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A NEW SPECIES OF THE GENUS *DOLICHOPODA* (ORTHOPTERA: RHAPHIDOPHORIDAE) FROM TEKE PENINSULA, TURKEY

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ABSTRACT

Dolichopoda fortuita sp. nov. from Teke Peninsula in Southern Turkey is a second Turkish species of this genus with the epiphallallic process of male genitalia bifurcate. Description of this species is provided with a brief morphological analysis of the general plan of male genitalia structure.

Key words: *Dolichopoda*, Dolichopodainae, new species, Orthoptera, Rhaphidophoridae, Turkey

НОВЫЙ ВИД РОДА *DOLICHOPODA* (ORTHOPTERA: RHAPHIDOPHORIDAE) С ПОЛУОСТРОВА ТЕКЕ В ТУРЦИИ

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РЕЗЮМЕ

Dolichopoda fortuita sp. nov. с полуострова Теке в Южной Турции является вторым турецким видом этого рода с раздвоенным выростом эпифаллуса в гениталиях самца. Описание этого вида сопровождается кратким морфологическим анализом общего плана строения гениталий самца.

Ключевые слова: *Dolichopoda*, Dolichopodainae, новый вид, Orthoptera, Rhaphidophoridae, Турция

INTRODUCTION

For a long time, the Turkish fauna of *Dolichopoda* Bolivar, 1880 was known from three species: *D. aranea* Bolivar, 1899 and *D. pusilla* Bolivar, 1899 described from the southcentral part of Turkey (Bolivar 1899), and *D. euxina* Semenov, 1901 described from Abkhazia and recorded from northeast part of Turkey (Stshelkanovtzev 1914). However, the most

intensive study of this fauna started only a few years ago, since the description of *D. sbordonii* Di Russo et Rampini, 2006 and *Hellerina lycia* Galvagni, 2006 from Antalya Province (Di Russo and Rampini 2006; Galvagni 2006). Later, *Hellerina* Galvagni, 2006 was synonymized with *Dolichopoda*, and two additional species were described: *D. noctivaga* Di Russo et Rampini, 2007 from the northern part of Turkey and *D. sutini* Rampini et Taylan, 2012 from the southwest part of Turkey (Di Russo et al. 2007; Rampini and Di Russo 2008; Rampini et al. 2012). Currently, the

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genus *Dolichopoda* is represented in Turkey by eight species: seven species mentioned above (Ünal 2015) and a new species described here. All these species possibly belong to the nominotypical subgenus.

MATERIALS AND METHODS

The material studied was collected during a collective field work of the coauthors of this paper in the southwest part of Turkey in 2011. All specimens of the new species were collected on walls of a small dark cave situated in a floodplain forest near the river; name of this cave is unknown. These specimens are deposited at the following institutions: Zoological Institute of RAS, Saint Petersburg, Russia (ZIN); Abant İzzet Baysal Üniversitesi, Bolu, Turkey (AIBÜ). Disposition of spines and spurs on the tibiae are here described with help of a special “armament formula” elaborated for the subfamily Rhabdophorinae and adapted also for Aemodogryllinae (Gorochov 2010, 2012; Gorochov and Storozhenko 2015). The photographs of some morphological structures were made with Leica M216 stereomicroscope.

SYSTEMATICS

Subfamily DOLICHOPODAINAE

Brunner-Wattenwyl, 1888

Genus *Dolichopoda* Bolivar, 1880

Note. This genus is widely distributed in the northern (European) part of Mediterranean from Spain to Azerbaijan and Turkey, and divided into four subgenera (Eades et al. 2015). This division is in need of an examination, because structure of their male genitalia is insufficiently studied, but it is rather complicated and can provide some very important characters for generic and subgeneric taxonomy. For example, Galvagni (2006) established a separate genus (*Hellerina*) for one Turkish species (*D. lycia*), as he possibly considered that this species has very different male genitalia; in reality, he extracted only a part of the plica dorsalis (mainly membranous dorsal fold of male genitalia) without epiphallus (epiphallus in *Dolichopoda* is connected with tenth tergite by sclerotized ribbons and more difficult for extracting) but recorded this part as “epiphallus”. Some other authors often described and illustrated the epiphallus only. However, plica dorsalis has different lobes,

sclerotized and semisclerotized areas, denticles, etc.; this part of genitalia gives additional useful characters which (together with epiphallus also belonging to plica dorsalis) may help us to find a unique set of characters for each subgenus of *Dolichopoda*. It is for this reason that in the description of a new species, a brief morphological analysis of the general plan of male genitalia is given.

Dolichopoda (Dolichopoda) fortuita sp. nov.

(Figs. 1A–D, 2A–F, 3A)

Etymology. This species name is the Latin word “fortuita” (occasional).

Type material. *Holotype* – male, TURKEY: Antalya Prov. (Teke Peninsula), Finike Distr., cave near bank of Akçay River not far from Arifköy Vill., 700 m, 36°30.788'N, 30°01.721'E, 8 September 2011, A. Gorochov & M. Ünal (ZIN). *Paratypes*: 4 males, 3 females, 2 nymphs; same data as for holotype (ZIN and AIBÜ).

Description. *Male* (holotype). Body rather large and with very long legs. Colouration almost uniformly pale but with following marks: eyes dark brown; rostral tubercles brown; anterior part of head under antennae as well as genae, scapes and palpi yellowish; thorax with light greyish brown stripes along anterior edge of pronotum and along posterior edge of all thoracic tergites, and with yellowish rest parts of these tergites; legs with yellowish tibiae and tarsi; sternites also yellowish; cerci with greyish brown proximal part. Head somewhat concave in region of rostrum; eyes slightly reduced (their height barely smaller than width of antennal cavity); rostral tubercles strongly reduced, consisting of pair of small folds situated near each other and widest in middle part of their height (Fig. 1A); width of scape approximately 3.5 times as great as distance between medial edges of antennal cavities; proximal segment of antennal flagellum elongate, clearly longer than pedicel and slightly shorter than scape. Pronotum weakly transverse, with almost straight dorsal and ventral edges in profile, with rather low lateral lobes, and with slightly concave and slightly convex anterior and posterior edges of disc, respectively. Other tergites almost indistinguishable from each other (except tenth tergite), with slightly convex or straight posterior edge and more or less rounded ventral edges. Legs without distinct spines and spinules on femora; armament of tibiae and hind basitarsus – d2a, ve, ve, vi, ve, vi, ve,

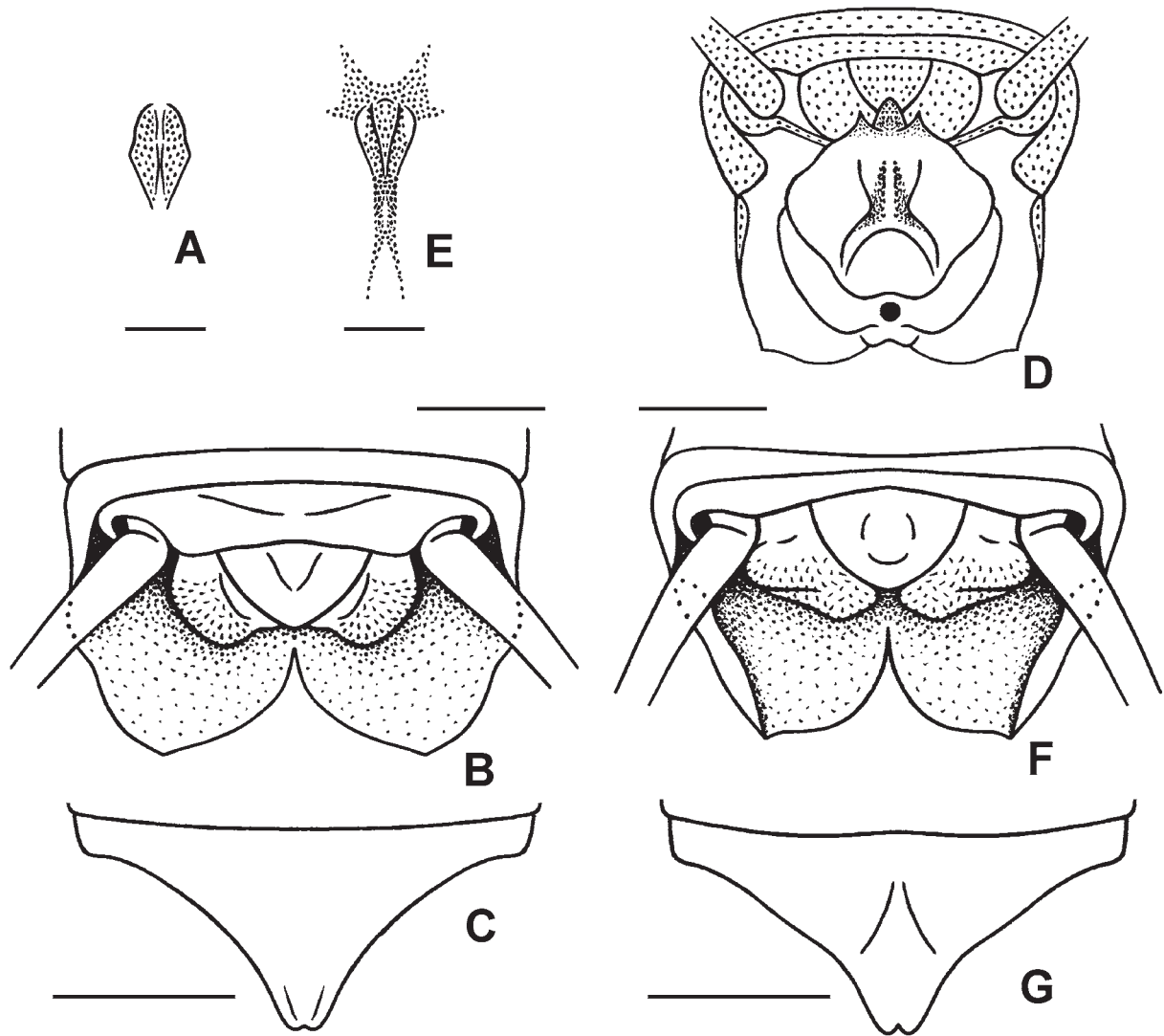


Fig. 1A–G. *Dolichopoda* Bol.: A–D – *D. fortuita* sp. nov.; E–G – *D. lycia* (Galv.) from Gedelme (= Gedelma) Cave. Rostral tubercles and darkened parts of head around them (A, E); male abdominal apex without genitalia from above and slightly behind (B, F); same but with genitalia and from behind and slightly above, schematically (D); female genital plate from below (C, G). Scale bars: 0.5 mm for figures A and E; 1 mm for figures B, C, F and G.

vi, v~2, v2a / dia (d2a), vi, ve, v~2, vi, ve, v~2, v2a / d16e-18i (18e-20i), d2sa, 6a (hind basitarsus without spines and spurs; inner and outer dorsal spurs of hind tibia longest but equal to each other in length; hind basitarsus approximately three times as long as these spurs). Tenth abdominal tergite with wide but very short posteromedian projection widely truncate posteriorly; epiproct simple, triangular and with convex lateral edges; paraproct almost arcuate in dorsal view, lacking distinct lateral lobe and provided with numer-

ous small denticles (Fig. 1B); genital plate large but not long, without styles, with rather deep and narrow posteromedian notch, and with almost angular distal part of lateral lobes (Fig. 1B).

Genitalia of tettigonioid type (Gorochov 2014, 2015) but strongly modified: dorsal fold (= plica dorsalis) in shape of large and tongue-like lobe with partly membranous surfaces (Fig. 1D); dorsal half of this lobe with rather large median convexity in proximal half; anterior part of this convexity with mod-

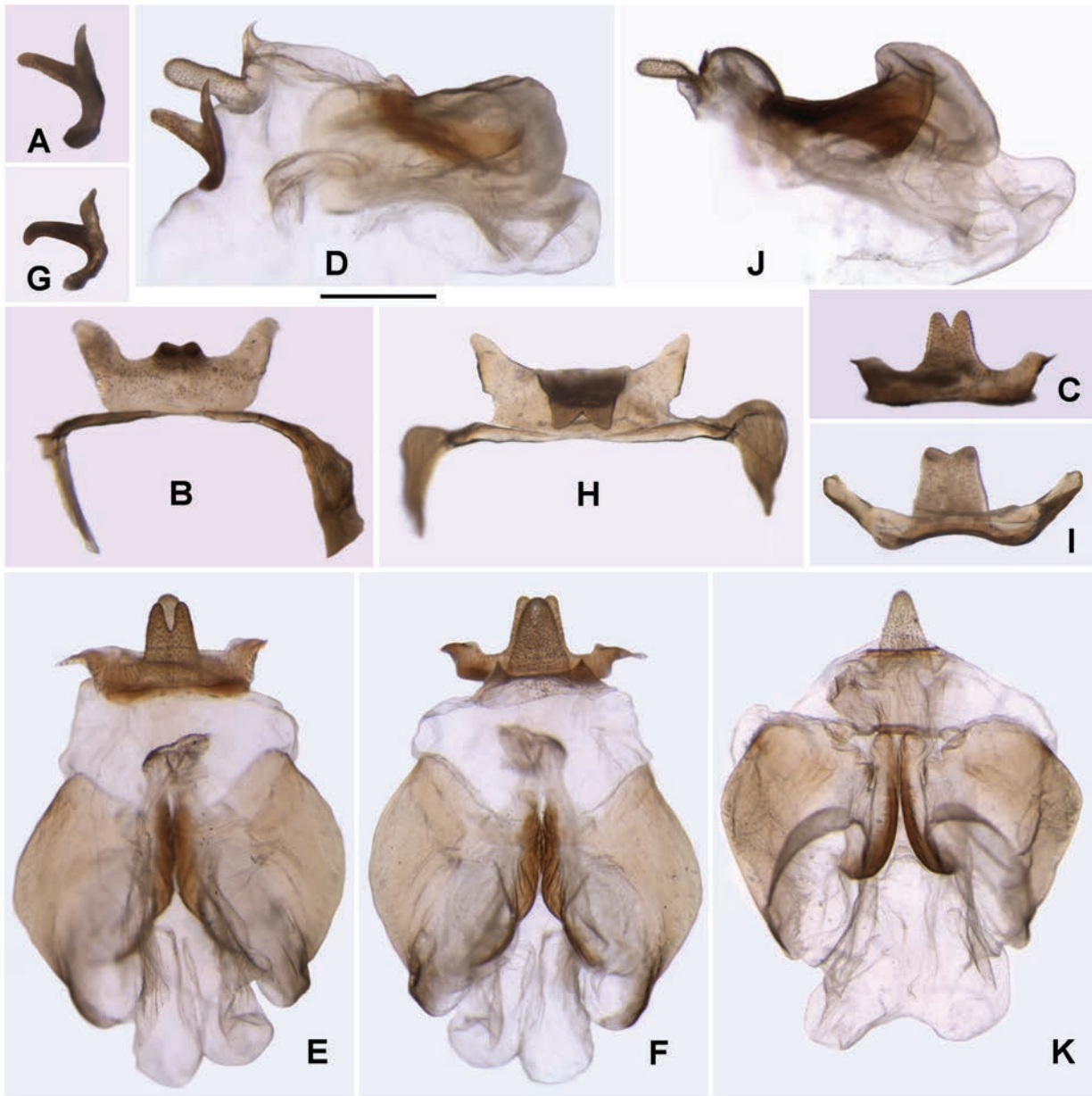


Fig. 2A–K. *Dolichopoda* Bol., male genitalia: A–F – *D. fortuïta* sp. nov.; G–K – *D. lycia* (Galv.) from Gedelme Cave. Epiphallus from side (A, G), in front (B, H) and from below (C, I); plica dorsalis from side (D), from below (E) and from above (F); same without epiphallus from side (J) and from above (K). Scale bar 1 mm.

erately transverse sclerotized plate (= epiphallus) having flattened and deeply bifurcate median process covered by numerous very small denticles (in rest position, this process directed towards anus); proximal (ventral) edge of epiphallus articulated with a pair of transverse sclerotized ribbons connecting it with ventrolateral parts of tenth abdominal tergite (as in Figs.

1D, 2A–E); upper part of above-mentioned convexity (near epiphallus) with semisclerotized structure (= pseudepiphallus) consisting of transverse plate (with pair of almost spine-like dorsal projections) and of median finger-like process directed forwards/upwards and having numerous very short setae; this process of pseudepiphallus covering distal part of



Fig. 3A, B. *Dolichopoda* Bol., ovipositor from side: A – *D. fortuita* sp. nov.; B – *D. lycia* (Galv.) from Gedelme (= Gedelma) Cave. Scale bars 1 mm.

epiproct in rest position (as in Figs. 1D, 2D, F); more distal parts of dorsal half of plica dorsalis with rather deep median longitudinal concavity having pair of narrow longitudinal sclerotized stripes, with pair of partly semisclerotized lateral folds almost contacting with each other in middle part, and with membranous apical fold looking as slightly bilobate sac (as in Figs. 1D, 2D–F); genital cavity small, provided with distinct gonopore located under plica dorsalis; ventral fold of genitalia (= plica ventralis) consisting of short membranous lobes situated near gonopore (laterally and ventrally); lateral lobes of this fold rather narrower (lower), and all lobes of plica ventralis looking as folds of inner (dorsal) membrane of genital (= subgenital) plate (Fig. 1D).

Variations. Pronotal disc sometimes with clearly larger median part of darkened (light greyish brown) stripe situated along anterior edge; this stripe sometimes crossed by very light (almost whitish) median line; armament of legs insignificantly varied.

Female. General appearance as in males, but tenth abdominal tergite with shorter posteromedian projection, and paraproct more simple (almost triangular in profile) and without denticles; genital plate

and ovipositor almost indistinguishable from those of *D. lycia* (for comparison see Figs. 1C, G, 3A, B).

Length (mm). Body: male 12–18, female 13–16; pronotum: male 3.3–3.5, female 3.5–3.7; fore femur: male 15.5–17, female 16–16.5; hind femur: male 24–26, female 25–26; hind tibia: male 32–35, female 33–34.5; hind basitarsus: male 5.5–5.9, female 5.5–5.7; ovipositor 13.5–14.

Comparison. The new species is most similar to *D. lycia* in a bifurcate process of the epiphallus, but it is distinguished from the latter species by less distinct lateral ocelli and the rostral tubercles widest in the middle part (in *D. lycia*, these tubercles are widest in the upper part; see Fig. 1A, E), arcuate (in dorsal view) male paraprocts lacking distinct lateral lobes (see Fig. 1B, F), a clearly narrower and almost straight epiphallic process having the posteromedian notch much deeper (in *D. lycia*, this process is with distinctly curved apical part; see Fig. 2A–D, G–I), more distinct (larger and almost spine-like) angular dorsolateral projections of pseudepiphallus (see Fig. 2D, F, J, K), and wider (higher) medial sclerotized stripes situated in the dorsomedian concavity of plica dorsalis (see Fig. 2D, F, J, K).

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