, 2 females, Guangdong, Huizhou, 11-V-2004, Patrick Grootaert (deposited in Royal Belgian Institute of Natural Sciences, no. 24014); 1 ♂, Guangdong, Zengcheng, Nankunshan, 12-V-2004, Patrick Grootaert (deposited in Royal Belgian Institute of Natural Sciences, no. 24017); 2 males, 3 females, Guangdong, Fogang, Guanyinshan, 15-V-2004, Patrick Grootaert (deposited in Royal Belgian Institute of Natural Sciences, no. 24023). Other materials: 1 male, Taiwan, Pingdong, Hengchun, Tropical Test Center, 7-XI-2010, Ding Yang.

DISTRIBUTION

Taiwan (Pingdong), Guangdong (Fogang, Huizhou, Zengcheng).

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2. *Chaetogopteron acutatum* Yang & Grootaert, 1999

Chaetogonopteron acutatum Yang & Grootaert, 1999. Bulletin de l'Institut Royal des Sciences Naturelles de Belgique Entomologie 69: 267.

TYPE LOCALITY

Yunnan, Xishuangbanna, Mengyang.

MATERIAL EXAMINED

HOLOTYPE, 1 male CHINA: Yunnan, Mengyang, 11-III-1999, Patrick Grootaert. PARATYPES, 2 males, same data as holotype (deposited in Royal Belgian Institute of Natural Sciences, no. 99091). Other materials: 3 males, Guangdong, Nanling, 9~18-VII-2005, Yali Cai; 6 males, 1 female, Taiwan, Yilan, Fushan botanic garden 670 m, 10-VI-2011, Xiaoyan Liu.

DISTRIBUTION

Taiwan (Yilan), Yunnan (Mengyang), Guangdong (Nanling).

3. *Chaetogonopteron anae* Wang, Yang & Grootaert, 2005

Chaetogonopteron anae Wang, Yang & Grootaert, 2005b. Biologia 60 (5): 508.

TYPE LOCALITY

Guangdong, Conghua, Liuxihe, and Wuhuaxian, Qimuzhang; Yunnan, Xishuangbanna, Mengla.

MATERIAL EXAMINED

HOLOTYPE, 1 male CHINA: Guangdong, Conghua Liuxihe, 16-VII-2003, Shuwen An. PARATYPES, 1 male, Guangdong, Wuhua Qimuzhang, 31-VII-2003, Shuwen An. Other materials, 2 males, Guangxi, Jinxiu Dayaoshan, 26-VII-2005, Yajun Zhu; 1 male, Taiwan, Nantou county, Yuchi, Lianhua Pond, alt. 675 m, 11. XI. 2010, Yang Ding; 1 male, Taiwan, Taizhong county, Baxianshan, alt. 800 m, 5-VI-2011, Xiaoyan Liu.

DISTRIBUTION

Taiwan (Nantou, Taizhong), Guangdong (Conghua, Wuhua), Guangxi (Jinxiu).

4. *Chaetogonopteron apicinigrum* Yang & Grootaert, 1999

Chaetogonopteron apicinigrum Yang & Grootaert, 1999. Bulletin de l'Institut Royal des Sciences Naturelles de Belgique Entomologie 69: 268.

TYPE LOCALITY

Yunnan, Xishuangbanna, Mengyang.

MATERIAL EXAMINED

HOLOTYPE, 1 male CHINA: Yunnan, Jinghong, Mengyang, 5-III-1999, Ding Yang. PARATYPES, 4 males, 8 females, Yunnan, Menghai, 6-III-1999, Patrick Grootaert (deposited in Royal Belgian Institute of Natural Sciences, no. 99064). Other materials: 5 males,11 females (no. 99066), 1 male (no. 99079), 1 male (no. 99080), Yunnan, Mengla, 8-III-1999, Patrick Grootaert (deposited in Royal Belgian Institute of Natural Sciences); 1male, 1 female, Taiwan, Yilan, Fushan botanic garden 670 m, 10-VI-2011, Xiaoyan Liu; 4 males, Taiwan, Nantou, Yuchi, Lianhua Pond, alt. 675 m, 11-XI-2010, Ding Yang.

DISTRIBUTION

Taiwan (Nantou, Yilan), Yunnan (Menghai, Mengla, Mengyang).

5. *Chaetogonopteron ceratophorum* Yang & Grootaert, 1999

Chaetogonopteron ceratophorum Yang & Grootaert, 1999. Bulletin de l'Institut Royal des Sciences Naturelles de Belgique Entomologie 69: 269.

TYPE LOCALITY

Yunnan, Xishuangbanna, Menglun.

MATERIAL EXAMINED

HOLOTYPE, 1 male CHINA: Yunnan, Menglun, 7-III-1999, Ding Yang. PARATYPE 10 males, same data as holotype. Other materials: 11 males, 8 females, Guangxi, Tian'e, alt. 340 m, 9-VIII-2002, Ding Yang; 6 males, Taiwan, Pingdong, Hengchun, Tropical Test Center, alt. 198 m, 7-XI-2010, Ding Yang.

DISTRIBUTION

Taiwan (Pingdong), Yunnan (Menglun), Guangxi (Tian'e).

6. *Chaetogonopteron liui* Wang, Yang & Grootaert, 2005

Chaetogonopteron liui Wang, Yang & Grootaert, 2005a. Bulletin de l'Institut Royal des Sciences Naturelles de Belgique Entomologie 75: 217.

TYPE LOCALITY

Guangdong, Dapu, Fengxi.

MATERIAL EXAMINED

HOLOTYPE, 1 male CHINA: Guangdong, Dapu, Fegnxi, 29-VII-2003, Shuwen An. PARATYPES, 19 males, 14 females, same data as holotype. Other materials: 2 males, Taiwan, Pingdong, Shouka, alt. 400 m, 30-V-2011, Xiaoyan Liu; 12 males, 2 females, Taiwan, Yilan, Fushan botanic garde, alt. 670 m, 10-VI-2011, Xiaoyan Liu; 1 male, Taiwan, Yilan, Datongyingshi village, alt. 1,140 m, 13-VI-2011, Xiaoyan Liu.

DISTRIBUTION

Taiwan (Pingdong, Yilan), Guangdong (Dapu).

7. *Chaetogonopteron luteicinctum* (Parent, 1926)

Sympycnus luteicinctum Parent, 1926. Encyclopedie Entomologique (B II) Diptera 2: 134.

TYPE LOCALITY

Shanghai, "Zi-Ka-Wei."

Chaetogonopteron luteicinctum (Parent): Yang, Zhu, Wang & Zhang, 2006. World Catalog of Dolichopodidae: 472.

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MATERIAL EXAMINED

Two males, 3 females, Fujian, Wuyishan mountain, alt. 800 m, 20-V-1960, Yong Zuo; 2 males, 1 female, Yunnan, Lvchun, alt. 1,900–2,000 m, 31-V-1996, Toyohei Saigusa; 3 males, Yunnan, Lvchun, 5-III-1996, Ding Yang; 5 males, Guangxi, Tian'e, alt. 1,100 m, 3-VIII-2002, Ding Yang; 1 male, 4 females, Guangdong, Ruyuan, Nanling, alt. 1,000 m, 26-III-2003, Patrick Grootaert (deposited in Royal Belgian Institute of Natural Sciences, no. 23009); 1 male, 2 females, Taiwan, Nantou, Yuchi, Lianhua Pond, 11-XI-2010, Ding Yang.

DISTRIBUTION

Taiwan (Nantou), Henan (Neixiang, Luanchuan), Shanghai, Zhejiang (Tianmushan), Fujian (Chongan), Guangxi, Guangdong, Yunnan.

8. *Chaetogonopteron menglunense* Yang & Grootaert, 1999

Chaetogonopteron menglunense Yang & Grootaert, 1999. Bulletin de l'Institut Royal des Sciences Naturelles de Belgique Entomologie 69: 220.

TYPE LOCALITY

Yunnan, Xishuangbanna, Menglun.

MATERIAL EXAMINED

HOLOTYPE, 1 male CHINA: Yunnan, Menglun, alt. 800 m, 10-IV-1981, Fasheng Li. 6 males, Taiwan, Pingdong, Hengchun, Tropical Test Center, 7-XI-2010, Ding Yang.

DISTRIBUTION

Taiwan (Pingdong), Yunnan (Menglun).

9. *Chaetogonopteron pallipilosum* Yang & Grootaert, 1999

Chaetogonopteron pallipilosum Yang & Grootaert, 1999. Bulletin de l'Institut Royal des Sciences Naturelles de Belgique Entomologie 69: 274.

TYPE LOCALITY

Yunnan, Xishuangbanna, Mengyang.

MATERIAL EXAMINED

HOLOTYPE, 1 male CHINA: Yunnan, Mengyang, 5-III-1999, Ding Yang. PARATYPES, 4 males, same data as holotype. Other materials: 1 male, Guangxi, Tian'e, 9-VIII-2002, Ding Yang; 2 males, Taiwan, Taizhong, Baxianshan mountain, alt. 800 m, 4~5-VI-2011, Xiaoyan Liu; 1 male, Taiwan, Nantou, Riyuetan, alt. 800 m, 18-VI-2011, Xiaoyan Liu; 13 males, Taiwan, Nantou, Yuchi, Lianhua Pond, 11-XI-2010, Ding Yang ; 2 males 10 females, Taiwan, Jiayi, Zhuqi, Shuisheliao, alt. 1165 m, 16-XI-2010, Ding Yang.

DISTRIBUTION

Taiwan (Pingdong), Yunnan (Menglun), Guangxi (Tian'e).

10. *Chaetogonopteron wuhuaense* Wang, Yang & Grootaert, 2005

Chaetogonopteron wuhuaense Wang, Yang & Grootaert, 2005a. Bulletin de l'Institut Royal des Sciences Naturelles de Belgique Entomologie 75: 218.

TYPE LOCALITY

Guangdong, Wuhua, Qimuzhang.

MATERIAL EXAMINED

HOLOTYPE, 1 male CHINA: Guangdong, Wuhua, Qimuzhang, 31-VII-2003, Xingyue Liu. PARATYPES, 2 males, 1female, same data as holotype. Other materials: 4 males, 1 female, Guangdong, Xinfeng, Yunjishan, 19-VII-2003, Shuwen An; 1 male, Taiwan, Pingdong, Hengchun, Tropical Test Center, 7-XI-2010, Ding Yang.

DISTRIBUTION

Taiwan (Pingdong), Guangdong (Wuhua, Xinfeng).

11. *Chaetogonopteron zhangae* Wang, Yang & Grootaert, 2005

Chaetogonopteron zhangae Wang, Yang & Grootaert, 2005b. Biologia 60(5): 508.

TYPE LOCALITY

Guangdong, Ruyuan, Nanling.

MATERIAL EXAMINED

HOLOTYPE, 1 male CHINA: Guangdong, Ruyuan, Nanping, 26-III-2003, Lili Zhang. PARATYPE, 1 female, same data as holotype. Other materials: 12 males, Taiwan, Nantou, Yuchi, Lianhua Pond, 11-XI-2010, Ding Yang.

DISTRIBUTION

Taiwan (Nantou), Guangdong (Ruyuan).

12. *Chrysotus beijingensis* Wang & Yang, 2006

Chrysotus beijingensis Wang & Yang, 2006a. Deutsche Entomologische Zeitschrift 53(2): 250.

TYPE LOCALITY

Beijing, Xiangshan.

MATERIAL EXAMINED

HOLOTYPE, ♂, Beijing, Xiangshan, 17~19-VIII-1997, Ding Yang. PARATYPES, 5 males, same data as holotype. Other materials: 3 males, 2 females, Taiwan, Pingdong, Hengchun, Tropical Test Center, 7-XI-2010, Ding Yang.

DISTRIBUTION

Taiwan (Pingdong), Beijing (Xiangshan).

13. *Chrysotus brevicercus* Wang & Yang, 2008

Chrysotus brevicercus Wang & Yang, 2008. Entomologica Fennica 19(4): 235.

TYPE LOCALITY

Henan, Songxian, Neixiang & Luanchan; Shandong, Mouping & Kunyushan.

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MATERIAL EXAMINED

HOLOTYPE, 1 male CHINA: Henan, Song County, Baiyunshan, 18-VII-2004, Hui Dong. PARATYPES, 3 males, Henan, Song County, Baiyunshan, 15-VII-2004, Kuiyan Zhang. Other materials: 9 males, Henan, Song County, Baiyunshan, 18-VII-2004, Kuiyan Zhang; 3 males, Henan, Neixiang, Baotianman, 24~25-VII-2004, Hui Dong; 5 males, 10 females, Henan, Luoyang, Luanchuan, Longyuwan, 19~21-VII-2004, Kuiyan Zhang; 1 male, Shandong, Mouping, Kunyushan, 19-VIII-2004, Hui Dong; 2 males, 10 females, Taiwan, Jiayi, Zhuqi, Shuisheliao, 16-XI-2010, Ding Yang.

DISTRIBUTION

Taiwan (Jiayi), Henan (Songxian, Neixiang, Luoyang), Shandong (Mouping).

14. *Diaphorus hainanensis* Yang & Saigusa, 2001

Diaphorus hainanensis Yang & Saigusa, 2001. Bulletin de l'Institut Royal des Sciences Naturelles de Belgique Entomologie 71: 161.

TYPE LOCALITY

Hainan, Xinglong.

MATERIAL EXAMINED

HOLOTYPE, 1 male CHINA: Hainan, Xinglong, 21-XII-1974, Jikun Yang. Other materials, 1 male, Taiwan, Nantou, Riyuetan, alt. 800 m, 18-VI-2011, Xiaoyan Liu.

DISTRIBUTION

Taiwan (Nantou), Hainan (Xinglong).

15. *Chrysotimus taiwanensis* **sp. nov.** (Figs. 1–3)

TYPE LOCALITY

Taiwan (Pingdong Dahanshan Mountain).

MALE

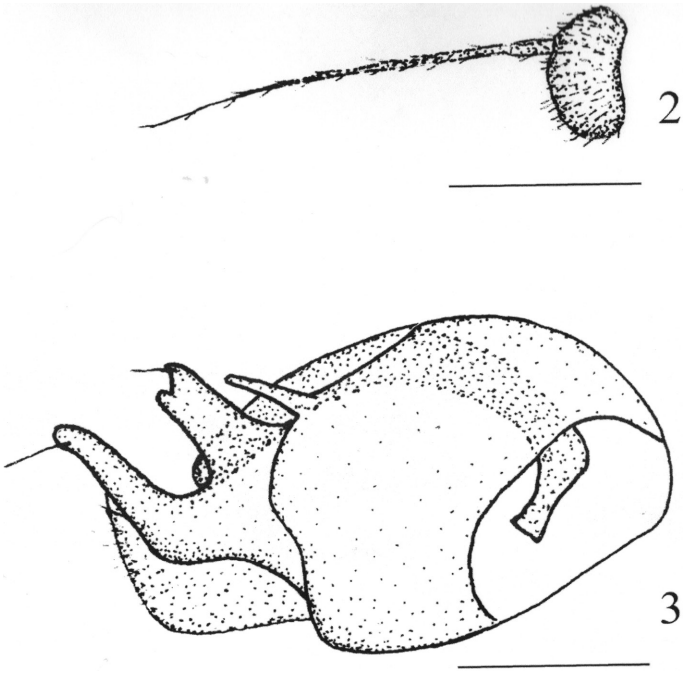
Body length 2.1–2.2 mm, wing length 2.2–2.3 mm.

Head metallic green with gray pollen; frons and face brilliant. Hairs and bristles on head yellow. Ocellar tubercle weak, with 2 very long oc and 2 very short posterior hairs. Lower postocular bristles (including ventral hairs) pale. Antenna blackish; first flagellomere (Fig. 2) rather short, about 0.5 times wider than long; arista subapical, with basal segment very short. Proboscis blackish, with brown hairs; palpus dark brown, with yellow hairs and 2 brownish apical bristles.

Thorax metallic green with pale gray pollen, mesonotum and scutellum brilliant. Hairs and bristles on thorax brown; 4 dc, acr absent; scutellum with 2 pairs of bristles. Propleuron with 1 yellow bristle on lower portion. Legs including coxae yellow with 5th tarsomeres brown. Hairs and bristles on legs brownish; coxae with yellow hairs and bristles; fore coxa with 3–4 anterior and apical bristles, mid coxa with 2–3 anterior and apical bristles, hind coxa with 1 brown outer bristle near middle. Fore femur with 1 short av and 1short pv apically; mid and hind femora each with 1 av and 1 pv apically. Mid tibia with 2 ad and 1 pd, apically with 4 bristles; hind tibia with 2 ad and 1 pd, apically with 3 bristles. Fore tarsomere 1 with row of 8-10 v, mid tarsomere 1 without distinct v, hind tarsomere 1 with 7–8 short and black ventral bristles on basal 1/4, and row of 7–8 v. Relative lengths of tibia and 5 tarsomeres of legs. LI 4.8:2.8:1.2:1.0:0.5:0.5; LII 6.4:2.6:1.6:1.0:0.6:0.5; LIII 6.8:3.0:2.0:1.2:0.8:0.6.



Fig. 1. *Chrysotimus taiwanensis* Wang & Yang, **sp. nov.**, male: habitus, lateral view, scale bar = 0.4 mm.



Figs. 2 and 3. *Chrysotimus taiwanensis* Wang & Yang, **sp. nov.**, male: 2. first flagellomere, lateral view, scale bar = 0.2 mm; and 3. genitalia, lateral view, scale bar = 0.1 mm.

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Wing hyaline; veins brownish, R_{4+5} and M parallel apically; CuAx ratio 0.30. Squama yellow with pale yellow hairs. Halter pale yellow.

Abdomen metallic green with pale gray pollen, dorsum brilliant. Hairs and bristles on abdomen brown.

Male genitalia (Fig. 3): Epandrium about as long as wide, apically with 1 slender lateral process; surstylus wide, deeply bifurcated; cercus large with acute apex.

FEMALE

Body length 2.1–2.3 mm, wing length 2.2–2.3 mm. Similar to male, but hind tarsomere 1 without black ventral bristles at base.

TYPE MATERIAL

HOLOTYPE, 1 male, Taiwan: Pingdong Dahanshan mountain, alt. 1,500-1,600 m, 7-VI- 2011, Xiaoyan Liu. PARATYPES, 2 males, same data as holotype. Other materials: 2 males, 9 females, Taiwan: Wulan Fushan Shuiguanlu, 18-V-2007, Nanyi Cai; 3 males, 3 females, Taiwan: Yilan Fushun botanic garden, alt. 670 m, 10-VI-2011, Xiaoyan Liu; 3 males, 8 females, Taiwan: Hualian Bilvshenmu, alt. 2,150 m, 20-VI-2011, Xiaoyan Liu.

DISTRIBUTION

Taiwan (Hualian, Pingdong, Wulan, Yilan).

ETYMOLOGY

The specific epithet derives from the type locality of Taiwan.

REMARKS

This new species is similar to *Chrysotimus xuae* Wang, Yang & Grootaert by the brown hairs and bristles on thorax, and the furcated surstylus, but may be separated from the latter by the 7–8 short and black ventral bristles on hind tarsomere 1 base, and the cercus with acute apex. In *xuae*, there are 15–16 short and black ventral bristles on hind tarsomere 1 base, the cercus has no distinct acute apex.

Key to species (males) of *Chrysotimus* from China

1. —	Hind tarsomere 1 at most with sparse black bristles at base	2
1′.—	Hind tarsomere 1 with bundle(s) of black ventral bristles at base	10
2 (1).	Hind tarsomere 1 without black ventral bristles at base (unknown in *C. grandis*)	3
2′.—	Hind tarsomere 1 with black ventral bristles at base	6
3 (2).	Acr present	4
3′.—	Acr absent	5
4 (3).	Mid tarsomere 1 shorter than tarsomeres 2–5; surstylus with single lobe	*C. beijingensis* (Yang & Saigusa, 2001)
4′.—	Mid tarsomere 1 longer than tarsomeres 2–5; surstylus divided into 2 lobes	*C. grandis* Wang & Yang, 2006
5 (3).	Mid tibia with 2 pd; epandrium process nearly quadrate	*C. guangxiensis* Yang & Saigusa, 2001
5′.—	Mid tibia with 1 pd; epandrium process with apical concavity	*C. sinensis* Parent, 1944
6 (2).	Antenna with 1st and 2nd antennal segments yellow	*C. basiflavus* Yang, 2001
6′.—	Antenna wholly black	7
7 (6).	Five dc; acr absent	*C. apicicurvatus* Yang, 2001
7′.—	Six dc; acr present	8
8 (7).	Nine to 10 irregularly paired acr; hind tarsomere 1 with 2 sparse black ventral bristles at base	*C. ningxianus* Wang, Yang & Grootaert, 2005
8′.—	Less than 6 irregularly paired acr; hind tarsomere 1 with 6–8 sparse black ventral bristles on basal 1/4	9
9 (8).	Hind tibia with 2 ad, epandrium with long wide and trifurcated lateral process	*C. dalongensis* Wang, Chen & Yang, 2012
9′.—	Hind tibia with 1 ad, epandrium with short and bifurcated lateral process	*C. acutatus* Wang, Yang & Grootaert, 2005
10 (1).	Four or 5 dc; acr absent	11
10′.—	Six dc; acr present	18
11(10).	Arista dorsal; hypandrium with broad lateral process	12
11′.—	Arista sub-apical; hypandrium with thin finger-like lateral process	13
12(11).	Hind tibia with row of v, surstylus wide	*C. dorsalis* Yang, 2001
12′.—	Hind tibia without rowed v, surstylus slender	*C. huairouensis* Wang, Chen & Yang, 2012

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13(11). Hind tarsomere 1 with 3–4 short black spine-like ventral bristles at base . . . . . *C. songshanus* Wang, Yang & Grootaert, 2005

13′.— Hind tarsomere 1 with more than 5 black ventral bristles at base 14

14(13). Hairs and bristles on thorax yellow 15

14′.— Hairs and bristles on thorax brownish or brown 16

15(14). Fore tarsomere 1 with row of about 10 v; hind tarsomere 1 with 22 short black ventral bristles on basal 1/4; surstylus basally without inner process . . . . . *C. chikuni* Wang, Yang & Grootaert, 2005

15′.— Fore tarsomere 1 without rowed v; hind tarsomere 1 with less than 20 black ventral bristles on basal 1/4; surstylus basally with inner process . . . . . *C. shennongjianus* Yang & Saigusa, 2001

16(14). Hind tarsomere 1 with row of v; surstylus furcated apically 17

16′.— Hind tarsomere 1 without rowed v; surstylus not furcated apically . . . . . *C. bispinus* Yang & Saigusa, 2001

17(16). Hind tarsomere 1 with 15–16 black basal ventral bristles; cercus round . . . . . *C. xuae* Wang, Yang & Grootaert, 2005

17′.— Hind tarsomere 1 with 7–8 black basal ventral bristles; cercus with acute apex . . . . . *C. taiwanensis* **sp. nov.**

18(10). Acr 2–4 pairs 19

18′.— Acr 5 or more pairs 26

19(18). Hind tarsomere 1 with group of 8–12 black ventral bristles at base (which are somewhat sparse), but without distinct pv 20

19′.— Hind tarsomere 1 with 1 (or 2) bundles of black basal ventral bristles, and row of 7–8 pv 22

20(19). CuAx ratio about 0.2; lateral process on epandrium not concave near middle. 21

20′.— CuAx ratio 0.35; lateral process on epandrium concave near middle . . . . . *C. yunlonganus* Yang & Saigusa, 2001

21(20). First flagellomere as long as wide; hind tibia without distinct v . . . . . *C. lii* Wang & Yang, 2006

21′.— First flagellomere about 1.5 times wider than long; hind tibia with 2 pv . . . . . *C. linzhiensis* Wang & Yang, 2006

22(19). R_{4+5} and M parallel apically; hind tarsomere 1 with bundle of 4–5 black ventral bristles at base 23

22′.— R_{4+5} and M slightly convergent apically; hind tarsomere 1 with 2 bundles of 3–4 black ventral bristles at base . . . . . *C. bifascia* Yang & Saigusa, 2005

23(22). Hairs and bristles on thorax yellow or pale; surstylus on epandrium not furcated apically 24

23′.— Hairs and bristles on thorax brown; surstylus on epandrium furcated apically . . . . . *C. sanjiangyuanus* Wang, Yang & Grootaert, 2005

24(23). Fore tarsomere 1 without rowed v; hind tarsomere 1 with 4–5 black ventral bristles at base 25

24′.— Fore tarsomere 1 with row of 5–6 v; hind tarsomere 1 with 8 black ventral bristles at base . . . . . *C. guangdongensis* Wang, Yang & Grootaert, 2005

25(24). Hind femur with row of ad and pd; cercus long and narrow . . . . . *C. xiaolongmensis* Zhang, Yang & Grootaert, 2003

25′.— Hind femur without distinct d; cercus round . . . . . *C. unifascia* Yang & Saigusa, 2005

26(18). Hind tarsomere 1 with row of about 10 pv 27

26′.— Hind tarsomere 1 without distinct v 30

27(26). Hind tarsomere 1 with 10–12 black ventral bristles at base; mid tibia without distinct v. 28

27′.— Hind tarsomere 1 with about 20 black ventral bristles at base; mid tibia with 1 pv 29

28(27). First flagellomere somewhat round, 2.0 times wider than long; cercus not furcated; dorsal lobe on surstylus thick and straight . . . . . *C. qinlingensis* Yang & Saigusa, 2005

28′.— First flagellomere subtriangular, about as long as wide; cercus bifurcated; dorsal lobe on surstylus thin and curved . . . . . *C. bifurcatus* Wang & Yang, 2006

29(27). Fore and mid tarsomere 1 without distinct v; epandrium basally with short process . . . . . *C. setosus* Yang & Saigusa, 2005

29′.— Fore and mid tarsomere 1 each with row of 5–6 v; epandrium basally with long and broad process . . . . . *C. xiaohuangshanus* Wang, Yang & Grootaert, 2005

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30(26). Hind tarsomere 1 with bundle of short black ventral bristles; surstylus rather wide and thick; hypandrium with small apical incision 31

30′.— Hind tarsomere 1 with 2–3 bundles of 14–15 black ventral bristles on basal 1/6; surstylus narrow finger-like; hypandrium without apical incision . . . . . *C. digitatus* Yang & Saigusa, 2001

31(30). Hairs and bristles on thorax pale or yellow 32

31′.— Hairs and bristles on thorax dark brown; hind tarsomere 1 with 15–16 black ventral bristles . . . . . *C. pingbianus* Yang & Saigusa, 2001

32(31). Hind tarsomere 1 with 7 or less short black ventral bristles; 6 irregularly paired acr; palpus yellow 33

32′.— Hind tarsomere 1 with 12 short black ventral bristles; 8 irregularly paired acr; palpusdark brown. . . . . *C. incisus* Yang & Saigusa, 2001

33(32). Hind tibia with 2 pd, hind tarsomere 1 with 4–5 short black ventral bristles; surstylus slender and finger like . . . . . *C. hubeiensis* Wang, Chen & Yang, 2012

33′.— Hind tibia with 1 pd, hind tarsomere 1 with 7–8 short black ventral bristles; surstylus very wide . . . .*C. lijianganus* Yang & Saigusa, 2001

Acknowledgments

We are very grateful to Dr. Patrick Grootaert (Royal Belgian Institute of Natural Sciences, Belgium) and Dr. Xiaoyan Liu (CAU, Beijing, China) for collecting the specimens and helping in many other ways. This research is partly supported by the Key Project of Chinese National Programs for Fundamental Research and Development (973 Program No. 2013CB127602) and the Special Fund for Agro-scientific Research in the Public Interest of China (No. 201103002).

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