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REVIEW OF THE GENUS *DOLICHOPHORUS* LICHTWARDT, 1902 (DIPTERA: DOLICHOPODIDAE, MEDETERINAE)

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The taxonomic position of the genus *Dolichophorus* is discussed. The diagnosis of genus and key to six species are given. Three new species (*D. caucasicus* Grichanov **sp. n.** from Azerbaijan, *D. madagascariensis* Grichanov, **sp. n.** and *D. friedmani* Grichanov, **sp. n.** from Madagascar) are described. A key to allied genera and species groups of the tribe Medeterini of the Old World is given. *Asioligochaetus* Negrobov, 1966, **stat. n.** is considered as a distinct genus, not a subgenus of the genus *Medetera*. The new combinations are proposed: *Dolichophorus luteoscutatus* (Parent, 1936), **comb. n.** (from *Medetera*), *Asioligochaetus vlasovi* (Stackelberg, 1937), **comb. n.** (from *Oligochaetus*), *Medetera demeteri* (Grichanov, 1997), **comb. n.** (from *Saccopheronta*).

KEY WORDS. Diptera, Dolichopodidae, Medeterinae, taxonomy, new species, new combination, checklist, key.

И. Я. Гричанов. Обзор рода *Dolichophorus* Lichtwardt, 1902 (Diptera: Dolichopodidae, Medeterinae) // Дальневосточный энтомолог. 2009. N 201. С. 1-16.

Обсуждается систематическое положение рода *Dolichophorus*. Дан диагноз рода и определительные таблицы 6 видов. Описаны 3 новых вида: *D. caucasicus* Grichanov, **sp. n.** из Азербайджана, *D. madagascariensis* Grichanov, **sp. n.** и *D. friedmani* Grichanov, **sp. n.** с Мадагаскара. Составлена определительная табли-

ца родов и видовых групп трибы Medeterini Старого Света. *Asioligochaetus* Negrobov, 1966, **stat. n.** рассматривается в качестве самостоятельного рода, а не подрода в роде *Medetera*. Предложены новые комбинации: *Dolichophorus luteoscutatus* (Parent, 1936), **comb. n.** (перенесен из рода *Medetera*), *Asioligochaetus vlasovi* (Stackelberg, 1937), **comb. n.** (из *Oligochaetus*), *Medetera demeteri* (Grichanov, 1997), **comb. n.** (из *Saccopheronta*).

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INTRODUCTION

Genus *Dolichophorus* Lichtwardt, 1902 belongs to the tribe Medeterini (Negrobov, 1986). Formerly two Palaearctic species of genus *Dolichophorus* are considered as the sister taxon of the *Medetera aberrans* + *melanesiana* species groups (Bickel, 1987). Bickel supposed that these groups could be placed within the genus *Dolichophorus*. Grichanov (1997b) considered the *aberrans* group as a Panropical genus *Saccopheronta* Becker, 1914, and supposed that *melanesiana* group should be separated in an independent genus of Medeterinae.

Additional specimens collected by author in Azerbaijan and by A. Freidberg and L. Friedman in Madagascar do not correspond to *Medetera* generic concept, bearing complex of characters related most closely to the *Dolichophorus* generic concept. Descriptions of three new species of *Dolichophorus* are given in this paper, as well as a key to six species of the genus is here provided. The specimens were studied and illustrated with ZEISS Discovery V-12 stereomicroscope and AxioCam MRc5 camera. Morphological terminology follows Grichanov (2007). The relative lengths of the podomeres should be regarded as representative ratios and not measurements. 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. Male genitalia were macerated in 10% KOH. Figure showing the male genitalia in lateral view are oriented as they appear on the intact specimen (rotated 180° and lateroflexed to the right), with the morphologically ventral surface of the genitalia facing up, dorsal surface down, anterior end facing right and posterior end facing left.

The holotypes of new species are deposited in the Zoological Museum of Moscow State University, Russia (ZMU) and the Zoological Museum of Tel-Aviv University, Israel (TAU).

Genus *Dolichophorus* Lichtwardt, 1902

Dolichophorus Lichtwardt, 1902: 199. Type species: *Dolichophorus kerteszi* Lichtwardt, 1902, by monotypy.

DIAGNOSIS. Body colouration metallic green, green-black or blue-black, with only thin dusting of pruinosity. Dorsal postcranium strongly concave. Face and clypeus

usually metallic, with weak pruinosity. Antenna short with long thin stylus; postpedicel about as large as pedicel. Proboscis relatively small, labellae of proboscis weakly sclerotized. Short acrostichals in two regular rows; dorsocentrals strong, 3 or 4 pairs of setae present, decreasing in size anteriorly; one strong supraalar present; lateral scutellars well developed. Fore coxa with long anteroapical spine or hook of several cilia, but with short and straight spine in females; at least fore and hind coxae yellow; mid tibia with or without 1-2 dorsal bristles at basal 1/3; hind femur with or without anterior setae; tibiae, mid and hind tarsi with rather short apicals; male fore tarsomeres modified, slightly thickened from apex of 1st to 4th tarsomere, with or without remarkable apical setae or processes; male hind tibia with very short black posterodorsal apical spur and hind basitarsus with shallow basal excavation. Wing with M weakly arched anteriorly, almost subparallel to R_{4+5} , and R_1 ending far from $m-cu$ level; basal part of M_{1+2} shorter than apical part; maximum distance between R_{4+5} and M_{1+2} about as long as $m-cu$. Anal vein present as only weak fold of wing. Hypopygium symmetrical, irregularly ovoid, elongate, with midventral swelling; 7th segment relatively short; hypopygial foramen dorsolateral in position. Hypandrium arising from approximately halfway along ventral margin, not extending distally beyond the position of surstylus; phallosoma with developed lateral lobi. Surstylus with strongly developed dorsal arm and usually much smaller ventral arm located at base of dorsal one; male cercus without modified setae. Female oviscapt soft, short, with setose cercus; tergum 9+10 without apical projections (acanthophorites).

SPECIES INCLUDED. Six species of *Dolichophorus* are known, of which *D. kerteszi* is a Transpalearctic species, two species are known from local regions in the Caucasus and Palaearctic China. *D. luteoscutatus* is a rare species, but being widely distributed in Afrotropical region. *D. friedmani* and *D. madagascariensis* are found in Madagascar. The genus is not yet known from Oriental region; nevertheless, *Medetera maai* Bickel, 1987, described from Malaysia in the *aberrans* species group, has wing venation and epandrium shape remarkably similar to *Dolichophorus*, but unfortunately fore legs of single known specimen of *M. maai* are broken.

REMARKS. Genus *Dolichophorus* was defined mainly by male secondary sexual characters (MSSC) of the type species, *D. kerteszi* Lichtwardt, 1902 (Parent, 1938; Negrobov & Stackelberg, 1971; Bickel, 1987). Nevertheless, *D. immaculatus* Parent, 1944, was described without major MSSC, keeping only such characters as strong anteroapical spine on fore coxa and slightly thickened fore tarsomeres 2 and 3. An anteroapical, directed downward spine of 2-3 setae on female fore coxa, shorter than that in males, but also more or less distinctly developed is the main key character of *Dolichophorus*. Seeking an appropriate genus for the new species discovered, I have re-examined the published revisions and reviews of the Nearctic and Old World *Medetera* and allied genera of the tribe Medeterini (Negrobov & Stackelberg, 1971-1977; Bickel, 1985, 1987; Grichanov, 1997a, 1997b, 1999, 2009). As a result, I have compiled a key to *Dolichophorus* and allied genera and species groups of *Medetera* and propose here some taxonomic changes. Afrotropical *Medetera luteoscutata* Parent, 1936 is transferred here to *Dolichophorus*. The subgenus *Asioligochaetus* Negrobov, 1966, proposed for the Central Asian *Oligochaetus vlasovi* Stackelberg, 1937 and synonymized with *Medetera* by Bickel (1985), has

so peculiar combination of characters (see key below) that allows to raise its status to genus level. *Asioligochaetus vlasovi* (Stackelberg), **comb. n.**, and Australasian *Medetera salomonis* species group (Bickel, 1987) have somewhat similar curvation of M vein, but strongly differing in all other respects. The subgenus *Lorea* Negrobov, 1966 was also placed in synonymy with *Medetera* by Bickel (1985). In fact, it is one of the Palaearctic *Medetera* species groups formerly regarded as genus *Oligochaetus* Mik, 1878 (see Grichanov & Vikhrev, 2009), having also relation to Nearctic *Medetera petulca* group. Afrotropical *Medetera demeteri* (Grichanov, 1997b), **comb. n.**, described originally in the genus *Saccopheronta* and Oriental *M. malaisei* Bickel, 1987, are close to Australasian *Medetera melanesiana* species group by many morphological characters. Bickel (1987) has supposed that the latter might derive from the *aberrans* group (= *Saccopheronta*). Future researches will support or reject presently recognized genera of the tribe Medeterini. A key to allied genera and species groups of the tribe Medeterini is given below.

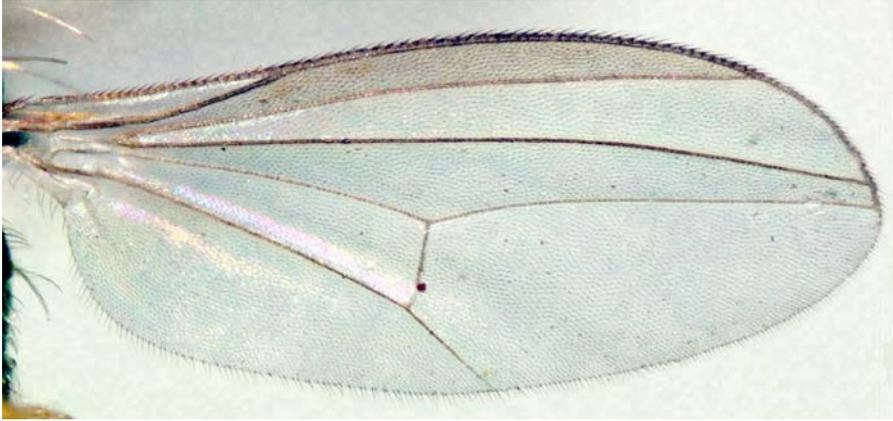
**Key to the Old World genera and species groups of the tribe Medeterini
allied to genus *Dolichophorus***

1. Wing venation *Systemus*-like, with R_1 reaching *m-cu* level, and M_{1+2} convex behind *m-cu* towards posterior wing margin, subapically bowed; wing milky-white, brownish along major veins, entirely brownish between R_{4+5} and M_{1+2} (Negrobov & Stackelberg, 1971: Fig. 172); postpedicel short-triangular, with apical stylus; postoculars small, not seriate, arranged in irregular lateral tuft; acrostichals absent; dorsocentrals 3 pairs; scutellum with one pair of setae; fore tibia with one and mid tibia with 3 long apical setae, one of them nearly as long as mid basitarsus (female only) *Asioligochaetus* Negrobov, 1966, **stat. n.**
- R_{4+5} and M_{1+2} subparallel or convergent, with *M* usually arched anteriorly and R_1 ending far from *m-cu* level; postoculars regularly uniseriate; wing hyaline or differently coloured with grey tinge; mid tibia with short apical setae; other features various
- 2
2. Legs entirely devoid of strong setae; hind basitarsus nearly as long as next segment; body size about 1 mm *Cyrturella* Collin, 1952
- At least mid tibia with some strong setae; rarely only short apicals present; hind basitarsus usually much shorter than next segment; body size usually larger than 1.5 mm 3
3. Fore coxa with long anteroapical spine or hook of cilia, shorter in females; at least fore and hind coxae yellow; male fore tarsomeres 1 and 3 usually modified, with remarkable apical setae or processes, rarely simple, but with slightly thickened tarsomeres 1-4; body usually shining, weakly pollinose; R_{4+5} and M_{1+2} weakly convergent, almost subparallel *Dolichophorus* Lichtwardt, 1902
- Fore coxa with short anteroapical setae not forming spine or hook; all coxae dark or only fore coxa yellow, rarely fore and hind coxae yellow; male fore tarsus unmodified, without remarkable apical setae or process, or only tarsomeres 2 and 3 thickened or enlarged and flattened (*Saccopheronta*); body rarely shining 4

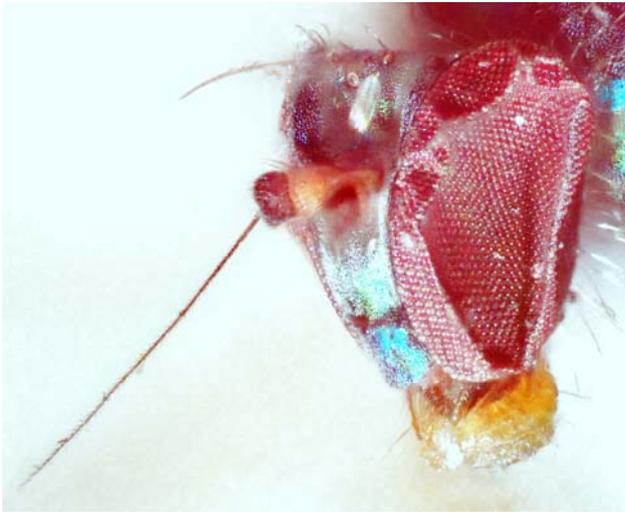
4. R_{4+5} and M_{1+2} strongly convergent; $m-cu$ distinctly shorter than or (rarely) equal to maximum distance between R_{4+5} and M_{1+2} ; apical part of CuA_1 usually less than 2.5 times longer than $m-cu$; male anterior tarsus simple, rarely with elongate hairs; if R_{4+5} and M_{1+2} weakly convergent, then $m-cu$ distinctly shorter than maximum distance between R_{4+5} and M_{1+2} *Medetera* Fischer von Waldheim, 1819
- R_{4+5} and M_{1+2} weakly convergent, almost subparallel; $m-cu$ about 2 times shorter than maximum distance between R_{4+5} and M_{1+2} ; apical part of CuA_1 5–6 times longer than $m-cu$; male anterior tarsus simple
 *Medetera spinigera* species group (= *Lorea* Negrobov, 1966)
- R_{4+5} and M_{1+2} weakly convergent, almost subparallel; $m-cu$ about as long as or longer than maximum distance between R_{4+5} and M_{1+2} ; apical part of CuA_1 usually 2–4 times longer than $m-cu$; male tarsomeres 2 and 3 of fore leg thickened or enlarged and flattened (*Saccopheronta*) or simple 5
5. Face and clypeus usually with pruinosity; male tarsomeres 2 and 3 of fore leg thickened or enlarged and flattened; epandrium cylindrical, elongate, more than twice as long as high; hypopygial foramen always dorsolateral in position with tendency to becoming median
 *Saccopheronta* Becker, 1914 (= *Medetera aberrans* species group)
- Face and clypeus shining blue-violet, with no pruinosity; male fore leg normal; epandrium dorsoventrally flattened; hypopygial foramen usually basal in position *Medetera melanesiana* species group

List of the species of *Dolichophorus*

- caucasicus* Grichanov, **sp. n.** Type locality: Azerbaijan: Lənkəran, Hirkan-Bürçəli env. Palaearctic: Azerbaijan.
- friedmani* Grichanov, **sp. n.** Type locality: Madagascar: Andasibe, Analamazaotra Forest. Afrotropical: Madagascar.
- immaculatus* Parent, 1944: 128. Type locality: China: "Mongolie orientale: Kinp'eng [Jianping], Ordos.: St.-Jacques". Palaearctic: China.
- kerteszi* Lichtwardt, 1902: 199. Type locality: Slovakia: "Postyén, Ober-Ungarn". Palaearctic: Austria, Belgium, China, Czech, France, Germany, Hungary, Netherlands, Poland, Romania; Russia (St. Petersburg, Samara, Voronezh, Chelyabinsk, Altai, Vladivostok); Slovakia, Spain, Switzerland; "Transcaucasia".
- resplendens* (Strobl), 1910: 92 (*Medetera*) (Becker, 1917: 359). Type locality: not given [Austria: Steiermark, Admont].
- luteoscutatus* (Parent), 1936: 12 (*Medetera*), **comb. n.** Type locality: Congo-Kinshasa: Eala. Afrotropical: DR Congo, Tanzania, Ivory Coast, Sierra Leone.
- lachaisei* Couturier, 1985: 287 (*Medetera*) (Grichanov, 1999: 88); Grichanov, 1997a: 183 (as subsp. of *M. luteoscutata*).
- madagascariensis* Grichanov, **sp. n.** Type locality: Madagascar: Andasibe, Analamazaotra Forest. Afrotropical: Madagascar.



1



2



3

Figs. 1-3. *Dolichophorus kerteszi* Lichtwardt, 1902, female. 1) wing; 2) head; 3) fore coxa.

Key to the species

- 1. Mid tibia without dorsal bristles 2
- Mid tibia with 1-2 dorsal bristles at base 3
- 2. Legs entirely light yellow; hind femur with 3 long yellow anterior setae in distal half; 1.5 mm *D. immaculatus* Parent
- Mid and hind coxae dirty yellow; legs brownish from tips of femora; hind femur devoid of setae; 2.2 mm *D. caucasicus* Grichanov, **sp. n.**
- 3. Antenna entirely black; hind femur partly black; male wing without black anterior stripe; 2 mm *D. luteoscutatus* (Parent)
- At least scape and pedicel yellow; femora entirely yellow 4

4. Body shining light green; hind femur with row of anterior setae; postpedicel black; male wing with black stripe along anterior margin; 1.5-2.6 mm *D. kerteszi* Lichtwardt
 – Body shining bluish-black; hind femur with at most one anterior seta at middle; male wing without black stripe; antenna entirely yellow 5
5. Hind femur without anterior seta; male fore basitarsus with short pointed apical process, about half as long as next segment; 2.9 mm *D. friedmani* Grichanov, **sp. n.**
 – Hind femur with anterior seta at middle; male fore basitarsus with long bandlike apical process, 1.5 times as long as next segment; 2.6 mm *D. madagascariensis* Grichanov, **sp. n.**

***Dolichophorus kerteszi* Lichtwardt, 1902**

Figs 1-3

MATERIAL EXAMINED. Russia: 1 ♀, Leningradskaya oblast, Gatchina district, Men'kovo env., spring wheat, 5.VI 2007 [VIZR, St. Petersburg]; 1 ♀, South Ural, Chelyabinskaya oblast, near Zlatoust, Taganay Mts, 18-24.VII 2008, K. Tomkovich [ZMU]; 1 ♀, Primorskii krai, Anisimovka, 16.VII 2004, V. Zlobin [ZIN, St. Petersburg].

REMARK. The description and figures of male see Negrobov & Stackelberg (1971-1977). This Transpalearctic species is rather rarely collected, especially in central and eastern parts of the Palaearctic region. It was mentioned for "Transcaucasia" by Negrobov (1991), but the material (from West Georgia: Negrobov pers. com.) was probably lost. Therefore, I consider the Caucasian record as doubtful and belong to a new species described below.

***Dolichophorus caucasicus* Grichanov, sp. n.**

Figs 4-6

TYPE MATERIAL. Holotype – ♀, Azerbaijan: Lənkəran, Hirkan-Bürçəli env., 38°39'N, 48°47'E, 15.V 2009, Grichanov and Tomkovich [ZMU].

DESCRIPTION. Female. Head: vertex, frons, face dark metallic bluish-black, grey pollinose; vertex not excavated; upper occiput concave; vertical bristle black, strong and long, positioned on anterior slope of head; short black postvertical seta as a linear continuation of postocular setal row; eyes with tiny hairs between facets; face under antenna about 2 times as wide as postpedicel height, slightly narrowing towards clypeus; palpus dark, grey pollinose, pale haired, with strong white apical seta; proboscis black, small; single row of strong white simple postoculars decreasing in size upward; 3-4 uppermost setae black; antenna as long as head height; scape and pedicel reddish-yellow; pedicel globular, with ring of apical setulae; postpedicel as large as pedicel, black, short pubescent; stylus apical, black, long, microscopically haired, with its 1st segment being very short. Length ratio of scape to pedicel to postpedicel to stylus, 3/5/5/40.

Thorax: with mostly black setae, metallic blackish-green; posterior third of mesonotum distinctly concave; 1 humeral, 1 posthumeral, 1 small sutural, 1 long and 1 short notopleurals, 1 supraalar, 1 postalar setae; short acrostichals of about equal length in two regular rows; short setulae in front of 4 strong dorsocentrals in two rows; anterior 2 of 4 strong setae half as long as posterior one; 2 pairs of scutellars (median setae broken); 1 brownish proepisternal seta just above fore coxa with 2 adjacent cilia.



4



5



6

Figs. 4-6. *Dolichophorus caucasicus* sp. n., female. 4) wing; 5) head; 6) fore coxa.

Legs: with fore coxa yellow, mid and hind coxae dirty-yellow; femora yellow, darkening distad in apical 1/2-1/3; tibiae and tarsi brown, narrowly light at podomere junctions; fore and mid coxae with short pale anterior cilia; fore coxa with anteroapical spine of 2-3 setae, 1/3 as long as coxa; hind coxa with 1 strong dirty yellow lateral bristle; legs devoid of major setae; only tibiae and 1st two segments of tarsi with rather short apical setae; fore leg length ratio (from tibia to tarsomere 5): 45/22/13/9/6/7, mid leg: 56/31/16/11/8/7, hind leg: 70/18/27/16/7/7.

Wing: simple, hyaline, with brown veins; R_{2+3} and R_{4+5} diverging to wing apex; R_{4+5} and M_{1+2} weakly convex anteriorly, gradually converging, subparallel at wing apex. M_{1+2} joining costa just behind wing apex. Ratio of part of costa between R_{2+3} and R_{4+5} to this between R_{4+5} and M_{1+2} to $m-cu$ to distal part of CuA_1 , 27:8:15:23. Crossvein $m-cu$ slightly convex, forming right angle with CuA_1 and with M_{1+2} longitudinal veins, slightly shorter than maximum distance between R_{4+5} and M_{1+2} longitudinal veins. Anal vein fold-like; anal lobe present; alula absent. Lower calypter brownish, with pale setae. Halter brownish.

Abdomen: entirely metallic, greenish-black, with mainly black hairs and setae, with light setae on 1st tergum laterally; each hemitergite with 1 long simple apical seta; cercus yellow, fingerlike, with one long apical and 2 shorter ventral setae.

Length (mm): body without antennae 2.2, antenna 0.7, wing 2.3/1.0.

MALE unknown.

DIAGNOSIS. New species differs from *Dolichophorus kerteszi* and *D. immaculatus* in colour and morphological characters, first of all, in mainly black body setation, in brown tibiae and tarsi. It is related to *D. immaculatus*, differing in absence of anterior setae on hind femur.

***Dolichophorus luteoscutatus* (Parent, 1944), comb. n.**

TYPE MATERIAL EXAMINED. Holotype – ♂, Congo Belge: Eala, 10.VI 1935, J. Ghesquiere, 532 / R. Mus. Hist. Nat. Belg. LG. 10.482 / *Medetera luteoscutata* n. sp. Type. O. Parent det., 1935 / Type [red label]. Paratypes: 4 ♂, 3 ♀, same labels, with additional red label "paratype" or "cotype" (1 ♀ differing in collecting date: VII 1935).

REMARK. For more information see pictures (Couturier, 1985; Grichanov, 1997).

***Dolichophorus friedmani* Grichanov, sp. n.**

Figs 7-11, 15

TYPE MATERIAL. Holotype – ♂, Madagascar: Andasibe, 950 m, Analama-zaotra Forest, 18°46'S, 48°24'E, 31.X-4.XI 2007, A. Freidberg [TAU]. Paratypes: 3 ♂, 2 ♀, the same data as holotype, but 2 ♂ collected by L. Friedman [TAU].

DESCRIPTION. MALE. Head: vertex, frons, face dark metallic bluish-black, grey pollinose; vertex not excavated; upper occiput concave; vertical bristle brown, strong and long, positioned on anterior slope of head; short light postvertical seta as



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8



9

Figs. 7-9. *Dolichophorus friedmani* sp. n., male: 7) body, lateral view; 8) fore coxa; 9) fore tarsus.

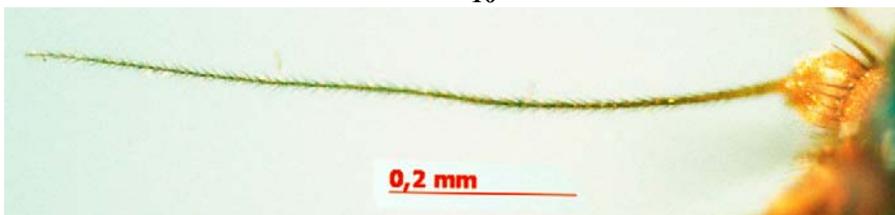
a linear continuation of postocular setal row; eyes with tiny hairs between facets; face under antenna about 2 times as wide as postpedicel height, narrowing towards clypeus; palpus black, grey pollinose, pale haired, with strong black apical seta; proboscis brown, small; single row of strong dirty white simple postoculars decreasing in size upward; antenna distinctly longer than head height, reddish-yellow; pedicel globular, with ring of apical setulae; postpedicel as large as pedicel, short pubescent;

stylus apical, dark except yellow base, long, short haired, with its 1st^t segment being very short. Length ratio of scape to pedicel to postpedicel to stylus, 3/5/5/40.

Thorax: with mostly brownish setae, metallic bluish-black, brownish on humeri and underside of scutellum; posterior third of mesonotum distinctly concave; anterior half of mesonotum densely haired, 1 humeral, 1 posthumeral, 1 sutural, 1 long and 1 short notopleurals, 1 supraalar, 1 postalar setae; well developed acrostichals decreasing in length anteriorly in two regular rows gradually diverging posteriorly; 2-3 hairs on each side of mesonotal concavity right behind level of penultimate dorso-central bristles; 4 strong dorsocentrals in two rows decreasing in length anteriorly; anterior seta quite small, sometimes indistinct; 2 pairs of scutellars with lateral setae being slightly more than half length of median setae; 2 yellow unequal proepisternal setae just above fore coxa.



10



11

Figs. 10-11. *Dolichophorus friedmani* sp. n., male: 10) wing; 11) antenna.

Legs including coxa yellow, 5th tarsomeres brown; fore and mid coxae with short simple pale anterior cilia; fore coxa with golden-brownish anteroapical hook of glued cilia, 1/3 as long as coxa; hind coxa with 1 strong dirty yellow lateral bristle just above mid length; fore leg devoid of strong setae; fore basitarsus with anteroventral apical process, more than half as long as next segment; 3rd tarsomere of the same tarsus with posterodorsal apical pedunculate seta almost reaching apex of the next segment; mid femur with several elongate ventral hairs and 1 midventral yellow cilia, nearly 2 times longer than diameter of femur; mid tibia with a pair brown

anterodorsal and posterodorsal bristles at 1/3, 3-4 short apicals; tarsomeres 1-4 with short apicals; hind femur with elongate dorsal hairs on basal half and elongate anteroventral hairs at apex; hind tibia with row of elongate posterodorsal setulae on distal 2/3, with 1 yellow dorsal seta at 4/5, 3-4 short light apicals, and with very small black posteroventral apical spur; basitarsus short, with 2 apicals and small posterior apical scale of setulae, with shallow basal excavation; tarsomeres 2-4 with short apicals; fore leg length ratio (from tibia to tarsomere 5): 65/25/14/8/7/6, mid leg: 85/41/20/16/10/7, hind leg: 110/16/36/22/17/8.

Wing: hyaline, with yellow-brownish veins and angular apex; R_{2+3} and R_{4+5} diverging to wing apex; R_{4+5} and M_{1+2} weakly convex anteriorly, gradually converging, subparallel at wing apex. M_{1+2} joining costa at wing apex. Ratio of part of costa between R_{2+3} and R_{4+5} to this between R_{4+5} and M_{1+2} to $m-cu$ to distal part of CuA_1 , 35:10:20:30. Crossvein $m-cu$ straight, forming right angle with CuA_1 and with M_{1+2} longitudinal veins, as long as maximum distance between R_{4+5} and M_{1+2} veins. Anal vein fold-like; narrow anal lobe present; alula absent. Lower calypter brownish, with brownish setae. Halter light yellow.

Abdomen: metallic, bluish-black, with light hairs and dark setae along tergal margins; 1st tergum with light setae laterally; 2nd-6th sterna weakly sclerotized. Segment 7 moderately long, black, with short setae; segment 8 large, yellow, setose. Epandrium, surstylus, cercus and hypandrium entirely yellow; epandrium more than two times longer than high; hypandrium fused with epandrium, midventral, simple; lateral lobi of phallosoma symmetrical, hooked, curved ventrad; aedeagus thin; epandrial lobi reduced to two pedunculate setae; cercus small, suboval, with acute apex and simple dorsal setae; thin membrane connecting cerci; surstylus with strongly developed dorsal arm bearing subapical process and a large but fine penniform apical seta; ventral arm located at base of dorsal one, deeply bifurcated, with relatively long and narrow lobes, bearing setae as figured.

FEMALE. Similar to male except lacking MSSC. Fore coxa with simple antero-apical spine of 2-3 setae.

LENGTH (mm): body without antennae 2.9, antenna 1.0, wing 3.1/1.1, hypopygium 0.8.

ETYMOLOGY. The species is named in honour of one of the collectors, Leonid Friedman.

DIAGNOSIS. The described here species is related to *Dolichophorus luteoscutatus* and *D. kerteszi*, differing, first of all, in entirely yellow antenna; male wing without black stripe; hind femur without anterior setae.

***Dolichophorus madagascariensis* Grichanov, sp. n.**

Figs 12-14

TYPE MATERIAL. Holotype – ♂, Madagascar: Andasibe, 950 m, Analama-zaotra Forest, 18°46'S, 48°24'E, 31.X-4.XI 2007, A. Freidberg [TAU]. Paratypes: 2 ♀ with same data as holotype [TAU].

DESCRIPTION. MALE. Similar to *Dolichophorus friedmani* sp. n. in all respects except as noted below.

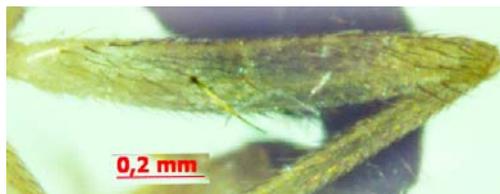
Head: both antennal postpedicels broken in holotype.

Thorax: with 3 strong dorsocentrals in two rows decreasing in length anteriorly; only one yellow proepisternal seta just above fore coxa.

Legs: fore basitarsus with anteroventral apical process, 1.5 times as long as next segment; mid femur with somewhat longer ventral hairs; hind femur with one strong anterior bristle at middle, slightly longer than diameter of femur; hind tibia with brown dorsal and apical setae; fore leg length ratio (from tibia to tarsomere 5): 61/21/12/9/7/7, mid leg: 80/38/23/17/11/8, hind leg: 98/16/37/23/13/8.



12



13

Figs. 12-13. *Dolichophorus madagascariensis* sp. n., male: 12) fore tarsus; 13) hind femur.

Wing: ratio of part of costa between R_{2+3} and R_{4+5} to this between R_{4+5} and M_{1+2} to $m-cu$ to distal part of CuA_1 , 28:10:17:34.

Abdomen: with species-specific shape and setation of surstyli as figured; surstylus with strongly developed dorsal arm bearing a short and a long processes and a large but fine penniform apical seta; ventral arm located at base of dorsal one, deeply bifurcated, with relatively long and narrow setose lobes.

FEMALE. Similar to male except lacking MSSC. Fore coxa with simple antero-apical spine of 2-3 setae; hind femur with slightly weaker anterior bristle at middle.

LENGTH (mm): body without antennae 2.6, wing 2.9/1.0, hypopygium 0.9.

DIAGNOSIS. New species is related to *D. friedmani*, differing in better developed process on fore basitarsus, in presence of strong anterior bristle at middle of hind femur, in hypopygium morphology.

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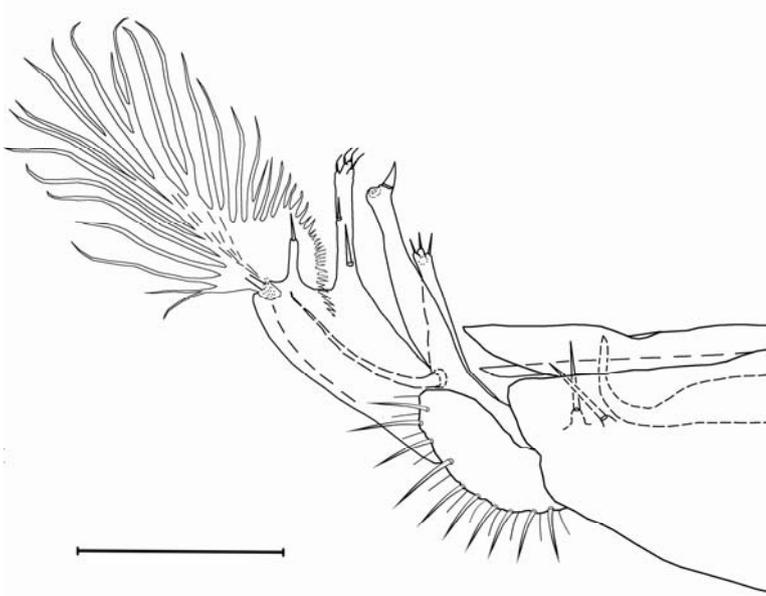


Fig 14. *Dolichophorus madagascariensis* sp. n., apex of hypopygium. Scale bar 0,1 mm.

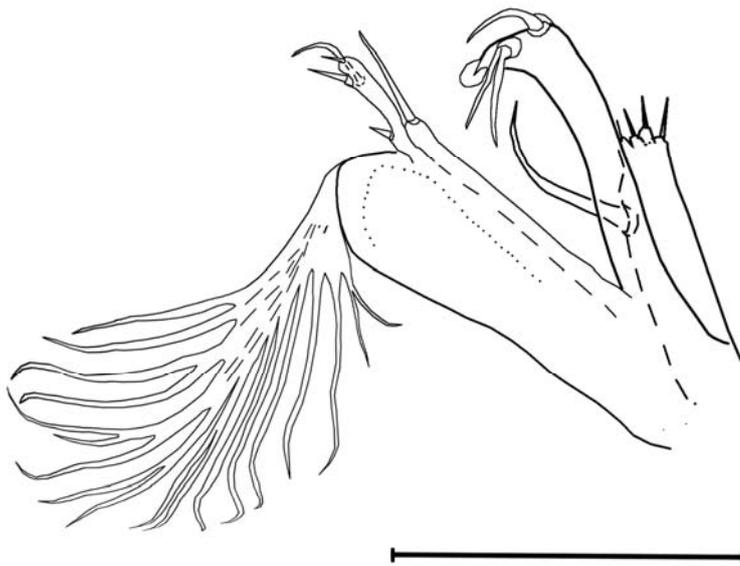


Fig 15. *Dolichophorus friedmani* sp. n., surstyli. Scale bar 0,1 mm.

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