

РОССИЙСКАЯ АКАДЕМИЯ НАУК
Институт аридных зон ЮНЦ

RUSSIAN ACADEMY OF SCIENCES
Institute of Arid Zones SSC

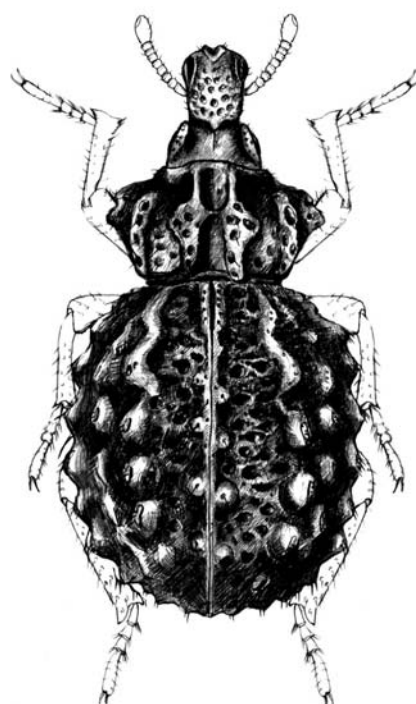


Кавказский Энтомологический Бюллетень

CAUCASIAN ENTOMOLOGICAL BULLETIN

Том 8. Вып. 1

Vol. 8. No. 1



Ростов-на-Дону
2012

Systematics of the genus *Katangaia* Parent, 1933 (Diptera: Dolichopodidae)

Систематика рода *Katangaia* Parent, 1933 (Diptera: Dolichopodidae)

I.Ya. Grichanov
И.Я. Гричанов

All-Russian Institute of Plant Protection, Podbelskiy roadway, 3, St. Petersburg, Pushkin 196608 Russia. E-mail: grichanov@mail.ru
Всероссийский институт защиты растений, шоссе Подбельского, 3, Санкт-Петербург – Пушкин 196608 Россия

Key words: Diptera, Dolichopodidae, *Katangaia*, Afrotropical Region, Tanzania, new species, key.

Ключевые слова: Diptera, Dolichopodidae, *Katangaia*, Тропическая Африка, Танзания, новый вид, определитель.

Abstract. The genus *Katangaia* Parent, 1933 is reviewed. The systematic position and characters of this Afrotropical genus are discussed. It comprises four species including a new species *Katangaia tanzaniensis* sp. n. from Tanzania. A check list of species of this genus and a revised key to Afrotropical species are provided. The following recombinations are also proposed: *Sybistroma leptocercus* (Stackelberg, 1949: 682), **comb. n.** (from *Hercostomus*), *Sybistroma paradoxopterus* (Stackelberg, 1949: 681), **comb. n.** (from *Hercostomus*), *Katangaia octaviana* (Grichanov, 2004), **comb. n.** (from *Polymedon*).

Резюме. Приведен обзор рода *Katangaia* Parent, 1933. В него включено четыре вида, в т. ч. *Katangaia tanzaniensis* sp. n. из Танзании. Составлены каталог описанных видов рода и новый определитель видов тропической Африки. Предложены новые комбинации: *Sybistroma leptocercus* (Stackelberg, 1949: 682), **comb. n.** (из *Hercostomus*), *Sybistroma paradoxopterus* (Stackelberg, 1949: 681), **comb. n.** (из *Hercostomus*), *Katangaia octaviana* (Grichanov, 2004), **comb. n.** (из *Polymedon*).

Introduction

Katangaia was originally described with the single Afrotropical species, *K. longifacies* Parent, 1933, and assigned to the subfamily Rhaphiinae [Parent, 1933]. Negrobov [1980] and Ulrich [1981] considered *Katangaia* to be a dolichopodine genus. Grichanov [2004] described two new related species, synonymized *Katangaia* with Neotropical *Polymedon* Osten-Sacken, 1877, and recognized the latter as a valid genus independent of *Tachytrechus* Haliday, 1851.

Recently, Brooks [2005] studied type species of almost all then known dolichopodine genera, associated *Polymedon* with *Tachytrechus*, and doubted placement of *Katangaia* within the subfamily. Yang et al. [2006] retained the genus in Dolichopodinae.

In this paper a new species *Katangaia tanzaniensis* sp. n. from Tanzania is described. The systematic position and characters of this Afrotropical genus are discussed. A check list of species of *Katangaia* and a revised key to species are provided. The holotype and paratypes of a new species are deposited in the collection of the Zoological Museum of the University of Copenhagen, Denmark (ZMUC). Morphological terminology mainly follows Cumming and Wood [2009]. Body length is measured from the base of the antenna to the tip of abdominal segment 7. 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.

The following abbreviations are used in this paper: HT – holotype; PT – paratype; NMSA – Natal Museum, Pietermaritzburg, South Africa; RMCA – Royal Museum for Central Africa, Tervuren, Belgium; TAU – Department of Zoology, Tel Aviv University, Israel.

Genus *Katangaia* Parent, 1933

Katangaia Parent, 1933: 12.

Type species: *Katangaia longifacies* Parent, 1933 (monotypy).

Diagnosis. The following character states place *Katangaia* in the Dolichopodinae (see Brooks [2005]): scape setose dorsally; mid and hind femur with 1 or more anterior or anterodorsal preapical setae, rarely absent in male; male abdominal tergum 6 bare, rarely with setae on lateral margin; male segment 7 bare, forming a peduncle; hypopygium folded under abdomen.

Brooks [2005] mentioned the following characters of *Katangaia* that may place the genus outside the subfamily: lack of a distinct pedicel condyle, partially setose male abdominal tergum 6, lack of anterior preapical setae on the mid femur and strong external bristle on the hind coxa, presence of the large male cercus, which has claw-like medial projections (dorsal lobe of surstylus in Grichanov [2004]). However, he noted in his subfamily description that these characters may vary within dolichopodine genera and be sexually dimorphic. *Katangaia* is apparently an example of such variation. Describing a new species in this paper, I noted some more or less strong external bristles on the hind coxa, weak anterodorsal seta on the mid femur and bare male abdominal tergum 6. Mid femur of *K. mulanjensis* [Grichanov, 2004] was described with anterior row of 7–8 short hairs in third quarter in addition to bare tergum 6. Various modified inner cercal projections were described, e. g., in many species of *Pseudoparaclius* Grichanov, 2006 and in some species of *Apelastoneurus* Grichanov, 2006. Following other authors, Brooks [2005] wrote on a resemblance of *Katangaia* to *Tachytrechus*, particularly in the structure of the clypeus, which is elongate and rounded below, and the presence of a strong basiventral seta on the hind basitarsus.

A remarkable antenna with a swollen scape, reduced pedicel, apical stylus bearing apical lamella is very close to that in some species of *Sybistroma* Meigen, 1824 sensu Brooks. The latter genus is extremely variable in the morphology of antenna, wing, legs and genital appendages. Many Central Asian species of *Hercostomus* Loew, 1857 (e. g., Stackelberg [1949]) share characters of *Sybistroma* and nominotypical *Hercostomus longiventris* lineage (*Hercostomus* sensu stricto). At least two of those species described from Tajikistan were apparently overlooked and must be recombined:

Sybistroma leptocercus (Stackelberg, 1949: 682), **comb. n.** (*Hercostomus*);

Sybstroma paradoxopterus (Stackelberg, 1949: 681), **comb. n.** (*Hercostomus*).

Katangaia possesses also the following characters of generic importance: frons is low, antennae are positioned at the top of head; M_{1+2} has weak flexion at basal 2/5 of its distal part, joining costal vein just before wing tip.

This genus comprises four species endemic for continental Afrotropics:

Katangaia ethiopiensis (Grichanov, 2004)

Polymedon ethiopiensis Grichanov, 2004: 166. HT and 2 PT [TAU]. Type locality: Ethiopia: Kefa, Jimma, 55 km S.

Katangaia ethiopiensis (Grichanov, 2004); Yang et al., 2006: 180.

Distribution. Ethiopia.

Katangaia longifacies Parent, 1933

Katangaia longifacies Parent, 1933: 12; Brooks, 2005: 133. HT and 1 PT (as "cotype") [RMCA]. Type locality: [DR Congo:] Katanga, Lukafu.

Polymedon longifacies (Parent, 1933), nec Becker, 1922 [Grichanov, 2004: 13].

Polymedon octavianus Grichanov, 2004: 170 (nom. nov.), **syn. n.** [see Brooks, 2005: 133; Yang et al., 2006: 180].

Katangaia octaviana (Grichanov, 2004), **comb. n.**

Distribution. DR Congo, ? Tanzania.

Remark. Grichanov [2004] recorded a female of *K. longifacies* from Tanzania. Nevertheless, its collection site at Usambara Mts. is much closer to the type locality of *K. tanzaniensis* than to that of *K. longifacies*; the record must be confirmed.

Katangaia mulanjensis (Grichanov, 2004)

Polymedon mulanjensis Grichanov, 2004: 168. HT and 5 PT [NMP]. Type locality: Malawi: Mulanje Mnt., Likabula river valley.

Katangaia mulanjensis (Grichanov, 2004); Yang et al., 2006: 180.

Distribution. Malawi.

Katangaia tanzaniensis Grichanov, **sp. n.**

(Color plate 19: fig. 1–6)

Material. Holotype ♂, Tanzania, Iringa Region, Udzungwa scarp nr Chita, 8°08'28"S / 36°23'49"E, 17–18.11.2009, T. Pape, S.A. Marshall [ZMUC]. Paratypes 8♂, 6♀, the same label [ZMUC].

Description. Male. General coloration of body bluish-black. Vertex strongly excavated on either side of ocellar tubercle. Frons reduced to a small patch on top of head above antennal sockets. One very short vertical halfway between ocellar tubercle and eye margin; one very short postvertical far from postocular row; pair of strong ocellar bristles present. Several upper postocular setae black; lateral postoculars reddish-yellow; ventral postcranium with several yellow setae. Eyes with microscopic hairs, face bare. Face black, brownish-yellow at apex, almost parallel-sided, 3 times as wide as height of postpedicel; clypeus apically beak-like, projecting by 1/5 of eye height below margin of eyes. Antenna 2 times longer than height of eye, mostly yellow; scape swollen, vase-like, with several short hairs dorsally; pedicel very small, almost bare; postpedicel blackish except base, conoid, 1.5 times as long as high, slightly flattened laterally; stylus mostly black, bare, strictly apical, 1-segmented, with broad flag in distal 1/6; this flag rounded apically, narrowly white along distal margin. Length ratio of scape to pedicel to postpedicel to stylus to flattened part of stylus, 17 : 7 : 13 : 150 : 22. Palpus and proboscis black, with short black hairs; palpus small, elongate-ovate.

Mesonotum black, brownish pollinose; pleura bluish-

black, grey pollinose. Two pairs of strong posterior and several short hairlike anterior dorsocentral setae, 2 rows of microscopic acrostichals. Proepisternum with 1 strong black seta below and numerous long white hairs above and below; pleural surface in front of posterior spiracle (anepimeron) bare. Scutellum with 2 strong setae and 2 microscopic lateral hairs.

Legs mostly yellow; mid and hind coxae black-brown; knees brownish; fore and mid tarsi black from tip of basitarsus; hind tarsus black except base. Fore and mid coxae with brown hairs anteriorly and several black setae apically; hind coxa with several fine black setae in lower half. All tarsi simple, with strong claws. Fore femur with few long dorsal setae at base. Fore tibia slightly thickened at apex, with 2 anterodorsal and 2 posterodorsal very short setae; fore basitarsus with 1–2 very short basiventral setae. Fore length ratio (from tibia to tarsomere 5): 105 : 46 : 28 : 16 : 12 : 15. Mid femur flattened ventrally in distal half, with several elongate fine dorsal setae at base, several fine ventral setae in 2nd quarter, row of 7–10 fine anterodorsal setae in distal half and 1 fine posteroventral subapical seta. Mid tibia with 3 anterodorsal, 2 posterodorsal, 1 short ventral and 5 apical setae. Mid length ratio (from tibia to tarsomere 5): 150 : 70 : 43 : 25 : 17 : 20. Hind femur with 3–4 anterodorsal setae in 3rd quarter. Hind tibia with 3 anterodorsal, 3 posterodorsal, 2 ventral, 3 apical setae. Hind basitarsus with 1 basoventral seta. Hind length ratio (from tibia to tarsomere 5): 170 : 47 : 68 : 38 : 18 : 21.

Wing almost entirely brownish, elongate, at base nearly as wide as at middle. Costa simple. R_1 0.35 times as long as wing. R_{2+3} and R_{4+5} almost straight, slightly divergent. Ratio of part of costa between R_{2+3} and R_{4+5} to this between R_{4+5} and M_{1+2} , 25 : 12. M_{1+2} with weak flexion at basal 1/3 of its distal part, joining costal vein just before wing tip. Distal part of M_{1+2} 1.6 times as long as proximal part. Crossvein *dm-cu* weakly sinuate, almost equal in length to apical part of CuA_1 . Anal vein distinct, not reaching to wing margin; anal lobe large; anal angle right. Lower calypter yellow, with black setae. Halteres yellow.

Abdomen (somewhat shrunken in all specimens) bluish-black, with black hairs and short marginal setae. 6–7th segments black, bare; 8th segment bluish-black, with short black hairs. Epandrium black, large. Hypandrium comparatively narrow, swollen at base, fused to epandrium, with 2 long narrow arms of subequal length. Aedeagus narrow, simple. Distoventral epandrial lobe broad, prominent, subtriangular, fused to epandrium, with two short apical setae. Surstylus and postgonite strongly reduced, similar in shape to those in other species. Cercus black, large, bisegmented, crenulate along margins, with suboval lobes; ventral (proximal) lobe 2 times larger than dorsal (distal) lobe, bearing long hooked setae; dorsal lobe of cercus suboval, 2 times longer than wide, with long hooked cilia distally; inner cercal arm large and broad, strongly sclerotized, fused to cercal base, having 4 thin hooked claw-like projections at apex.

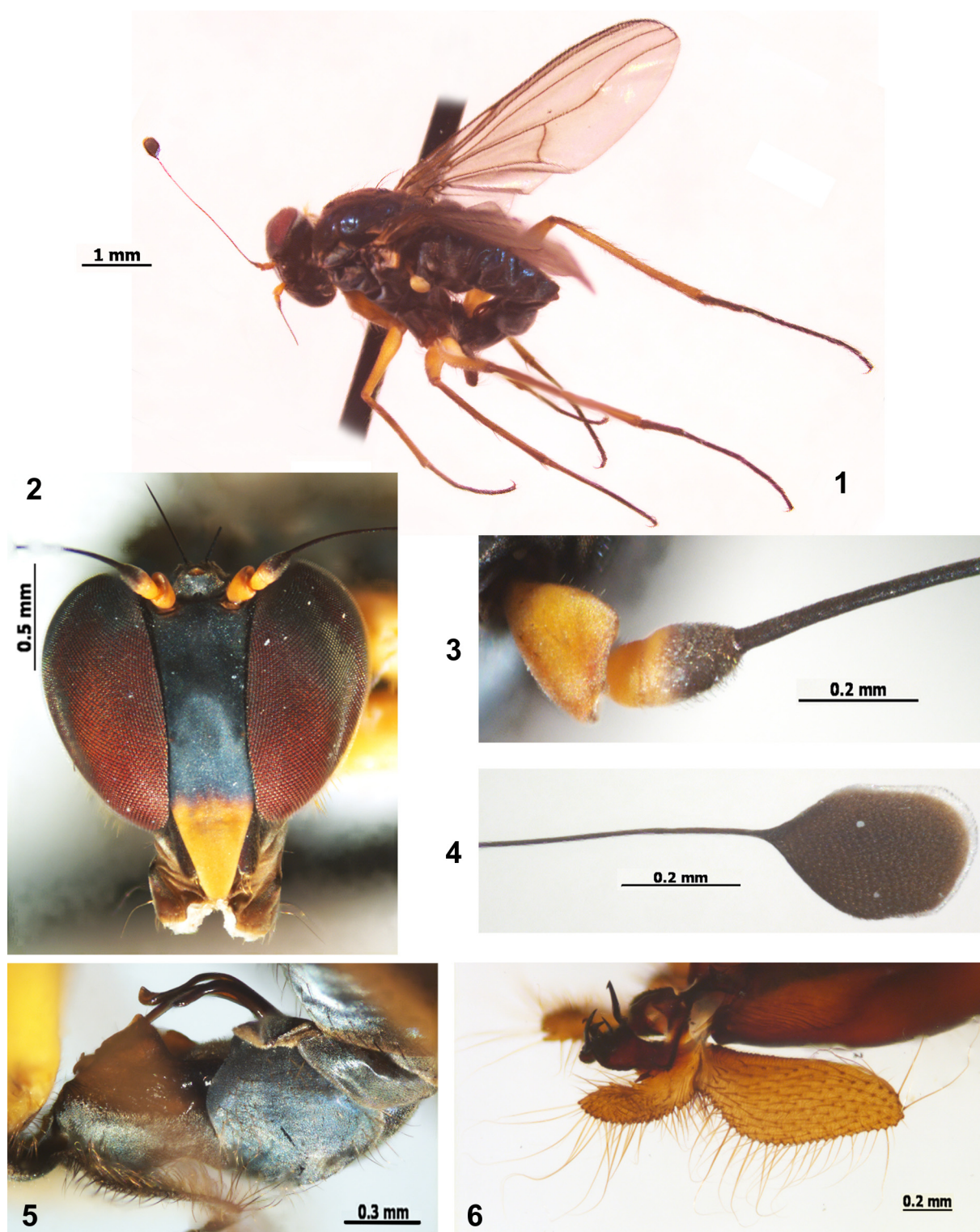
Female similar to male except as follows. Face almost entirely black, brownish at extreme apex. Antenna simple, mostly reddish-black, 1.3 times longer than eye height; postpedicel orange at extreme base; pedicel with ring of distinct setulae; stylus distinctly bisegmented; length ratio of scape to pedicel to postpedicel to 1st and 2nd stylomeres, 15 : 5 : 15 : 9 : 84. Femora partly brown along dorsal side, tibiae usually black dorsally and laterally; tarsi entirely black; mid femur with weaker setae. Abdomen having 5 visible segments; hemitergites of last segment each with 5 short thick pointed spines of equal length; anal plate short and broad; cercus small, rounded, with bundle of setae.

Length (mm): body 3.9 (female) – 4.3 (male), antenna 1.6 (female) – 2.7 (male), wing 4.9/1.6, hypopygium 2.

Etymology. The species is named for the country of origin.

Diagnosis. The new species is close to *K. ethiopiensis* (see key below). Wing almost entirely brownish; wing vein *dm-cu* at most as long as distal part of CuA_1 ; apical flag on male stylus rounded, narrowly white along distal margin; epandrial lobe subtriangular; male cercus bilobate.

Distribution. Tanzania.

Fig. 1–6. *Katangaia tanzaniensis* Grichanov, **sp. n.**

1 – male habitus; 2 – male head; 3 – male antennal base; 4 – male antennal apical flag; 5 – hypopygium; 6 – male cercus.

Рис. 1–6. *Katangaia tanzaniensis* Grichanov, **sp. n.**

1 – внешний вид самца; 2 – голова самца; 3 – основание усика самца; 4 – вершинная лопасть усика самца; 5 – гипопигий; 6 – церка самца.

Key to Afrotropical species of *Katangaia*

1. Wing vein *dm-cu* 1.5 times longer than distal part of *CuA*₁; male stylus slightly thickened apically, without apical flag; male cercus undivided, with long and narrow basiventral lobe; 5.5 mm. *K. longifacies*
- Wing vein *dm-cu* at most as long as distal part of *CuA*₁; male stylus with broad flag in distal 1/6; male cercus bilobate, with small rounded basal lobe. 2
2. Wing practically hyaline, inconspicuously darkened at *dm-cu* and flexion of *M*₁₊₂; male antennal stylus entirely black; epandrial lobe subtriangular; 5–5.5 mm. *K. mulanjensis*
- Wing almost entirely brownish; apical flag on stylus partly white; epandrial lobe ovate or subtriangular. 3
3. Apical flag on stylus 1.5 times longer than wide, white in basal 1/3; epandrial lobe ovate; 5.1–5.4 mm. *K. ethiopiensis*
- Apical flag on stylus rounded, narrowly white along distal margin; epandrial lobe subtriangular; 3.9–4.3 mm. *K. tanzaniensis*

Acknowledgments

I would like to thank Dr. Thomas Pape (ZMUC) for the loan of specimens. This paper was partly supported by the grant of the Russian Foundation for Basic Research No 11-04-01051-a (Oleg P. Negrobov, principal investigator).

References

- Brooks S.E. 2005. Systematics and phylogeny of the Dolichopodinae (Diptera: Dolichopodidae) // *Zootaxa*. 857: 1–158.
- Cumming J.M., Wood D.M. 2009. Adult morphology and terminology [Chapter] 2 // *Manual of Central American Diptera* (Brown B.V., Borkent A., Cumming J.M., Wood D.M., Woodley N.E., Zumbado M.A. eds.). Volume 1. Ottawa: NRC Research Press: 9–50.
- Grichanov I.Ya. 2004. Review of Afrotropical Dolichopodinae (Diptera: Dolichopodidae) // *Plant Protection News Suppl. St. Petersburg: VIZR RAAS*: 1–244.
- Negrobov O.P. 1980. A system of Dolichopodinae of the world (Diptera, Dolichopodidae) // *Ekologicheskie i Morfologicheskie Osnovy Sistematiki Dvukrylykh Nasekomykh* (Kotekar V.S. ed.). Leningrad (1979): 66–69. [in Russian, English translation published in 1985].
- Parent O. 1933. Etude sur les diptères dolichopodides exotiques du Musée du Congo (Tervuren) // *Revue de Zoologie et de Botanique Africaines*. 24: 1–49.
- Stackelberg A.A. 1949. Species of the genus *Hercostomus* Lw. (Diptera, Dolichopodidae) of middle Asiatic fauna // *Trudy Zoologicheskogo Instituta. Akademiya Nauk SSSR*. 8(4): 669–687.
- Ulrich H. 1981. Zur systematischen Gliederung der Dolichopodiden (Diptera) // *Bonner Zoologische Beiträge*. 1980. 31: 385–402.
- Yang D., Zhu Y.J., Wang M.Q., Zhang L.L. 2006. World catalog of Dolichopodidae (Insecta: Diptera). Beijing: China Agricultural University Press. 704 p.

References

- Brooks S.E. 2005. Systematics and phylogeny of the Dolichopodinae (Diptera: Dolichopodidae). *Zootaxa*. 857: 1–158.
- Cumming J.M., Wood D.M. 2009. Adult morphology and terminology [Chapter] 2. *In*: Manual of Central American Diptera. Volume 1. (B.V. Brown, A. Borkent, J.M. Cumming, D.M. Wood, N.E. Woodley, M.A. Zumbado eds). Ottawa: NRC Research Press: 9–50.
- Grichanov I.Ya. 2004. Review of Afrotropical Dolichopodinae (Diptera: Dolichopodidae). St. Petersburg: VIZR RAAS: 244 p.
- Negrobov O.P. 1980. A system of Dolichopodinae of the world (Diptera, Dolichopodidae). *In*: *Ekologicheskie i morfologicheskie osnovy sistematiki dvukrylykh nasekomykh* [Ecological and morphological bases in systematics of Diptera]. 1979. Leningrad: 66–69 (in Russian).
- Parent O. 1933. Etude sur les diptères dolichopodides exotiques du Musée du Congo (Tervuren). *Revue de Zoologie et de Botanique Africaines*. 24: 1–49.
- Stackelberg A.A. 1949. Species of the genus *Hercostomus* Lw. (Diptera, Dolichopodidae) of middle Asiatic fauna. *In*: *Trudy Zoologicheskogo Instituta. Akademiya Nauk SSSR* [Proceedings of the Zoological Institute. Academy of Sciences of the USSR]. Vol. 8. No. 4. Leningrad: 669–687 (in Russian).
- Ulrich H. 1981. Zur systematischen Gliederung der Dolichopodiden (Diptera). *Bonner Zoologische Beiträge*. 1980. 31: 385–402.
- Yang D., Zhu Y.J., Wang M.Q., Zhang L.L. 2006. World catalog of Dolichopodidae (Insecta: Diptera). Beijing: China Agricultural University Press. 704 p.