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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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-зеленюшек Dolichopus kechevi sp.n. Он отличается от других видов уплощённым и оперённым последним членником 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.

Olejniček [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 dorsocentral 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 setae; 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 ¼; hind tibia with narrow tibial organ on distal third dorsally (MSSC), with 5 anterodorsals, 5 posterodorsals, 2 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 R1; R1 1/4 length of wing. R2,3 and R4,5 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; 3, 6 — вершина эпандрия.
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anteriorly; M₅₋₆, in distal part with gentle flexion at 1/3, then almost parallel to R₄₋₅, joining costal vein right before wing apex; distal part of M₅₋₆, nearly 1.5 times longer than proximal part; crossvein dm-cu straight, oblique, nearly half as long as apical part of Cu₄₅, (0.48:0.84); posterior wing margin with deep emargination at apex of Cu₄₅, (MSSC); anal vein distinct, almost reaching to wing margin; anal angle right; lower calypter yellow, with black cilia; halter yellow; palpus black.

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; phallos thin, without denticles; distal epandrial lobe prominent, beaklike, with long fine white setae laterally and 2 short thick black setae at apex; right basoventral 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 hooked marginal setae.

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 tubial 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 tarsomers 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. afronagulatus Grichanov, 2004; Palaeartic D. annulitarsis Ringdahl, 1920; D. borsodffi Frey, 1915; D. planitarsis Fallen, 1823; D. plumitarsis Fallen, 1823; D. polychaetius Negrov, 1973; and D. setiger Negrov, 1973; see Grichanov, 2004; Negrov 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 Wahlenberg, 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 Olejnńícek [2002] and Negrov 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. plumpius (Scopoli, 1763)
   — Mid tibia and basitarsus simple ......................  8
8. Fifth segment of all tarsi flattened dorsoventrally, bearing long setae laterally; other tarsomers simple; aristate-like stylus simple D. kechevi sp.n.
   — Fore tarsus with apex of basitarsi and segments 2–5 flattened, tarsomeres 2–3 rather wide; mid and hind tarsi simple; aristate-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
   — Hind femur with short ventral hairs; costal callus at apex of R, moderately long .................. D. luoshanensis Yang et Saigusa, 2000
   — Hind femur with long ventral hairs; costal callus punctiform .................. D. zhejiangensis Yang et Li, 1998
11. Fore tibia without long apicoventral seta ...............  13
   — Fore tibia with long apicoventral seta ...............  15
12. Wing vein M₁₂ smoothly rounded and without trace of stubvein .............. D. nepalensis Yang, Saigusa et Masunaga, 2004
   — Hind femur with last bend of M₁₂ more or less rectangular, bearing 1–2 short stubveins (rudiment of M₅) ........................................  14
   — Hind vein M₁₂ bearing two short stubveins; cecus regularly pubescent along distal margin .................. D. howjingleei Olejnńícek, 2002
13. Wing vein M₁₂ bearing one short stubvein; cecus with broad emargination at distal margin between dorsal and ventral tubercules ............. D. indicus Parent, 1934
   — Wing with first bend of M₁₂ more or less rectangular, almost always bearing 1–2 short stubveins (rudiment of M₅) ........................................  16
   — Both bends of M₁₂ normal, smoothly rounded and without trace of stubvein ..................  23
14. Lower calypter with yellow cilia .................. D. erroensus Parent, 1926
   — Lower calypter with black cilia ........................  17
15. Cercus with marginal bristles very long (longer than cercus) ........... D. nitidus Fallen, 1823
   — Cercus with marginal bristles not longer than cercus.  18
   — Cercus with extreme base (basal 1/2) yellow ............. D. legendrei Parent, 1930
   — Hind tibia with at least basal 1/2 yellow ..........  19
16. Hind tibia with extreme base (basal 1/2) yellow ............. D. bignonicus Parent, 1926
   — Hypandrium hooked apically; basoventral epandrial lobe finger-like and densely pubescent at apex ...........................
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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