

РОССИЙСКАЯ АКАДЕМИЯ НАУК
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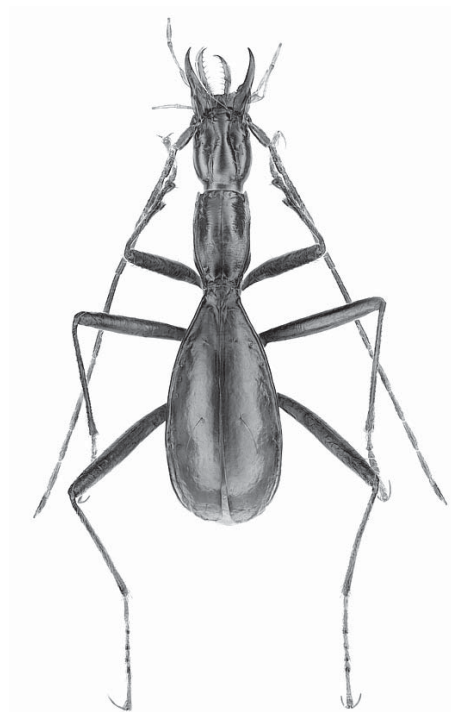


Кавказский Энтомологический Бюллетень

CAUCASIAN ENTOMOLOGICAL BULLETIN

Том 6. Вып. 2

Vol. 6. No. 2



Ростов-на-Дону
2010

A new genus of Medeterinae (Diptera: Dolichopodidae) from Baltic amber

Новый род подсемейства Medeterinae (Diptera: Dolichopodidae) из балтийского янтаря

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Key words: Diptera, Dolichopodidae, *Medeterites*, Baltic amber, new genus, key.

Ключевые слова: Diptera, Dolichopodidae, *Medeterites*, балтийский янтарь, новый род, определитель.

Abstract. A new genus, *Medeterites* **gen. n.** (Diptera: Dolichopodidae: Medeterinae) is described from Baltic amber with one included species, *Medeterites molestus* (Meunier, 1907) (*Thrypticus*), **comb. n.** The genus is similar to the genera of the subfamily Medeterinae, but having such plesiomorphic characters as big palpus, lack of acrostichals, legs devoid of long bristles, wing with long R_1 and straight and subparallel R_{4+5} and M_{1+2} , globular epandrium, big and rounded circus, etc. A key is compiled to all dolichopodid genera from Baltic amber with apical arista-like stylus.

Резюме. Описан новый монотипический род *Medeterites* **gen. n.** (Diptera: Dolichopodidae: Medeterinae) из балтийского янтаря, отличающийся от других родов подсемейства Medeterinae такими плезиоморфными признаками, как большие щупики, отсутствие акростихальных щетинок на груди и крепких щетинок на ногах, длинной крыловой жилкой R_1 , прямыми и параллельными жилками R_{4+5} и M_{1+2} , шаровидной генитальной капсулой, большими округлыми церками и т.д. Предложена новая комбинация: *Medeterites molestus* (Meunier, 1907) (*Thrypticus*), **comb. n.** Составлена определительная таблица родов Dolichopodidae из балтийского янтаря, имеющих вершинную аристу на 3-м членике усиков.

Introduction

Meunier [1907, 1908a, b] published his important papers on the Dolichopodidae of Baltic amber, placing most of the species in recent genera. He used the characters that are not sufficient now to separate even subfamilies of the Dolichopodidae. Very short species descriptions given by Meunier often do not allow to determine the generic position of those taxa correctly. H. Ulrich collected a huge amount of Baltic amber dolichopodids and studied the Meunier's collection at the Institute of Geology and Palaeontology, University of Göttingen, Germany, and identified the only recent genus, *Diaphorus* Meigen, 1824, belonging to the subfamily Diaphorinae [Ulrich, 2003]. Recently the presence of Dolichopodinae (*Prohercostomus* Grichanov, 1997, with 7 extinct species) and Sciapodinae (*Wheelerenomyia* Meunier, 1907, with 15 extinct species) in the Baltic amber has been confirmed [Grichanov, 1997, 2000, 2008; Negrobov, Selivanova, 2003]. Selivanova and Negrobov [1997] suggested placement of two more

extinct genera, monotypic *Gheynia* Meunier, 1899, and *Paleomedeterus* Meunier, 1894, with 8 described species, in the subfamily Peloropecodinae (see also photo of *Gheynia bifurcata* Meunier, 1907, in Ulrich and Schmelz [2001]).

The subfamily Medeterinae was first recorded from Baltic amber by Giebel [1856] who described *Medetera frauenfeldi*. Meunier [1907, 1908a, b] described 4 species of *Medetera* Fischer von Waldheim, 1819, 4 species of *Thrypticus* Gerstaecker, 1864, and one species of *Systemus* Loew, 1857; all the extant genera are placed now in the Medeterinae. Later none of the species was redescribed and discussed. A piece of Baltic amber is here studied with a medeterine species that can not be placed into the extant genera and deserves a new generic name. This paper offers a description of a new genus along with a key to all dolichopodid genera from Baltic amber with apical arista-like stylus.

The specimen studied is housed at the Zoological Museum of Moscow State University, Russia (ZMU). It was studied and illustrated with ZEISS Discovery V-12 stereomicroscope and AxioCam MRc5 camera. Morphological terminology follows Grichanov [2007] and Cumming and Wood [2009]. The relative lengths of the antennomeres and 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 6. Antenna length is measured from the frons to the stylus apex. Wing length is measured from the base to the wing apex.

Medeterites Grichanov, **gen. n.**

Type species. *Thrypticus molestus* Meunier, 1907.

Diagnosis. This generic diagnosis is based on a male of one included species, and lists features considered to be of generic importance.

Small species. Body generally dark, weakly shining; major bristles dark; vertex not excavated; upper occiput flat or slightly concave; vertical bristle strong and long, positioned at upper corner of frons; short postvertical seta as a linear continuation of postocular setal row; one pair of strong ocellar bristles with adjacent pair of hairs; single row of short simple postoculars decreasing in size upward; eyes with microscopic hairs between facets; facets of equal size all over the eye; face under antenna 1.5–2 times as

wide as postpedicel height, slightly narrowing towards clypeus; facial suture and clypeus distinct; antenna slightly longer than eye height; scape and pedicel small; scape vaselike, glabrous; pedicel globular, with cirlet of apical setulae of approximately equal length; postpedicel slightly larger than pedicel, semiglobular, shortly pubescent; stylus apical, filiform, shortly haired, with its 1st segment being very short. Palpus as long as clypeus, elongate-ovate, with strong apical bristle; a long and strong black prong lying along lateral side of palpus; proboscis thick, projecting, half as long as eye height.

Thorax: with posterior third of mesonotum distinctly flattened; 1 strong humeral, 1 sutural, 1 long and 1 short notopleurals, 2 strong supraalar and 1 long postalar setae; acrostichals absent; 2 regular rows of 6 strong dorsocentrals decreasing in length anteriorly; the rows slightly diverging posteriorly; 1 pair of strong scutellars; postnotum distinct; 1 strong proepisternal seta just above fore coxa; proepimeron without strong setae, with few minute hairs.

Legs without long bristles; fore and mid coxae with short simple cilia and 3–4 strong subapical setae anteriorly; hind coxa with 1 strong lateral bristle above middle; claws and pulvilli on all legs small; legs evenly covered with ordinary setulae except as noted; mid trochanter with 1 dorsal seta; femora without strong setae, ventrally glabrous; tibiae each with 2–3 very short apical setae; hind tibia and tarsus simple.

Wing: hyaline; subcosta ending at R_1 mid length; R_1 ending right before level of *dm-cu*; R_{2+3} and R_{4+5} gradually diverging to wing apex; R_{2+3} slightly convex anteriorly; R_{4+5} and M_{1+2} straight and subparallel behind *dm-cu*. M_{1+2} joining costa right behind wing apex. Crossvein *dm-cu* slightly shorter than maximum distance between R_{4+5} and M_{1+2} veins. Anal vein distinct; anal lobe present; alula absent.

Abdomen: conoid, with strong tergal setae and sparse sternal hairs on segments 1–6; sterna 2–6 well sclerotised; tergum 7 short, not longer than tergum 6; segment 8 large, positioned left basodorsally, covered with cilia. Epandrium globular; hypandrium thick and long, convex ventrally, pointed at apex (?biapiccate); apex of phallus simple, thin, pointed; strong epandrial seta arising from distoventral lobe of epandrium; surstylus projecting, bilobate; cercus big, rounded, covered with short cilia; thick, strong and long lateral spine is visible between cercus and surstylus.

Remarks. The following character states place *Medeterites* in the Medeterinae (see Yang et al., 2006):

Vertex not excavated; upper occiput distinctly concave; vertical seta nearly at level of oculus. Eyes with tiny hairs. Male eyes separated on face. Male face relatively narrow, narrowing downward. Postocular bristles one-rowed. Proboscis thick, projecting. Antennal stylus apical. Mesonotum with flat mid-posterior slope. Proepisternum not haired, only with separate bristle on mid-lower portion. Strong dorsocentrals decreasing in size anteriorly. Hairs on legs uniformly short. Hind coxa with 1 outer bristle at middle. Mid and hind femora without anterior preapical bristles. Anal cell absent; anal vein weak. Male abdominal segment 6 large triangular, with hairs and bristles. Male genitalia mostly exposed; surstylus strongly developed and distinctly divided; postgonite indistinct.

The following character states distinguish *Medeterites* from other Medeterinae:

Palpus as long as clypeus, elongate-ovate; a long and strong black prong lying along lateral side of palpus; acrostichals absent; 2 regular rows of 6 strong dorsocentrals, slightly diverging posteriorly; legs devoid of long bristles (plesiomorphy), simple; femora ventrally glabrous; tibiae each with 2–3 very short apical setae; wing with R_1 long, ending right before level of *dm-cu* (plesiomorphy); R_{4+5} and M_{1+2} straight and subparallel behind *dm-cu* (plesiomorphy); M_{1+2} joining costa behind wing apex; male abdomen with sterna 2–6 well sclerotised; tergum 7 short, not longer than tergum 6; epandrium globular; cercus big, rounded, covered with short cilia (plesiomorphy); thick, strong and long lateral spine is visible between cercus and surstylus (apical subepandrial processes?).

The following character states distinguish *Medeterites* from “medeterine” genera sensu Meunier (see also key below):

Wing veins R_{4+5} and M_{1+2} straight and subparallel behind *dm-cu* (symplesiomorphy); antennal postpedicel not longer than high; arista-like stylus 2.5 times longer than antennomeres combined; hind basitarsus half as long as next segment; epandrium globular; cercus big, rounded, covered with short cilia.

The *Medeterites* is certainly an ancestral medeterine genus that can not be associated with any of the extant tribes of the subfamily (Medeterini, Thrypticini and Systemeni).

Medeterites molestus (Meunier), **comb. n.**
(Colour plate 8: fig. 1–4; fig. 5)

Thrypticus molestus Meunier, 1907: 209; Meunier, 1908b: 39.

Material. ♂. Completely preserved specimen in the piece of amber labelled: Baltic Amber: Yurmala, January 2006 (N. Vikhrev); Upper Eocene – Lower Oligocene [ZMU].

Description. Male. General coloration of head, thorax and abdomen brown-black, with metallic greenish shine in certain light. Pollinosity is virtually indistinguishable. Major bristles dark.

Head: vertex not excavated; upper occiput (invisible) flat or slightly concave; vertical bristle strong and long, positioned at upper corner of frons; short postvertical seta as a linear continuation of postocular setal row; one pair of strong ocellar bristles with adjacent pair of hairs; single row of short dark simple postoculars decreasing in size upward; eyes with microscopic hairs between facets; face under antenna 1.5–2 times as wide as postpedicel height, slightly narrowing towards clypeus; facial suture and clypeus distinct; antenna slightly longer than eye height, black; scape and pedicel small; scape vaselike, glabrous; pedicel globular, with cirlet of apical setulae of approximately equal length; postpedicel slightly larger than pedicel, semiglobular, shortly pubescent; stylus apical, filiform, shortly haired, with its 1st segment being very short. Length ratio of scape to pedicel to postpedicel to arista-like stylus, 3/3/4/26. Palpus and proboscis black, sparsely haired; palpus as long as clypeus, elongate-ovate, with strong apical bristle; a long and strong black prong lying along lateral side of palpus; proboscis thick, projecting, half as long as eye height.

Thorax: with posterior third of mesonotum distinctly flattened; 1 strong humeral, 1 sutural, 1 long and 1 short notopleurals, 2 strong supraalar and 1 long postalar setae; acrostichals practically absent, with few hairs on anterior slope of mesonotum; 2 regular rows of 6 strong dorsocentrals decreasing in length anteriorly; the rows slightly diverging posteriorly; anterior dorsocentral seta is small in left row; 1 pair of strong scutellars; postnotum distinct; 1 strong proepisternal seta just above fore coxa; proepimeron without strong setae, with few minute hairs.

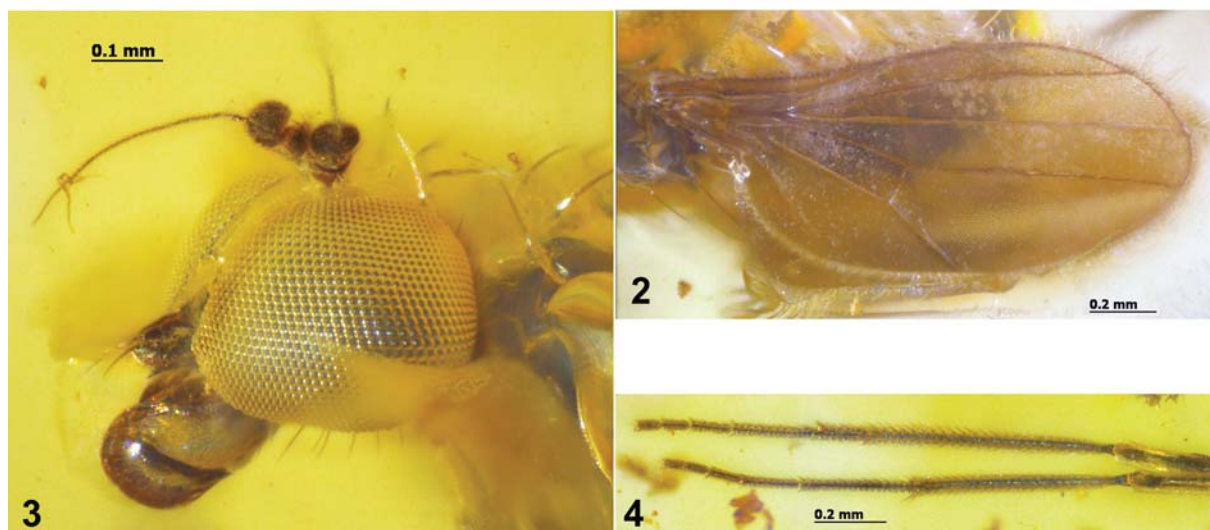


Fig. 1. *Medeterites molestus* (Meunier, 1907), habitus, left lateral aspect.
Рис. 1. *Medeterites molestus* (Meunier, 1907), внешний вид слева.

Fig. 2. *Medeterites molestus* (Meunier, 1907), right wing.
Рис. 2. *Medeterites molestus* (Meunier, 1907), правое крыло.

Fig. 3. *Medeterites molestus* (Meunier, 1907), head.
Рис. 3. *Medeterites molestus* (Meunier, 1907), голова.

Fig. 4. *Medeterites molestus* (Meunier, 1907), mid and hind legs.
Рис. 4. *Medeterites molestus* (Meunier, 1907), средняя и задняя ноги.

Legs including coxae dark, simple, without long bristles; fore and mid coxae with short simple cilia and 3–4 strong subapical setae anteriorly; hind coxa with 1 strong lateral bristle above middle; claws and pulvilli on all legs small; legs evenly covered with ordinary setulae except as noted; mid trochanter with 1 dorsal seta; femora without strong setae, ventrally glabrous; tibiae each with 2–3 very short apical setae; hind tibia with 1 dorsal at 2/3 and 1 apicoventral setae, slightly longer than diameter of tibia; fore leg length ratio (from femur to tarsomere 5): 30/35/15/8/5/4/5, mid leg: 40/45/21/10/7/5/4, hind leg: 45/50/9/17/8/5/5.

Wing: hyaline, evenly greyish, with brown veins; subcosta ending at R_1 mid length; R_1 ending right before level of *dm-cu*; R_{2+3} and R_{4+5} gradually diverging to wing apex; R_{2+3} slightly convex anteriorly; R_{4+5} and M_{1+2} straight and subparallel (inconspicuously diverging) behind *dm-cu*. M_{1+2} joining costa right 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 *dm-cu* to distal part of CuA_1 , 16/12/8/21. Crossvein *dm-cu* straight, forming right angles with CuA_1 and with M_{1+2} longitudinal veins, slightly shorter than maximum distance between R_{4+5} and M_{1+2} veins. Anal vein distinct; anal lobe present; alula absent. Lower calypters and halteres covered with air bubbles.

Abdomen: conoid, with strong tergal setae and sparse sternal hairs on segments 1–6; sterna 2–6 well sclerotised; tergum 7 short, not longer than tergum 6; segment 8 large, positioned left basodorsally, covered with cilia. Epandrium globular; hypandrium thick and long, convex ventrally, pointed at apex (?biapicate); apex of phallus simple, thin, pointed; strong epandrial seta arising from distoventral lobe of epandrium; surstyli projecting, seems to be asymmetrical (right surstylus poorly visible); dorsal arm narrow, bearing 2–3 subapical ventral setae; ventral arm expanded distally, with few short apical setae; cercus big, rounded, covered with short cilia; thick, strong and long lateral spine is visible between cercus and surstylus.

Length (mm): body without antennae 1.7, antenna 0.5, wing 1.7/0.7, hypopygium 0.25.

Diagnosis and remarks. *Medeterites molestus* was originally described with the body length 1.25 mm in male and 1.75 mm in female; otherwise, the specimen examined has no principal differences from the description and pictures provided by Meunier (though his varieties may belong to different species). *M. molestus* differs from other species described by Meunier in the genus “*Thrypticus*” in shortened hind basitarsus, which is half as long as next segment in *M. molestus* and only slightly shorter than latter in “*Thrypticus*”. “*Chrysotus decorus* Meunier, 1907, may be congeneric with *M. molestus*, differing from the latter in position of posterior crossvein of wing, *dm-cu* (according to Meunier, it is “distinctly closer to wing base than to apex”; compare with Fig. 2 in this paper). *M. molestus* seems to be one of the commonest medeterine species in the Baltic amber, originally described by 13 males and 14 females, excluding varieties.

Key to Dolichopodidae genera from Baltic amber with apical arista-like stylus (after Meunier, 1908b)

1. Wing veins R_{4+5} and M_{1+2} distinctly convergent behind *dm-cu* “*Medetera*” sensu Meunier
– Wing veins R_{4+5} and M_{1+2} straight and subparallel behind *dm-cu* 2
2. Antennal postpedicel distinctly longer, sometimes much longer, than high at base, with acute or pointed apex in both sexes..... 3
– Antennal postpedicel not longer than high, rounded 5
3. Hind basitarsus only slightly shorter than next segment; tibiae with rows of distinct dorsal setae; male cercus long and narrow
..... *Rhaphium* (“*Xiphandrium*”

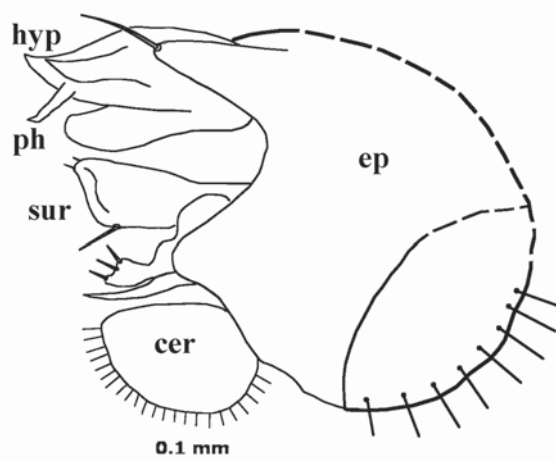


Fig. 5. *Medeterites molestus* (Meunier, 1907), hypopygium, left lateral aspect. Abbreviations: cer – cercus; ep – epandrium; hyp – hypandrium; ph – phallus; sur – surstylus.

Рис. 5. *Medeterites molestus* (Meunier, 1907), гипопигий слева. Сокращения: cer – церка; ep – эпандрий; hyp – гипандрий; ph – фаллус; sur – сурстиль.

and “*Porphyrus*” sensu Meunier)

- Hind basitarsus about half as long as next gment 4
- 4. Antennal postpedicel much longer, than high at base, with arista-like stylus inserted in apical notch of icel
..... “*Systemus*” sensu Meunier
– Antennal postpedicel almond-shaped, without apical notch
..... “*Achalcus*” sensu Meunier
- 5. Hind basitarsus only slightly shorter than next segment
..... “*Thrypticus*” sensu Meunier
– Hind basitarsus much shorter than next segment 6
- 6. Hind basitarsus 2/3 the length of next segment; wing crossvein *dm-cu* distinctly closer to wing base than to apex
..... “*Chrysotus decorus* Meunier
– Hind basitarsus half as long as next segment; crossvein *dm-cu* located at middle of wing *Medeterites* Grichanov, **gen. n.**

Acknowledgements

The author expresses sincere gratitude to Drs. Nikita Vikhrev and Andrei Ozerov (Moscow) for their kindness in furnishing an opportunity to study the collections of their museum.

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