Revision of the *Dolichopus tewoensis* group (Diptera, Dolichopodidae) from China

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Zhang, L., Yang, D. & Grootaert, P., Revision of the *Dolichopus tewoensis* group (Diptera, Dolichopodidae) from China. Biologia, Bratislava, 59: 553—557, 2004; ISSN 0006-3088.

A new species-group: the *tewoensis* group is proposed in the present paper. It includes three species from China: *D. tewoensis* Yang, *D. qinghensis* sp. n. and *D. zhoui* sp. n. A key to the species from China is given. The geographic distribution of the group in China is discussed.

Key words: Diptera, Dolichopodidae, *Dolichopus*, new species, China.

Introduction

The genus *Dolichopus* Latreille, 1796 is the second largest genus in the Dolichopodinae, which may be separated from other genera by the following characters: Hind tarsomere 1 with strong dorsal bristles; wing usually with costal callus; *R*₄+₅ and *M* convergent apically; *M* somewhat bent, sometimes with rudimentary *M*₂; male cercus rather large with marginal denticles.

There are 242 known species in the Palaearctic Region (Negrobov, 1991; Yang, 1998a, c), but only 17 species in the Oriental Region (Dyte, 1975; Yang, 1996, 1998b, 1999; Yang & Li, 1998; Yang & Saigusa, 1999). Stackelberg (1930) divided the species of *Dolichopus* from the Palaearctic Region into four groups and keyed respectively. Olejniček (2002) gave a key to the Oriental *Dolichopus*. Up to now, 43 species have been known to occur in China. Yang (1996) described some species from SW China and made a key to the species of *Dolichopus* from N China in 1998. But, we continue to find new species of *Dolichopus* during the examination of our samples. For a country that covers both the Palaearctic and Oriental Regions, the genus *Dolichopus* from China still needs further study.

In the present paper, two species: *D. qinghensis* sp. n. and *D. zhoui* sp. n. are described as new to science, and a new species-group: the *tewoensis* group is proposed. The group includes three species from China: *D. tewoensis* Yang, 1998, *D. qinghensis* sp. n. and *D. zhoui* sp. n. The mainly European *D. longicornis* Stannius, 1831, and *D. acuticornis* (Wiedemann, 1817) also belong to this new species group. A key to the species of the *tewoensis* group from China is given.

The types are deposited in the Insect Collection of China Agricultural University (CAU), Beijing. The following abbreviations are used: acr – acrotichal, ad – anterodorsal, apv – apicoventral, av – anteroventral, dc – dorcocentral, LI – fore leg, LII – mid leg, LIII – hind leg, pv – posteroventral.

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The *Dolichopus tewoensis* group

**Diagnosis.** Middle and lower postocular bristles pale. Antenna distinctly elongated (more than 2 times longer than wide) and acute apically. Fore tibia with 1 pale slender apv. Wing with long and thick costal callus or indistinct callus. Epandrium longer than wide, with distinct lateral lobe rather wide; cercus nearly rectangular with distinct finger-like denticles bearing strong bristles.

**Key to species (males) of Dolichopus tewoensis group from China**

1 Costal callus long and thick; hypandrium thick apically........................................... 2
   – Costal callus indistinct; hypandrium rather narrow apically ...................... *D. zhoui* sp. n.

2 Arista arising at base of first flagellomere; hind tarsomere 1 with 1 ad and 2 d; hypandrium with acute tip .................. *D. tewoensis* Yang, 1998
   – Arista arising at middle of first flagellomere; hind tarsomere 1 only with 1 d; hypandrium with truncate tip .............. *D. qinghenshi* sp. n.


**Diagnosis.** First flagellomere distinctly elongated (2.2 times longer than wide) and acute apically; arista arising near base of first flagellomere. Fore and hind coxae yellow; mid coxa black; apical 1/4 of hind tibia black. Hind tarsomere 1 with 1 ad and 2 d. Wing with long and thick costal callus.

**Description. Male.** Body length 4.0 mm, wing length 4.4 mm.

Head metallic green with pale grey pollen. Face silvery white, narrower than first flagellomere. Hairs and bristles on head black, middle and lower postocular bristles pale. Antennal (Fig. 2) scape and pedicel yellow, dark brown dorsally; first flagellomere black with baso-ventral area yellow, distinctly elongated (2.2 times longer than wide) and acute apically; arista arising near base of first flagellomere and black, minutely pubescent with basal segment 0.6 times as long as wide. Proboscid black with blackish hairs, palpus pale yellow with pale hairs.

Thorax metallic green with pale grey pollen. Hairs and bristles on thorax black; 6 strong dc, 7–8 irregularly paired ac head-like; scutellum with two pair of bristles (basal pairs short and hair-like, apical pair long and strong) and some short marginal hairs. Propleuron with 1 black bristle on lower portion. Legs yellow; fore and hind coxae yellow, mid coxa black; fore and mid tarsi from tip of tarsomere 1 onward brown to dark brown, apical 1/4 of hind tibia and entire hind tarsus 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 2–3 pv, apically with 4 bristles and 1 slender apv; mid tibia with 4 ad, 2 pd and 1 av, apically with 5 bristles; hind tibia with 4 ad, 1 d, 4–5 pd and 1 av, apically with 2 bristles. Hind tarsomere 1 with 1 ad and 2 d. Relative lengths of tibia and 5 tarsomes: LI 1.55:0.7:0.35:0.28:0.2:0.2; LI 2.1:1.1:0.55:0.45:0.3:0.22; LIII 2.2:0.8:0.95:0.62:0.2. Wing (Fig. 1) hyaline; veins black; costal callus long and strong; M without rudimentary M2, CuAx ratio 0.65. Squama yellow with black hairs; halter yellow.

Abdomen metallic green with pale grey pollen; hairs and bristles black. Male genitalia (Figs 3–5): Epandrium distinctly longer than wide, with distinct lateral lobe; cercus longer than wide,
with distinct finger-like marginal denticles bearing strong bristles; hypandrium acute apically; aedeagus slightly curved apically.

**Female.** Body length 4.0 mm, wing length 4.4 mm. Similar to male.

**Type locality.** Gansu Province, Tewo county (34°05’ N, 103°14’ E).

**Material examined:** 3 ♂♂, 2 ♀♀, Beijing: Mentougou, Xiaolongmen (39°56’ N, 116°05’ E), 2.VIII. 2003, leg. Dakang Zhou.

**Distribution.** China (Gansu, Beijing), Palaearctic Region.

*Dolichopus qinghensis* sp. n. (Figs 6–10)

**Diagnosis.** First flagellomere distinctly elongated (2.5 times longer than wide) and acute apically; arista arising at middle of first flagellomere. Fore coxa yellow, mid and hind coxae black; apical 1/3 of hind tibia black. Hind tarsomere 1 with 1 d. Wing with long and thick costal callus.

**Description. Male.** Body length 4.3 mm, wing length 4.4 mm.

Head metallic green with pale grey pollen. Face narrower than first flagellomere. Hairs and bristles on head black, middle and lower postocular bristles pale. Antennal (Fig. 7) scape and pedicel yellow, dark brown dorsally; first flagellomere blackish brown, distinctly elongated (2.5 times longer than wide) and acute apically; arista arising at middle of first flagellomere and black, minutely pubescent with basal segment 0.6 times as long as apical segment. Proboscis black with black hairs, palpus yellow with pale hairs.

Thorax metallic green with pale grey pollen. Hairs and bristles on thorax black; 6 strong dc, 9–10 paired ac, 1 hair-like; scutellum with two pair of bristles (basal pairs short and hair-like, apical pair long and strong) and some short marginal hairs. Propleuron with 1 black bristle on lower portion. Legs yellow; fore coxa yellow, mid and hind coxae black; fore tarsomeres 4–5 black; mid tarsus black from tip of tarsomere 1 onward, apical 1/3 of hind tibia and entire hind tarsus black. Hairs and bristles on legs black; fore coxa with 4 apical bristles; mid and hind coxae each with 1 outer bristle; fore femur with 1 short apv, mid and hind femora each with 1 preapical bristle. Fore tibia with 3 ad, 1 pd and 2 pv, apically with 5 bristles and 1 pale long apv (about 2/3 as long as fore tarsomere 1); mid tibia with 3 ad, 2 pd and 1 av, apically with 5 bristles; hind tibia with 4 ad, 4–5 pd and 4 pale v on basal half, apically with 2 bristles. Hind tarsomere 1 with 1 d. Relative lengths of tibia and 5 tarsomeres: LI 1.8:0.95:0.5:0.25:0.25; LII 2.25:1.4:0.65:0.5:0.25:0.25; LIII 2.5:1.0:1.0:0.6:0.45:0.25. Wing (Fig. 6) greyish; veins black; costal callus long and strong. M without rudimentary M2, CuAx ratio 0.4. Squamae pale yellow with black hairs; halter pale yellow.

Abdomen metallic green with pale grey pollen; hairs and bristles black. Male genitalia (Figs 8–10): Epandrium longer than wide, with distinct lateral lobe; cercus with distinct finger-like marginal denticles bearing strong bristles; hypandrium nearly truncate apically; aedeagus slender.

**Female.** Unknown.

Distribution. China (Xinjiang), Palaearctic Region.

Etymology. The name refers to the type locality Qinghe county in Xinjiang Vygur Autonomous Region.

Differential diagnosis. The new species is very similar to Dolichopus longicornis Stannius, 1831 in having a distinctly elongated first flagellomere (more than 2 times longer than wide), with arista arising from the middle of the first flagellomere. When comparing with specimens of D. longicornis from Europe provided by Olejníček, it is different. It can be separated from D. longicornis by the black hind coxa and hind tarsomere 1 with 1 d. In D. longicornis, the hind coxa is mostly yellow with brown spots and the hind tarsomere 1 has 2 d and 1 lateral bristle.

*Dolichopus zhoui* sp. n. (Figs 11–15)

Diagnosis. First flagellomere distinctly elongated (2.4 times longer than wide) and acute apically; arista arising near base of first flagellomere. Fore and hind coxae yellow, mid coxa black; hind tibia with brownish tip. Hind tarsomere 1 with 2 d and 1 pd. Costal calixus on wing indistinct.

Description. Male. Body length 3.6 mm, wing length 3.8 mm.

Head metallic green with pale grey pollen. Face narrower than first flagellomere. Hairs and bristles on head black, middle and lower postocular bristles pale. Antennal (Fig. 13) scape and pedicel yellow, black dorsally; first flagellomere blackish brown with baso-ventral area dark yellow, distinctly elongated (2.4 times longer than wide) and acute apically; arista arising near base of first flagellomere. Fore and hind coxae yellow, mid coxa black; hind tibia with brownish tip. Hind tarsomere 1 with 2 d and 1 pd. Costal calixus on wing indistinct.

Thorax metallic green with pale grey pollen. Hairs and bristles on thorax black; 6 strong dc, 10 paired acr hair-like; scutellum with two pairs of bristles (basal pair short and hair-like, apical pair long and strong) and some short marginal hairs. Propleuron with 1 black bristle on lower portion. Legs yellow [mid tarsomeres 2–5 broken off]; fore and hind coxae yellow, mid coxa black; hind tibia with brownish tip; fore tarsomere 5 black, hind tarsus wholly black. Hairs and bristles on legs black; fore coxa with 2 apical bristles; mid and hind coxae each with 1 outer bristle; fore femur with 1 short apv, mid and hind femora each with 1 preapical bristle. Fore tibia with one row of ad, 2 pd and 2 pv, apically with 2 bristles and 1 pale long apv (about 1/2 as long as fore tibia); mid tibia with 2 ad and 1 pd, apically with 3 bristles; hind tibia with 4 ad, 2 pd and 1 preapical d, apically with 2 bristles. Hind tarsomere 1 with 2 ad and 1 pd. Relative lengths of tibia and 5 tarsomeres: LI 1.6:0.75:0.5:0.3:0.25:0.2; LII 1.65:1.0:?:?:?:?; LIII 2.5:1.0:1.1:0.6:0.5:0.2. Wing (Fig. 12) greyish; veins black; costal calixus indistinct; M without rudimentary M$_2$. CuAx ratio 0.5. Squama pale yellow with black hairs; halter pale yellow.

Abdomen metallic green with pale grey pollen; hairs and bristles black. Male genitalia (Figs 13–15): Epandrium longer than wide, with distinct lateral lobe; cercus with distinct finger-like marginal denticles bearing strong bristles; hypandrium obtuse apically; aedeagus slender apically.

Female. Unknown.

Distribution. China (Beijing), Palaeartic Region.

Etymology. The species is named after Dakang Zhou.

Differential diagnosis. The new species is very similar to D. tewoensis Yang, 1998 and D. longicornis Stannius, 1831 in having the antenna distinctly elongated (more than 2 times longer than wide) and acute apically, but may be separated from them by the indistinct costal callus and only the tip of the hind tibia brownish. In D. tewoensis and D. longicornis, the costal callus is long and thick. And in D. tewoensis, the apical 1/4 of the hind tibia is black (Yang, 1998a).

Discussion

The genus Dolichopus is mainly distributed in the Palaeartic Region. In China, the tewoensis group is also confined to the Palaeartic part of China. D. qinghensis sp. n. mainly occurs in Neimeng-Xingjiang Region including East steppe Subregion (Neimeng: Hailaer) and West desert Subregion (Xinjiang: Qinghe); D. tewoensis can be found both in North China Region (Huang-huai plains Subregion: Beijing; Loess plateau Subregion: Gansu) and Central China Region (Western mountain Subregion: Shaanxi); D. Zhoui sp. n. is scattered in the North China Region (Huang-huai plains Subregion: Beijing).

Acknowledgements

We are very grateful to Dr. J. Olejníček (České Budějovice, Czech Republic) for kindly providing some related species of Dolichopus from Europe and to Mr. D. Zhou (Beijing) for collecting some specimens. This research is supported by the National Natural Science Foundation of China (No. 30225009).

References


Received February 23, 2004
Accepted July 8, 2004