

A new peculiar species of *Dolichopus* from Yunnan Province of China (Diptera: Dolichopodidae)

Новый своеобразный вид рода *Dolichopus* из провинции Юньнань, Китай (Diptera: Dolichopodidae)

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КЛЮЧЕВЫЕ СЛОВА: Diptera, Dolichopodidae, *Dolichopus*, новый вид, Ориентальная область, Китай.

ABSTRACT. A new long-legged fly species *Dolichopus kechevi* **sp.n.** from China is described and illustrated. The new species appears to be quite distinct in having fifth segment of all tarsi flattened dorsoventrally, bearing long setae laterally. A key to Oriental species of *Dolichopus* is presented.

РЕЗЮМЕ. Из китайской провинции Юньнань описан новый вид мух-зеленушек *Dolichopus kechevi* **sp.n.** Он отличается от других видов уплощённым и оперённым последним члеником всех лапок. Составлен определитель видов рода *Dolichopus* Ориентальной (Индо-Малайской) области.

Introduction

The genus *Dolichopus* Latreille, 1796 has an extremely high diversity of endemic and widely distributed species in the Holarctic Realm, with about 650 species worldwide [Grichanov, 2014]. It is replaced with the closest genus *Lichtwardtia* Enderlein, 1912, in the Afrotropical, Australasian and Oriental regions, numbering there 22 species [*ibid.*]. Nevertheless, a few common polyzonal Palaearctic species (e.g., *D. lepidus* Staeger, 1842; *D. plumipes* (Scopoli, 1763); *D. nitidus* Fallén, 1823) occur southward of the Palaearctic region, penetrating to the Afrotropical and Oriental regions. Some *Dolichopus* species are confined to the latter regions, inhabiting usually mountainous areas. The Oriental species of true *Dolichopus* have been reported from China, India and Nepal.

Olejníček [2002] compiled a key to 12 Oriental species, of which two species are known only from India. One species was described from Nepal [Yang et al., 2004]. Negrobov et al. [2005] published a key to the Palaearctic species including some species occurring in the Orient. Yang et al. [2011] compiled a key to 72 Chinese *Dolichopus* species with mainly Palaearctic distribution.

Here I describe a new species *D. kechevi* **sp.n.** from the Yunnan Province of China representing an ungrouped species in the Old World, which brings the number of described Oriental species to 26. The new species appears to be quite distinct in having the fifth segment of all tarsi flattened dorsoventrally, bearing long setae laterally (male secondary sexual character, or MSSC).

Morphological terminology and abbreviations (for wing veins) follows Cumming et Wood [2009]. Body length is measured from the base of the antenna to the posterior tip of epandrium. Wing length is measured from the base to the wing apex. The relative lengths of the tarsomeres should be regarded as representative ratios and not measurements. Male genitalia were macerated in 10% KOH. Figures showing the male genitalia in lateral view are oriented as they appear on the intact specimen, with the morphologically ventral surface of the genitalia facing up, dorsal surface down, anterior end facing right and posterior end facing left. The holotype and paratypes of a new species is housed at the Zoological Institute of the Russian Academy of Sciences, St. Petersburg (ZIN).

Systematics

Dolichopus kechevi Grichanov, **sp.n.**

Figs 1–6

TYPE MATERIAL. Holotype: ♂, China: Yunnan, NNE Wexi City, r. trib. of Lapugou River, 5.2 km ENE Jizong, 27°27'36"N/99°23'53"E, 3480 m, 05.06.2015, G.E.Davidian leg. [ZIN]. Paratypes. 1 ♂, 1 ♀. Same labels [ZIN].

DESCRIPTION. Male. Length (mm): body 6.1, wing 5.5/1.8, antenna 1.2. General coloration of body metallic copper-bluish green.

Head. Frons shining greenish blue; face with black ground colour, mainly greyish-brown, clypeus whitish pollinose; lower and lateral postocular setae white; ventral postcranium with several white setae; eyes finely haired; face practically bare; face slightly narrowed towards clypeus (MSSC); ratio of its width below antennae to width at clypeus to height,

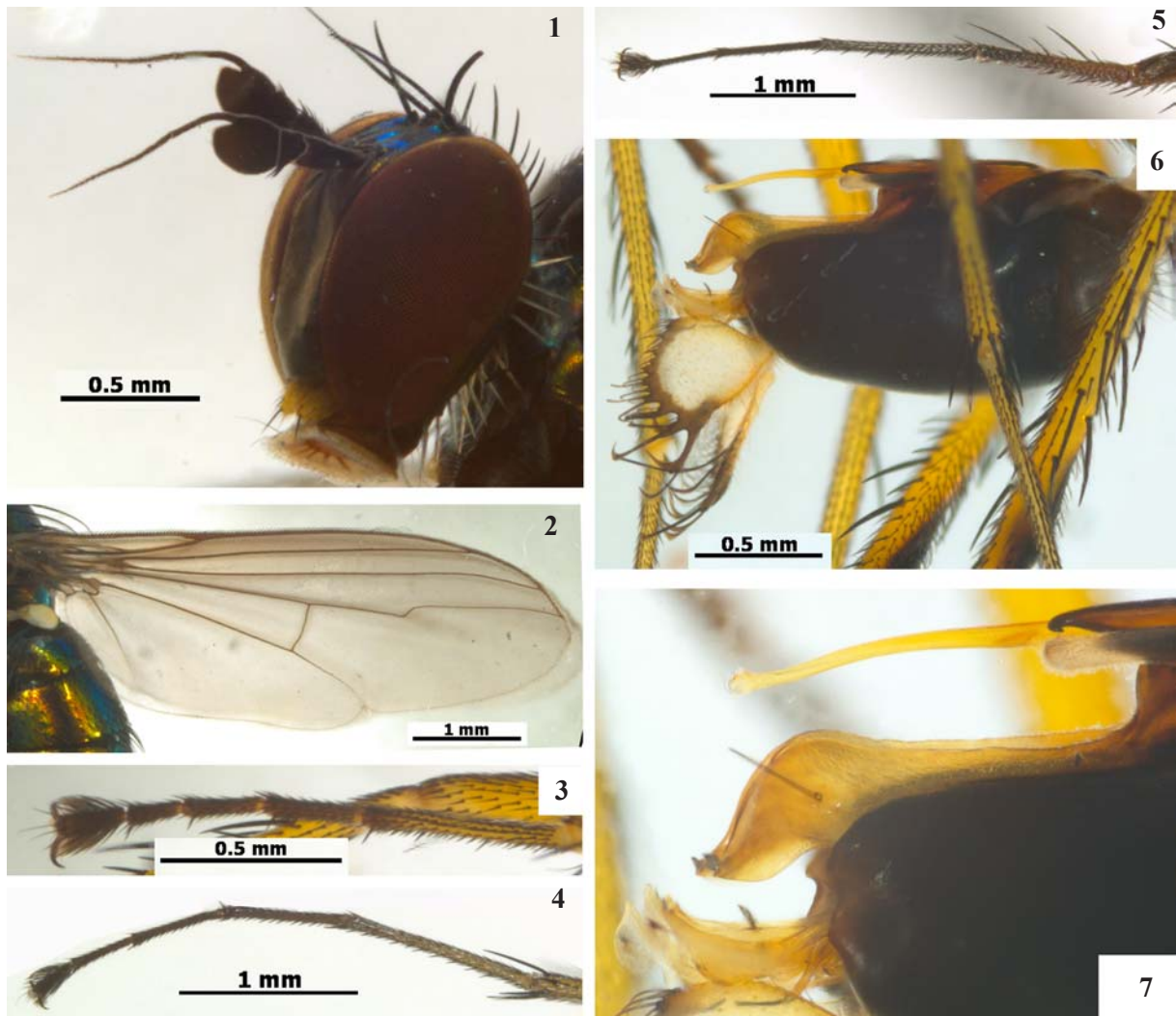
25:20:50; clypeus not reaching lower margin of eyes, with straight margin; antenna short, black, with simple segments; scape setose; pedicel with ring of short setae; postpedicel rounded-triangular, as long as high, with distinct angular apex; arista-like stylus middorsal, simple, with short hairs; length (mm) of scape to pedicel to postpedicel to stylus (1st and 2nd segments), 0.18/0.13/0.22/0.26/0.55; palpus yellow, subtriangular, small, with 1 black seta and black hairs; proboscis black with short hairs.

Thorax. Including mesonotum shining green, with purple spot above notopleuron; pleura weakly pollinose; 6 dorso-central setae, 2 rows of short acrostichals; proepisternum with 1 strong black seta and white hairs above coxa, several upper white hairs; anepimeron with white hairs; scutellum with 2 strong setae and white hairs along whole margin.

Legs. Mostly yellow; all coxae black with yellow tips; hind femur brownish dorsally at apex; hind tibia black dorsally on distal third; tarsi black from apex of basitarsus; fore coxa with mainly light hairs and several black subapical setae; fore femur simple, with fine posteroventral subapical seta; fore tibia with 3 anterodorsal, 1 posterodorsal, 2 posterior, 2 strong apical and

1 fine elongate apicoventral setae; fore basitarsus with basiventral seta; 5th segment flattened dorsoventrally, bearing long setae laterally (MSSC); mid femur with 1 subapical anterior seta; mid tibia with 2–3 anterodorsal, 2 posterodorsal, 1 dorsal, 1 anteroventral and 5 apical setae; 5th segment of mid tarsus flattened dorsoventrally, bearing long setae laterally (MSSC); hind femur with ventral row of long black setae in distal half, about as long as femur height (MSSC), and with subapical anterior seta at $\frac{3}{4}$; hind tibia with narrow tibial organ on distal third dorsally (MSSC), with 5 anterodorsals, 5 posterodorsals, two strong ventrals on distal half, row of short ventrals, 3 apical setae; hind tibia posteriorly densely covered with setulae along tibial organ (MSSC); hind basitarsus with 3 strong dorsal and row of 5 short ventral setae; 5th segment of hind tarsus flattened dorsoventrally, bearing long setae laterally (MSSC); tibia and tarsomere (from first to fifth) length ratio (mm): fore leg: 1.52:0.74:0.36:0.26:0.19:0.23, mid leg: 2.08:1.14:0.71:0.52:0.38:0.31, hind leg: 2.0:1.15:1.0:0.65:0.48:0.30.

Wing. Greyish, brownish anteriorly; veins brown-black; costal vein with inconspicuous thickening at tip of R_1 . R_1 1/4 length of wing. R_{2+3} and R_{4+5} almost straight, slightly convex



Figs 1–7. *Dolichopus kechevi* Grichanov, **sp.n.**: 1 — head; 2 — wing; 3 — fore tarsus; 4 — mid tarsus; 5 — hind tarsus; 6 — hypopygium; 7 — apex of epandrium.

Рис. 1–7. *Dolichopus kechevi* Grichanov, **sp.n.**: 1 — голова; 2 — крыло; 3 — передняя лапка; 4 — средняя лапка; 5 — задняя лапка; 6 — гипопигий; 7 — вершина эпандрия.

anteriorly; M_{1+2} in distal part with gentle flexion at 1/3, then almost parallel to R_{4+5} , joining costal vein right before wing apex; distal part of M_{1+2} nearly 1.5 times longer than proximal part; crossvein *dm-cu* straight, oblique, nearly half as long as apical part of CuA_1 (0.48:0.84); posterior wing margin with deep emargination at apex of CuA_1 (MSSC); anal vein distinct, almost reaching to wing margin; anal angle right; lower calypter yellow, with black cilia; halter yellow.

Abdomen. metallic bronze-green, weakly pollinose, with mainly black hairs and marginal setae; 8th segment black-green, with black cilia; epandrium greenish-black, elongate-ovate, as long as 4th–6th terga combined, with yellow appendages; hypandrium straight, hooked at apex; phallus thin, without denticles; distal epandrial lobe prominent, beaklike, with long fine white setae laterally and 2 short thick black setae at apex; right basolateral epandrial lobe subtriangular, with angular apex; left basolateral epandrial lobe fingerlike, covered with microtrichia; two narrow lobes of surstylus, covered with sparse setae; postgonite very narrow, hook-like; cercus yellow-white, black at margin, rounded, slightly longer than high, denticulate distally, with hooked marginal setae, with 2 long narrow distal processes, each bearing 2 long flat curved black bristles.

Female. similar to male except as noted: face broad, nearly parallel-sided, brownish-grey; fore coxa mostly dirty yellow, with black hairs and setae; hind femur without long ventrals; hind tibia with 1 ventral seta, without tibial organ, dark at extreme tip; tarsi simple. Length (mm): body 5.9, wing 5.9.

ETYMOLOGY. The species is named after the Bulgarian dipterist, Dr. M. Kechev (Plovdiv).

DIAGNOSIS. The new species is peculiar in the Old World *Dolichopus* in having ornamented 5th segment on all tarsi in males. In *Dolichopus kechevi*, the 5th segment is flattened dorsoventrally, bearing long setae laterally (MSSC); whereas the other tarsomeres are simple. A few species of the genus possess long setae on the last segments of either fore or mid tarsi [e.g., Afrotropical *D. afrongulatus* Grichanov, 2004; Palaearctic *D. annulitarsis* Ringdahl, 1920; *D. bonsdorfii* Frey, 1915; *D. planitarsis* Fallén, 1823; *D. plumitarsis* Fallén, 1823; *D. polychaetus* Negrobov, 1973; and *D. setiger* Negrobov, 1973; see Grichanov, 2004; Negrobov et al., 2005; Yang et al., 2011]. Modifications of the last segments of hind tarsus are extremely rare, being only known in the Holarctic *D. remipes* Wahlberg, 1839, which differs from *D. kechevi* in black femora, simple fore and mid tarsi and dorsally pennate segments 3–5 of the hind tarsus. The new species can be distinguished from the Oriental *Dolichopus* species by use of the following key.

KEY TO THE ORIENTAL SPECIES OF *DOLICHOPUS* (MALES ONLY)

This key builds extensively on Yang et al. [2011] but has scattered modifications based on material examined for the present study in various collections, plus the inclusion of Indian and Nepalese species. If that key conflicted with the keys of Olejníček [2002] and Negrobov et al. [2005], then identified material and original species descriptions were checked. *Dolichopus saphirus* Becker, 1922, known from single female is not included in the key.

1. At least one pair of femora mostly black 2
— Femora yellow; at most tips of hind pair black 5
2. All femora black 3
— Only fore femur mostly black 4
3. Lower postocular setae yellow *D. shii* Yang, 1996
— Lower postocular setae black . *D. lepidus* Staeger, 1842
4. Hind tarsomeres 2–4 flattened and broadened; palpus black *D. zhongdianus* Yang, 1998

- Hind tarsus simple; palpus yellow
..... *D. subapicalis* Yang, 1998
5. Lower postocular setae black; lower calypter with yellow cilia *D. yunnanus* Parent, 1930
— Lower postocular setae yellow; lower calypter usually with black cilia 6
6. Some segments of tarsi distinctly modified or plumose 7
— All tarsi simple, with ordinary setae and hairs 9
7. Mid tibia thin, yellow, whitish at apex, with longitudinal narrow dark streak anterodorsally; mid basitarsus plumose laterally; other tarsomeres unmodified; 4.5–5.0 ..
..... *D. plumipes* (Scopoli, 1763)
— Mid tibia and basitarsus simple 8
8. Fifth segment of all tarsi flattened dorsoventrally, bearing long setae laterally; other tarsomeres simple; arista-like stylus simple *D. kechevi* **sp.n.**
— Fore tarsus with apex of basitarsus and segments 2–5 flattened, tarsomeres 2–3 rather wide; mid and hind tarsi simple; arista-like stylus swollen at apex
..... *D. henanus* Yang, 1999
9. Hind femur with fringe of long setiform ventral hairs; at least some of the hairs as long as greatest diameter of femur . 10
— Hind femur without fringe of long hairs; at most with hairs hardly more than half as long as greatest diameter of femur 12
10. Hind femur with black ventral hairs; fore tibia with long apicoventral seta *D. ancistrus* Yang, 1996
— Hind femur with yellow or brownish ventral hairs; fore tibia without long apicoventral seta 11
11. Hind femur with short ventral hairs; costal callus at apex of R_1 moderately long
..... *D. luoshanensis* Yang et Saigusa, 2000
— Hind femur with long ventral hairs; costal callus punctiform *D. zhejiangensis* Yang et Li, 1998
12. Fore tibia without long apicoventral seta 13
— Fore tibia with long fine apicoventral seta 15
13. Wing vein M_{1+2} smoothly rounded and without trace of stubvein
..... *D. nepalensis* Yang, Saigusa et Masunaga, 2004
— Wing with first bend of M_{1+2} more or less rectangular, bearing 1–2 short stubveins 14
14. Wing vein M_{1+2} bearing two short stubveins; cercus regularly tuberculate along distal margin
..... *D. howjingleei* Olejníček, 2002
— Wing vein M_{1+2} bearing one short stubvein; cercus with broad emargination at distal margin between dorsal and ventral tubercles *D. indicus* Parent, 1934
15. Wing with at least first bend of M_{1+2} more or less rectangular, almost always bearing 1–2 short stubveins (rudiment of M_2) 16
— Both bends of M_{1+2} normal, smoothly rounded and without trace of stubvein 23
16. Lower calypter with yellow cilia
..... *D. erroneus* Parent, 1926
— Lower calypter with black cilia 17
17. Cercus with marginal bristles very long (longer than cercus) *D. nitidus* Fallén, 1823
— Cercus with marginal bristles not longer than cercus .. 18
18. Hind tibia with extreme base (basal 1/8) yellow
..... *D. legendrei* Parent, 1930
— Hind tibia with at least basal 1/3 yellow 19
19. Hypandrium hooked apically; basoventral epandrial lobe finger-like and densely pubescent at apex
..... *D. bigeniculatus* Parent, 1926
— Hypandrium not hooked apically; basoventral epandrial lobe not finger-like and pubescent 20

20. Basal half of hind basitarsus yellow
 *D. simulator* Parent, 1926
 — Hind basitarsus entirely black 21
21. Wing vein M_{1+2} bearing two short stubveins
 *D. cuneipennis* Parent, 1926
 — Wing vein M_{1+2} bearing one short stubvein 22
22. Inner basoventral epandrial lobe rounded apically
 *D. meridionalis* Yang, 1996
 — Inner basoventral epandrial lobe acute apically
 *D. exsul* Aldrich, 1922
23. Antenna with postpedicel elongated, 2 times longer than
 wide; arista arising at base of postpedicel
 *D. tewoensis* Yang, 1998
 — Antenna with postpedicel at most 1.5 times longer than
 wide 24
24. Face yellow; hind coxa black
 *D. alticola* Parent, 1930
 — Face silvery-white; hind coxa yellow
 *D. uniseta* Stackelberg, 1929

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