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NEW AND LITTLE-KNOWN SPECIES OF THE GENUS *URODOLICHUS* LAMB, 1922 (DIPTERA: DOLICHOPODIDAE)

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Urodolichus villosiceps sp. n. is described from New Guinea Island (Papua Province of Indonesia and Papua New Guinea). Three new combinations are proposed: *Nematoproctus iulilamellatus* Wei, 2006 = *Urodolichus iulilamellatus* (Wei, 2006), **comb. n.**, *Nematoproctus javanus* de Meijere, 1916 = *Urodolichus javanus* (de Meijere, 1916), **comb. n.**, *Nematoproctus kubani* Olejníček, 2002 = *Urodolichus kubani* (Olejníček, 2002), **comb. n.**; latter species is recorded from Cambodia for the first time. *Urodolichus keiseri* (Hollis, 1964) is firstly recorded from India, Malaysia, Philippines and Vietnam. Key to the Australasian and Oriental species of *Urodolichus* is provided.

KEY WORDS: Diptera, Dolichopodidae, *Urodolichus*, taxonomy, new species, new combinations, India, Cambodia, Vietnam, Malaysia, Indonesia, Papua New Guinea.

И. Я. Гричанов*, Р. С. Капеллари, Д. Дж. Бикел. Новые и малоизвестные виды рода *Urodolichus* Lamb, 1922 (Diptera: Dolichopodidae) // Дальневосточный энтомолог. 2016. N 310. С. 1-10.

С острова Новая Гвинея (индонезийская провинция Папуа и Папуа Новая Гвинея) описан *Urodolichus villosiceps* sp. n. Предложены новые комбинации: *Nematoproctus iulilamellatus* Wei, 2006 = *Urodolichus iulilamellatus* (Wei, 2006), **comb. n.**, *Nematoproctus javanus* de Meijere, 1916 = *Urodolichus javanus* (de Meijere, 1916), **comb. n.**, *Nematoproctus kubani* Olejníček, 2002 = *Urodolichus kubani* (Olejníček, 2002), **comb. n.**; последний вид впервые найден в Камбодже. *Urodolichus keiseri* (Hollis, 1964) впервые приводится для Индии, Малайзии, Филиппин и Вьетнама. Дана определительная таблица видов рода *Urodolichus* Ориентальной области и Новой Гвинеи.

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INTRODUCTION

The genus *Urodolichus* includes five Afrotropical species (Seychelles and Madagascar), one Oriental species (Sri Lanka) and one Australasian species (the island of New Guinea). Adults are medium-sized dolichopodids with the following combination of characters: antenna short, positioned at upper 1/4 of head, arista-like stylus dorsal; thorax with mesonotum with biseriate acrostichal setae, lacking flattened posterior area; legs with hind femur lacking true anterior preapical seta; hind coxa with exterior seta at basal 1/4, hind tarsomere 1 much shorter than tarsomere 2; wing vein M_1 beyond crossvein $dm-m$, usually with distinct sinuation near basal 1/3; and male segment 7 rather long (Grichanov & Brooks, in press).

Key to the Afrotropical species was provided by Grichanov (1998) and key to the three Seychelles species was given by Meuffels & Grootaert (2009).

MATERIAL AND METHODS

The holotype of the new species and other material examined are housed at the Zoological Museum of Moscow State University, Moscow, Russia (MZUM); Australian Museum of Sydney, Australia (AMS); Anshun Centre for Disease Prevention and Control, Guizhou, China (CDPC); Collection of the California Academy of Sciences, San Francisco, USA (CAS). The syntypes of *Urodolichus caudatus* Lamb, 1922, *U. gracilis* Lamb, 1922, and *U. porphyropoides* Lamb, 1922 have been studied from digital images provided by the Natural History Museum, London, United Kingdom (BMNH). The holotype of *Nematoproctus kubani* Olejníček, 2002, has been also studied from digital images provided by the Moravian Museum Brno, Czech Republic (MMB). The holotype of the new species has been studied and photographed with a ZEISS Discovery V-12 stereo microscope and an AxioCam MRc5 camera. Morphological terminology and abbreviations follow Cumming & Wood (2009). Body length is measured from the base of the antenna to the tip of genital capsule. Wing length is measured from the base to the wing apex. Male genitalia were macerated in 10% KOH. The figures showing the hypopygium in lateral view (Figs. 4-6) are oriented as it appears on the intact specimen, with the morphologically ventral surface of the genitalia facing up, dorsal surface down.

TAXONOMY

Family Dolichopodidae

Genus *Urodolichus* Lamb, 1922

Urodolichus Lamb, 1922: 394.

Type species: *Urodolichus porphyropoides* Lamb, 1922, by original designation.

NOTES. The three species newly combined below with *Urodolichus* were originally described in the genus *Nematoproctus*, presumably on the basis of the long cerci. The genera *Urodolichus* and *Nematoproctus* have been assigned to the Rhamphinae (Pollet *et al.*, 2004; Yang *et al.*, 2006; Naglis & Grootaert, 2011), but they are not necessarily sister groups, and the subfamily still deserves a more detailed study, mostly on a phylogenetic background. Grichanov & Brooks (in press) consider *Urodolichus* as a genus *incertae sedis* within the family Dolichopodidae. *Urodolichus* and *Nematoproctus* can be separated by the characters given in the key below and by the following features related to the male postabdomen. The male segment 7 in *Nematoproctus* is retracted, bare and hidden under preceding segments, while exposed, setose and forming a short peduncle for the hypopygium in *Urodolichus*. The hypopygium of *Nematoproctus* has a compacted and unbranched surstylus, while the surstylus is long and thin, usually 2–3 branched in *Urodolichus*. Moreover, the epandrium in *Urodolichus* has one strong seta between distal and basiventral epandrial lobes, features not seen in *Nematoproctus* (see figures in Stackelberg & Negrobov, 1976). Both males and females of *Urodolichus* have concave head occiput and rather long vein R_1 almost reaching wing midlength, whereas males and females of *Nematoproctus* have flat occiput and short vein R_1 not reaching one third of wing length.

With the new combinations proposed below, *Nematoproctus* has a Laurasian distribution, recorded up to date from the Nearctic and Palaearctic Regions, while *Urodolichus* occurs in Gondwanan landmasses, known at present from the eastern Afrotropics, southern Orient and Australasian Region (New Guinea).

COMPOSITION. With a new species described and the new combinations proposed in this paper, the genus includes 11 species being rather similar in their habitus. However, the Seychelles species (digital type material is examined, BMNH) are very distinct in strong development of basal cercal lobe, forming probably a different species group.

Key to the Australasian and Oriental species of *Urodolichus* (males)

1. Legs entirely black; cercus 1.3 times longer than epandrium; body length 4.4 mm [Indonesia: West Papua, Papua New Guinea] *U. villosiceps* Grichanov **sp. n.**
– At least fore tibia yellow; cercus either short or long 2
2. Cercus about as long as epandrium; body length 3 mm [Papua New Guinea]
..... *U. artifices* (Grootaert et Meuffels, 1990)
– Cercus twice longer than epandrium 3

3. Epandrium with asymmetrical broad toothed lobe at base of hypandrium; body length 5 mm [China: Guizhou] *U. iulilamellatus* (Wei, 2006), **comb. n.**
 – Epandrium without toothed lobe at base of hypandrium 4
4. Only fore tibia yellow; body length 4 mm [Indonesia: Java]... *U. javanus* (de Meijere, 1916), **comb. n.**
 – All tibiae yellow 5
5. Epandrium half as long as peduncle; hind tibia with 2 anterodorsals; body length 4-5 mm [India, Malaysia, Philippines, Sri Lanka, Vietnam]
 *U. keiseri* (Hollis, 1964)
 – Epandrium as long as peduncle; hind tibia with 1 anterodorsal; body length 3.9 mm [Cambodia, Laos] *U. kubani* (Olejníček, 2002), **comb. n.**

***Urodolichus villosiceps* Grichanov, Capellari et Bickel, sp. n.**

Figs 1–9

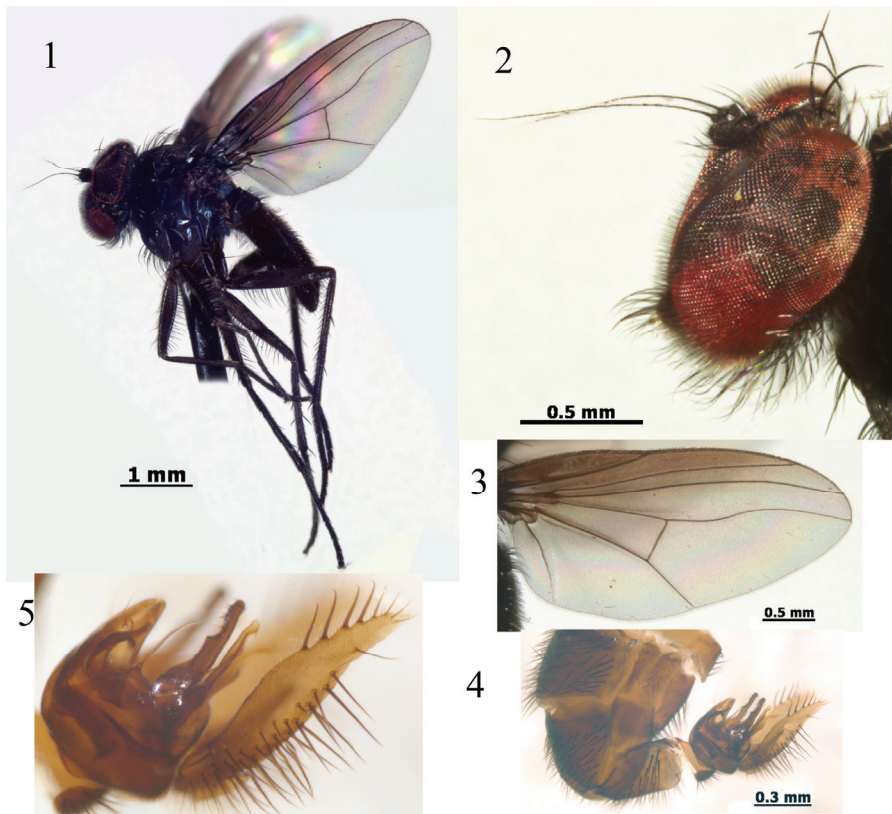
TYPE MATERIAL. Holotype – ♂, **Indonesia**: W Papua, Wamena, Baliem Resort env., 4.06°S, 139.03°E, 2000 m, 16–25.XII 2014, leg. N. Vikhrev [MZUM]. Paratypes: **Papua New Guinea**: Western Province, Star Mountains, Camp 1, 5°13'S, 141°14'E, 800–1200 m, II-III 2013, yellow pans, 4 ♂, 1 ♀; leg. C. Muller [AMS]; Western Province, Tabubil, 5°15'S, 141°13'E, 650 m, 3.X 1995, 1 ♂; leg. M. Moulds [AMS].

DESCRIPTION. Male (Fig. 1). *Head* (Fig. 2): frons small, as high as wide, metallic blue green; face of the same colour; upper margin of frons slightly concave, with somewhat prominent ocellar tubercle; strong vertical seta bending forward just at the upper angle of head near the eye margin, arising from a small tubercle; weak postvertical seta positioned on back slope slightly lower than upper head margin; occiput concave; eyes entirely covered with unusually long white hairs, about 50 µm long; face as a small triangle below antennae and narrow band widened slightly at clypeus; upper postocular setae short, black, uniserial; ventral postcranium covered with rather long black and brown setae curved forward; Palpus black, oval, small, with 6-8 long black setae, 2 times as long as palpus; proboscis black with short hairs; antenna short, black, with simple segments; scape bare; pedicel with dorsal and ventral setae, nearly as long as 3 segments combined; pedicel also with short lateral lobes covering base of postpedicel in middle of both sides; postpedicel rounded, asymmetric, slightly higher than long, with distinct apicoventral obtuse apex; arista-like stylus simple, with sparse short hairs; length (mm) of scape to pedicel to postpedicel to stylus (1st and 2nd segments), 0.11/0.08/0.09/0.04/1.02;

Thorax: greenish-black; proepisternum with numerous black setae and hairs; mesonotum with two rows of acrostichals and 6 pairs of dorsocentral setae (1st pair short); scutellum with one pair of strong setae and one pair of fine lateral setae, half as long as major setae.

Legs: entirely deep black; fore coxa with numerous black setae and hairs anteriorly, 2/3 as long as coxa; mid coxa with 1 seta and shorter hairs; hind coxa with single external seta at base; all femora with double ventral row of setae along

entire length, 1.5 times longer than femur diameter; fore femur also with posterior and posterodorsal rows of long setae; anterior subapical setae indistinct; fore tibia with 2-3 short apical setae only; fore basitarsus with simple setulae; 2nd to 5th tarsomeres shortened; 5th tarsomere slightly flattened, with several elongate hairs, one pair of claws, simple empodium and small pulvilli; mid tibia with 2 anterodorsal, 2 posterodorsal, 2-3 ventral and 3-4 apical setae; mid tarsus simple; hind tibia with 2 anterodorsal, 4-5 posterodorsal, 4-5 ventral, 3-4 apical setae and posteroventral row of elongate setulae, nearly as long as tibia diameter; hind tarsus simple. Fore podomere length (from femur to tarsomere 5, mm): 1.15/1.13/0.58/0.15/0.14/0.12/0.14, mid leg: 1.41/1.39/0.68/0.29/0.20/0.14/0.14, hind leg: 1.55/1.80/0.38/0.48/0.27/0.13/0.15.



Figs. 1–4. *Urodolichus villosiceps* sp. n., male. 1 – habitus; 2 – head; 3 – wing; 4 – abdominal segments 5–8 and hypopygium, right lateral view; 5 – hypopygium, right lateral view.

Wing (Fig. 3): oval, smoky, brownish anteriorly in basal half; 1st radial cell entirely brown; veins black; ratio of part of costa between R_{2+3} and R_{4+5} to this between R_{4+5} and M_{1+2} (in mm), 0.53/0.27; R_{2+3} nearly straight; R_{4+5} somewhat convex anteriorly; M_{1+2} weakly sinuate at basal 2/5 of apical part, parallel to R_{4+5} in apical 1/4 of wing; dm-cu straight; ratio of cross-vein dm-cu to distal section of CuA_1 (in mm), 0.44/0.63; anal vein weak, not reaching to wing margin; anal lobe developed; alula small; anal angle acute; lower calypter black, with black setae; halter black-brown.

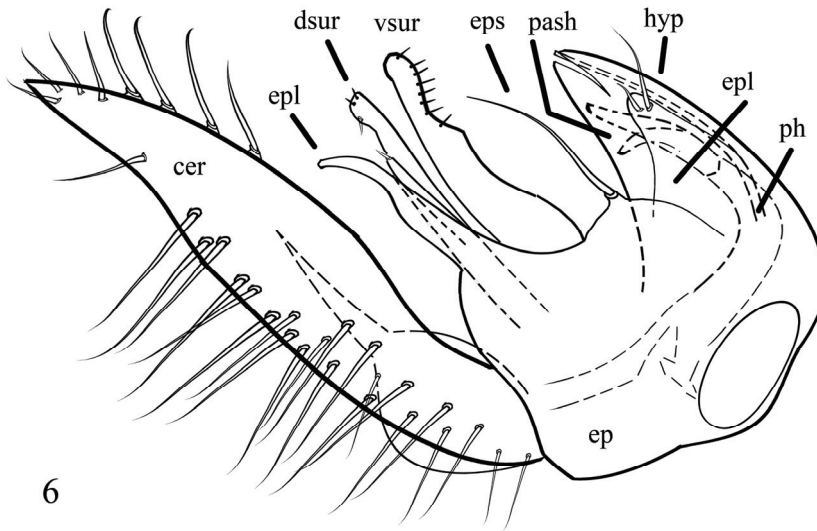
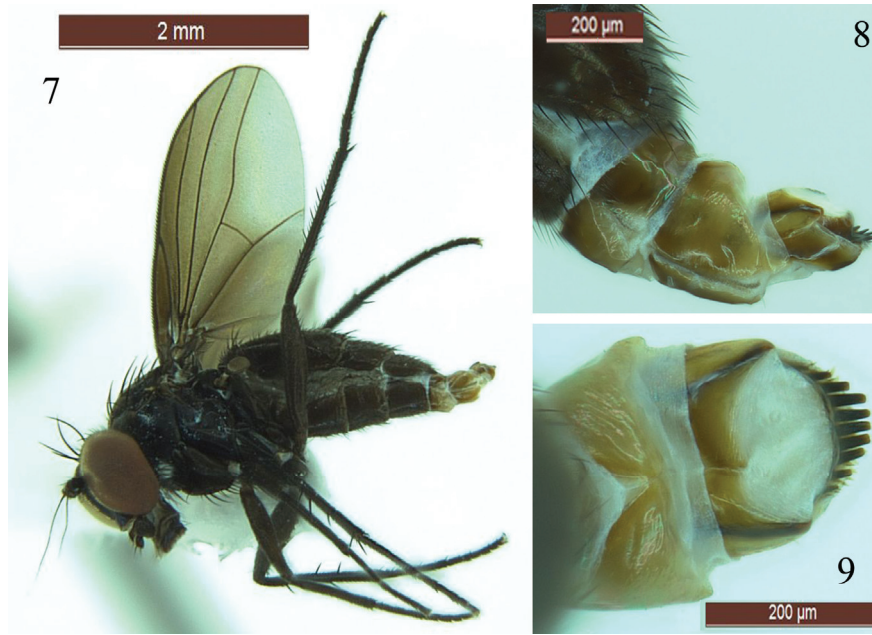


Fig. 6. *Urodolichus villosiceps* sp. n., hypopygium, left lateral view. Abbreviations: cer – cercus; ep – epandrium; epl – epandrial lobe; eps – epandrial seta; hyp – hypandrium; pash – parameral sheath; ph – phallus; dsur – dorsal lobe of surstylus; vsur – ventral lobe of surstylus.

Abdomen (Fig. 4): black, with bluish tinge, with black setae and hairs, rather long along lateral sides and at base ventrally; six full segments of abdomen developed; sternite simple; postabdomen black; 7th segment elongate, nearly as long as epandrium, with strong setae. 8th segment with strong setae, bandlike, embracing epandrium left-basolaterally. Hypopygium (Fig. 5): hypandrium basoventral, thick, subtriangular, fused with hypandrium at base, rounded at apex, cleft in distal part; phallus weak and thin, parameral sheath strongly sclerotised, bifurcated distally; epandrium irregularly rounded, with 2 ventral and 2 distal lobes; fingerlike basoventral lobe bearing 1 long and 1 short setae at apex; broad semicircular just anteriorly of basoventral lobe bearing 1 very long bristle; epandrium distally having very long, thin, glabrous, slightly curved projection, and short thin straight process bearing apical seta; lobes of surstylus rather long and thin, separated from base, slightly curved, bearing minute setae at apex, as figured; cercus dark brown, bandlike, pointed at apex, 1.3 times longer

than epandrium, densely covered with long setae dorsally, with row of ventral setae in distal part, as figured; cerci fused at base, forming unpaired projected bulbous organ bearing 2 spinelike processes distally.

Female (Fig. 7): similar to male except as the head cuticle also shining metallic blue; face wider, about width of antenna base; eyes covered with only short hairs; face uniform; antenna similar; all femora with only short ventral vestiture; fore femur with some short posterior to posterodorsal setae along basal third; some short anteroventral subapical setae present; mid femur with short subapical anteroventral setae along distal quarter; hind femur with short anteroventral setae along distal fifth; leg podomere ratios similar; halter brown; oviscapt (Figs 8, 9) divided into 2 acanthophorites, each bearing 4-5 strong flattened setae.



Figs. 7–9. *Urodolichus villosiceps* sp. n., female. 7 – habitus; 8 – oviscapt, right lateral view; 9 – oviscapt, dorsal view.

MEASUREMENTS (in mm). Body length without antennae: ♂ 4.4, ♀ 3.4; antenna length: ♂ 1.3, ♀ 1.0; wing length ♂ 3.7, ♀ 2.8; wing width ♂ 1.6, ♀ 1.4.

DISTRIBUTION. Indonesia (Papua), Papua New Guinea.

ETYMOLOGY. From the Latin “*villosus*” and “*caput*”, meaning “with hairy head”.

DIAGNOSIS. *Urodolichus villosiceps* sp. n. is unique in the genus, with males bearing unusually long setae and hairs on body, especially on eyes and other parts of head. Antenna black, legs black; tarsi simple; all femora with double row of stout

ventral setae; fore tibia without setae; wing vein M_{1+2} weakly curved; apical part of CuA_1 1.5 times longer than $dm-cu$; epandrium half as long as 7th segment; the cercus 1.3 times longer than epandrium.

***Urodolichus iulilamellatus* (Wei, 2006), comb. n.**

Nematoproctus iulilamellatus Wei, 2006: 482. Type locality: China: Guizhou: Fanjingshan.

MATERIAL. **China:** Ganpu, Anshun, Guizhou, 1250 m, 3.III 1993, 1 ♂ (paratype), coll. Wei Lianmeng [CDPC].

NOTES. Examination of a male paratype of *Nematoproctus iulilamellatus* revealed clear *Urodolichus* features of the male postabdomen, as shown above. The species has a diagnostic asymmetrical projection of epandrium (left side), sclerotized and forked (see Wei, 2006: Fig. 41). Here we transferred this species to the genus *Urodolichus* and the new combination is proposed: *Nematoproctus iulilamellatus* Wei, 2006 = *Urodolichus iulilamellatus* (Wei, 2006), **comb. n.**

DISTRIBUTION. China (Guizhou).

***Urodolichus javanus* (de Meijere, 1916), comb. n.**

Nematoproctus javanus de Meijere, 1916: 44, Fig. 9. Type locality: Indonesia: Java: Semarang.

NOTES. De Meijere's (1916) description and figure of abdomen show the species position in the *Urodolichus* (black body, brownish wings, setose femora, long and thin cercus, which widened at base, covered with long cilia, etc.). Therefore new combination is proposed: *Nematoproctus javanus* de Meijere, 1916 = *Urodolichus javanus* (de Meijere, 1916), **comb. n.**

DISTRIBUTION. Indonesia (Java).

***Urodolichus kubani* (Olejníček, 2002), comb. n.**

Nematoproctus kubani Olejníček, 2002: 87. Type locality: Laos: Louang Phrabang.

DIGITAL TYPE MATERIAL. Holotype, male, **Laos-N**, Louang Phrabang prov., 20°33-4'N [*sic!*], 102°14'E, Bang Song Cha (5 km W), ±1200 m, 24.IV-16.V 1999, Vít. Kubáň leg.; deposited in the Moravian Museum Brno, Czech Republic [MMB].

MATERIAL EXAMINED. **Cambodia:** Koh Kong Prov., vil. Tatai env., 16-18.IV 2010, 1 ♂, O. Kosterin [MZUM].

NOTES. The digital holotype examined and the original description and figures (Olejníček, 2002) clearly show that the species undoubtedly belongs to *Urodolichus*. Therefore new combination is proposed: *Nematoproctus kubani* Olejníček, 2002 = *Urodolichus kubani* (Olejníček, 2002), **comb. n.** The four pairs of dorsocentral setae seem to be diagnostic for this species.

DISTRIBUTION. Cambodia (new record), Laos.

***Urodolichus keiseri* (Hollis, 1964)**

Oumyana keiseri Hollis, 1964: 228. Type locality: Sri Lanka: Nanu Oya.

Urodolichus keiseri: Dyte, 1975: 246; Grichanov, 1998: 26 (in key).

MATERIAL EXAMINED. **India**: Goa, Bendurdem, 15.124°N, 74.033°E, Sal River, 19.II–4.III 2009, 2 ♂, leg. K. Tomkovich [MZUM]; **Malaysia**: Borneo, Sabah, Kota Kinabalu, 5.99°N, 116.09°E, 26–30.XII 2011, 1 ♂, leg. N. Vikhrev [MZUM]; Borneo, Sabah, Beringgis beach, 5.79°N, 115.99°E, 19–26.II 2014, 1 ♂, leg. N. Vikhrev [MZUM]; **Vietnam**: Lào Cai Province, Sa Pa env., 22.3303°N, 103.8254°E, 1284 m, 28.V 2014, 1 ♂, leg. A. Ozerov [MZUM]; **Philippines**: Palo, Leyte, 10.XII 1945, 1 ♂ [CAS].

NOTES. Here this species is firstly recorded from India, Malaysia, Philippines and Vietnam. One of us (IYG) saw also the representatives of the species from Sri Lanka in the collection of Museum of Zoology, University of Lund, Sweden.

DISTRIBUTION. India (Goa), Sri Lanka, Vietnam, Malaysia (Sabah), and Philippines.

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REFERENCES

- Cumming, J.M. & Wood, D.M. 2009. Adult morphology and terminology [Chapter] 2. In: Brown, B.V., Borkent, A., Cumming, J.M., Wood, D.M., Woodley, N.E. & Zumbado, M.A. (Eds.), *Manual of Central American Diptera, Volume 1*. NRC Research Press, Ottawa, pp. 9–50.
- De Meijere, J.C.H. 1916. Studien über südostasiatische Dipteren, XII: Javanische Dolichopodiden und Ephydriden. *Tijdschrift voor Entomologie*, 59, 225–273.
- Dyte, C.E. 1975. Family Dolichopodidae. P. 212–258. In: Delfinado, M.D. & Hardy, D.E. (Eds.), *A Catalog of the Diptera of the Oriental Region, Volume II*. University of Hawaii Press, Honolulu.
- Grichanov, I.Ya. 1998. Two new species of *Urodolichus* Lamb (Diptera: Dolichopodidae) from Madagascar. *An International Journal of Dipterological Research*, 9: 23–26.
- Grichanov, I.Ya. & Brooks, S.E. (in press). 56 Dolichopodidae (long-legged flies). In: Kirk-Spriggs, A.H. & Sinclair, B.J. (Eds.), *Manual of Afrotropical Diptera, Volume 1*. SANBI Publications, Pretoria.

- Hollis, D. 1964. Dolichopodidae (Diptera: Brachycera) from Ceylon, collected by F. Keiser. *Verhandlungen Naturforschungs Gesellschaft, Basel*, 75: 219–230.
- Lamb, C.G. 1922. The Percy Sladen Trust expedition to the Indian Ocean in 1905, under the leadership of Mr. J. Stanley Gardiner, M.A. Vol. 7. N VIII. Diptera: Asilidae, Scenopinidae, Dolichopodidae, Pipunculidae, and Syrphidae. *Transactions of the Linnean Society of London* (2, Zoology), 18: 361–416.
- Meuffels, H.J.G. & Grootaert, P. 2009. Family Dolichopodidae. P. 117–143. In: Gerlach, J. (Ed.), *The Diptera of the Seychelles islands*. Pensoft, Sofia.
- Naglis, S. & Grootaert, P. 2011. A remarkable new species of *Rhaphium* Meigen (Diptera, Dolichopodidae) from Sri Lanka. *Zootaxa*, 299: 44–48.
- Olejníček, J. 2002. *Nematoproctus kubani* sp.nov. (Insecta, Diptera, Dolichopodidae) from Laos. *Acta Musei Moraviae, Scientiae biologicae (Brno)*, 87: 67–70.
- Parent, O. 1926. Dolichopodides nouveaux de l'extrême orient Paléarctique. *Encyclopédie Entomologique*, (B) II, Dipt. 3: 111–149.
- Pollet, M.A.A., Brooks, S.E. & Cumming, J.M. 2004. Catalog of the Dolichopodidae (Diptera) of America North of Mexico. *Bulletin of the American Museum of Natural History*, 283: 1–114.
- Stackelberg, A.A. & Negrobov, O.P. 1976. Diptera of the genus *Nematoproctus* of the USSR fauna. *Entomologicheskoe obozrenie*, 55(1): 205–209. [In Russian].
- Wei, L.M. 2006. Diptera: Dolichopodidae. P. 468–502. In: Li, Z.Z. & Jin, D.C. (Eds.). *Insects from Fanjingshan landscape*. Guizhou science and technology Publishing House, Guiyang.
- Yang, D., Zhu, Y., Wang, M. & Zhang, L. 2006. *World Catalog of Dolichopodidae (Insecta: Diptera)*. China Agricultural University Press, Beijing, 704 pp.