



A new species of *Melipriopsis* Kirejtshuk, 2011 (Coleoptera: Nitidulidae: Meligethinae) from the Eocene Baltic amber

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Abstract

Melipriopsis baltica sp. nov. is described and illustrated from the Eocene Baltic amber. The described holotype (female) of this species has the fully exposed ovipositor with characters similar (general outline, configuration of lobes of the gonocoxites, and disposition of styli) to those in the extant members of the subfamily Meligethinae.

Key words: Cenozoic, Paleogene, sap beetles, ovipositor

Резюме

Melipriopsis baltica sp. nov. описан и иллюстрирован из эоценового балтийского янтаря. Описанный голотип этого вида имеет полностью выдвинутый яйцеклад с признаками, сходными с таковыми у современных представителей подсемейства Meligethinae.

Ключевые слова: кайнозой, палеоген, блестянки, яйцеклад

Introduction

The subfamily Meligethinae Thomson C.G., 1859 is a specialized anthophagous group of sap beetles (Nitidulidae Latreille, 1802), with about 700 currently valid species in the Recent fauna spread mostly in the Eastern Hemisphere (Eurasia, Africa, Madagascar and their adjacent islands) and only few species occur in North America north of Mexico and in Australia. The modern species are arranged into 19 genera and subgenera (Kirejtshuk 2008), although according to Audisio *et al.* (2009) the number of generic taxa was increased to 46, including some revived synonyms and new taxa described mostly from DNA sequences obtained from some Palaearctic species. These proposals were published without proper diagnoses. At the moment the second interpretation of the subfamily classification can be scarcely recognized. Kirejtshuk (2011a) and Kirejtshuk & Kirejtshuk (2012) pointed out on impossibility to clearly identify and use these restored and newly proposed taxa and, therefore, the supraspecific classification as well as most species-groups need to be widely revised.

Only one genus of this subfamily, *Melipriopsis* Kirejtshuk, 2011b, was erected for a fossil species (*Melipriopsis rasnitsyni* Kirejtshuk, 2011b), having, in contrast to modern meligethines, ciliate pronotal and elytral sides. Besides, *Pria* Stephens, 1830 was mentioned from Baltic amber by Klebs (1910), however this record requires further confirmation. Other pre-Pleistocene mentions of fossil Meligethinae concern the genus *Meligethes* Stephens, 1830 from Kleinkembs (Germany, Salt Formation), early/lower Oligocene and Brunstatt (France), early/lower Oligocene (Forster 1891; Theobald 1937). This paper deals with a description of the second species of *Melipriopsis* from the Eocene Baltic amber.

Material and methods

The material examined is deposited in the collection of Museum of Amber Inclusions (Muzeum inkluzji w bursztynie), Department of Invertebrate Zoology and Parasitology, Faculty of Biology, Gdańsk University (Gdańsk, Poland) [MAIG].

Observations of the specimen were made using a Nikon SMZ 745T stereomicroscope. Photographs of the specimen were taken using a Canon 70D camera with a macro lens (Canon MPE-65 mm). Extended depth of field at high magnifications was achieved by combining multiple images from a range of focal planes using Helicon Focus v. 6.0.18 software, and the resulting images were edited to create figures using Adobe Photoshop CS5.

Measurements of the holotype were made using an ocular micrometer in a stereoscopic microscope. Total body length of holotype was measured (in dorsal view) from anterior part of head to apex of pygidium.

Systematic Palaeontology

Family Nitidulidae Latreille, 1802

Subfamily Meligethinae Thomson C.G., 1859

Genus *Melipriopsis* Kirejtshuk, 2011

Type species: *Melipriopsis rasnitsyni* Kirejtshuk, 2011

Melipriopsis baltica Kirejtshuk et Bukejs, **sp. nov.**

(Figs 1–7)

LSID urn:lsid:zoobank.org:act:B631F9C3-1D89-4BF8-AEA1-758EE443BC8A

Type material. Holotype: Nr. 6897 [MAIG] (ex coll. Jonas Damzen JDC-9007); adult, female. A rather complete beetle (right anterior leg is missing) with completely exposed ovipositor included in a transparent, yellow amber piece, which has approximate dimensions of 13×7 mm and a maximum thickness of 1 mm; preserved without supplementary fixation. Anterior portion of head obscured by milky opacity. Syninclusions: two specimens of Aphididae (Hemiptera), one stellate trichomes of Fagaceae, and a few detrital particles.

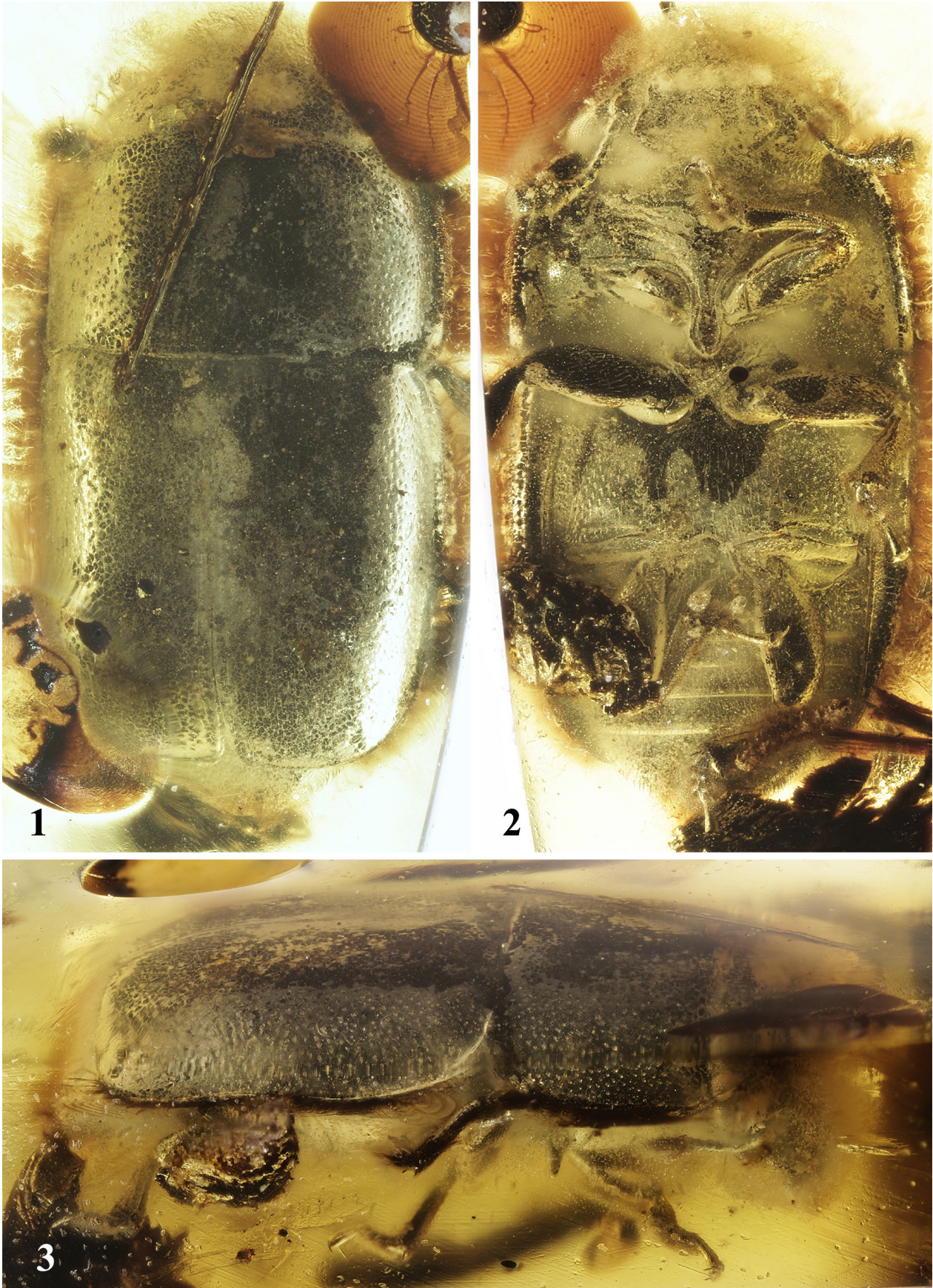
Type stratum. Mid-late Eocene, 48–34 Ma (Sadowski *et al.* 2017; Seyfullah *et al.* 2018; Bukejs *et al.* 2019; Kasiński *et al.* 2020).

Type locality. Yantarny settlement (formerly Palmnicken), Sambian (Samland) Peninsula, Kaliningrad Region, Russia.

Description. Measurements: body length 3.8 mm; pronotal length 1.1 mm, pronotal maximum width 2.0 mm; elytral length 2.5 mm, elytra maximum combined width 2.0 mm; length of exposed ovipositor 0.7 mm. Body shape widely oval, subparallel-sided in dorsal outline, moderately convex dorsally and slightly convex ventrally; integument with fine, short, subrecumbent setae, pronotal and elytral lateral margins and pygidium with rather dense cilia; uniformly dark brown (as preserved) and with plumbeous lustre on dorsal surface.

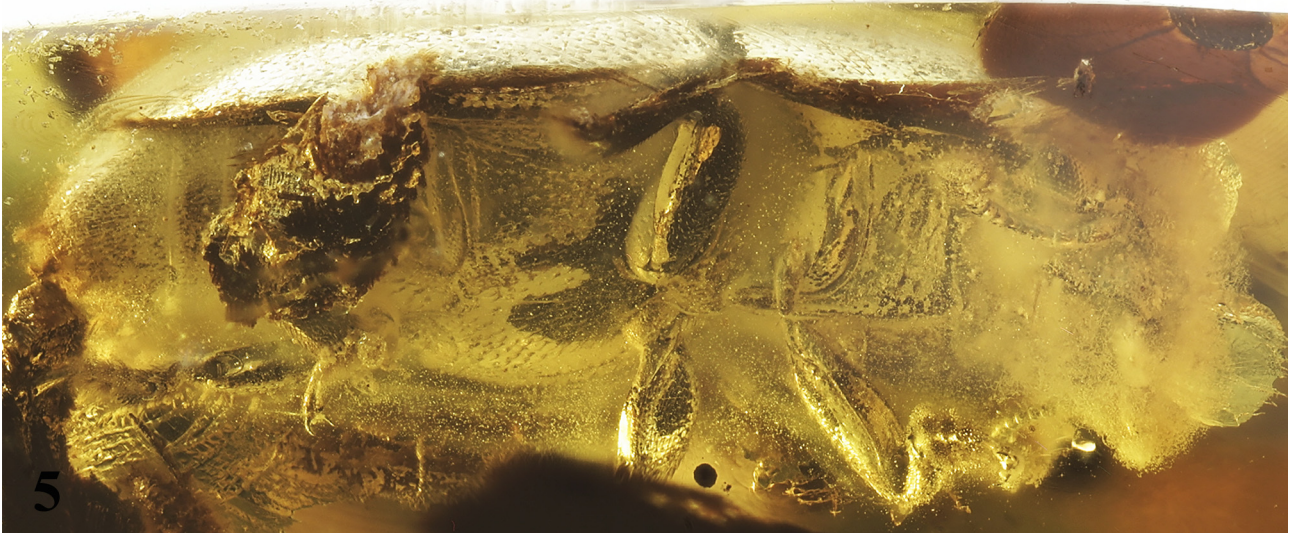
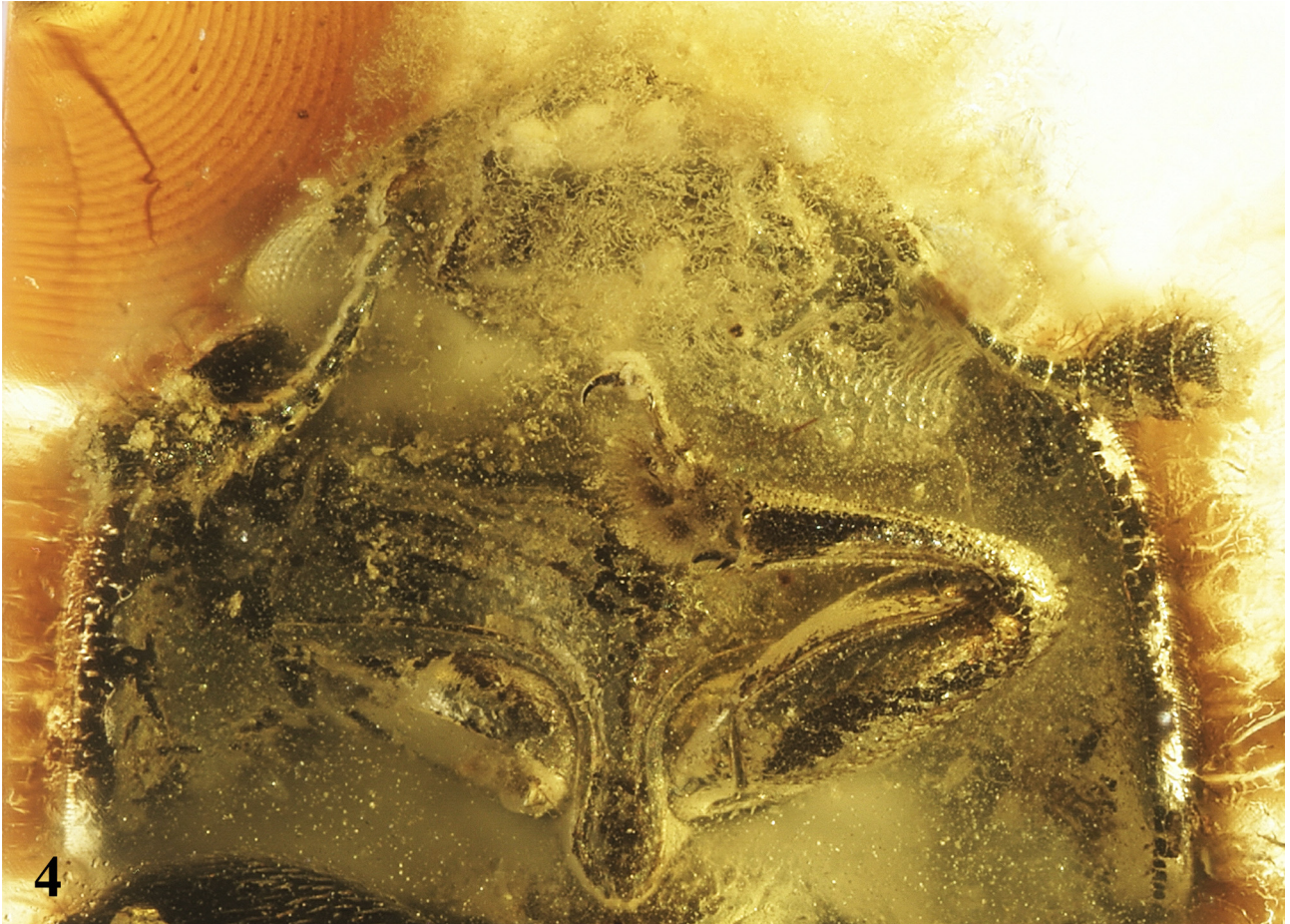
Punctuation: head with small punctuation, puncture diameter slightly smaller than eye facet diameter, distance between punctures distinctly less than diameter of one puncture, interspaces microreticulate; pronotum and elytra with more or less smaller and significantly sparser punctuation, distance between punctures equal to 0.75–1.5× puncture diameter, interspaces with obliterated microreticulation to alutaceous; sculpture of thoracic sclerites with finer and more or less sparser punctuation and more distinct microreticulation; abdominal ventrites with slightly smaller and sparser punctuation than that on metaventricle, interspaces with microreticulation; pygidium densely and finely punctate to microtuberculate.

Head with frons weakly convex. Eyes small, with small facets, interocular distance about 4× transverse diameter of eye. Mentum subtrapezoidal, 2.5× as wide as long and slightly widened anteriorly. Antennal grooves distinct along inner margin of eye, slightly curved and rather short; postocular depression indistinct. Antennae 11-segmented with 3-segmented compact club; about 0.65× as long as head width (including eyes), with sparse erect

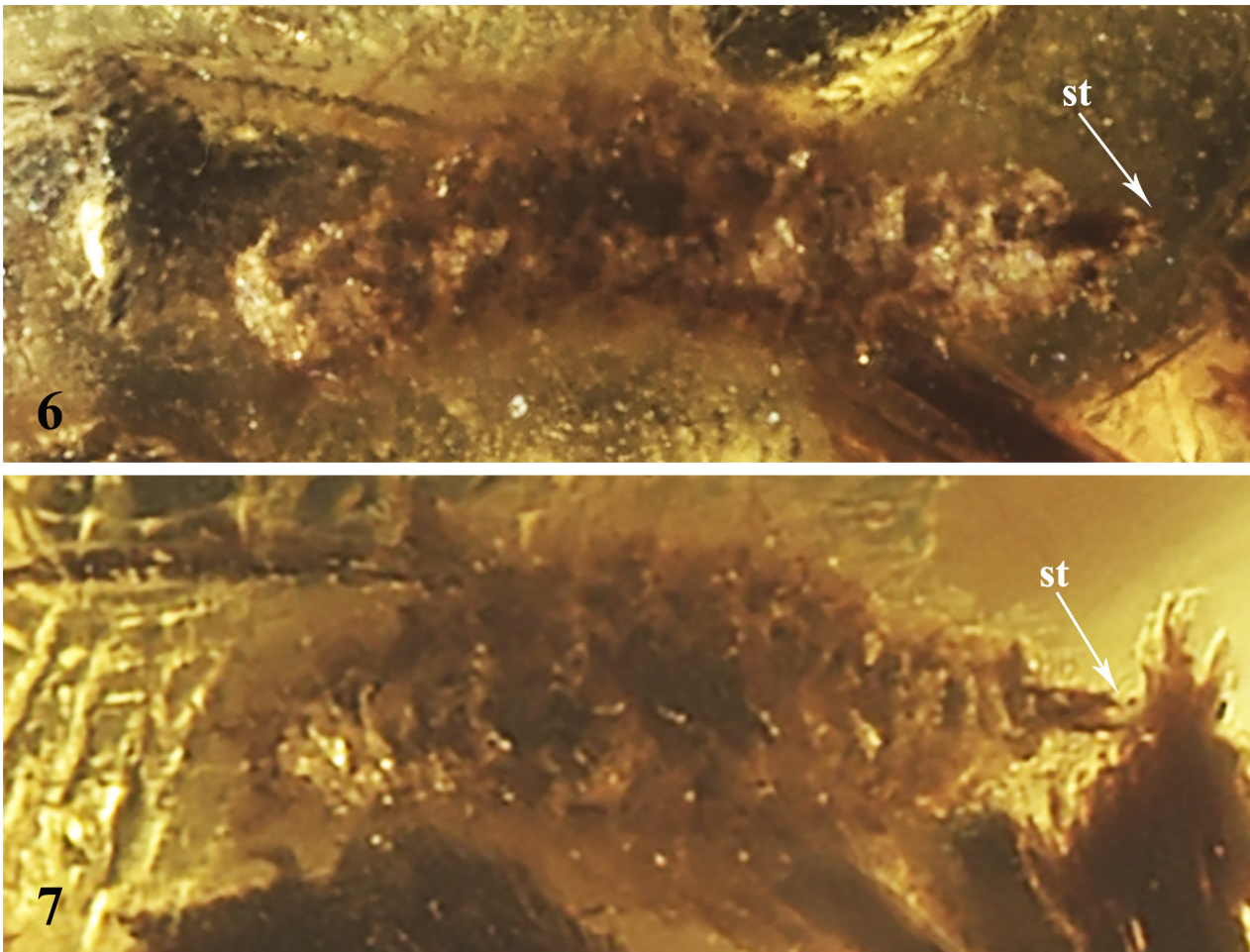


FIGURES 1–3. *Melipriopsis baltica* sp. nov., holotype, No 6897 [MAIG], habitus: 1 – dorsal view; 2 –ventral view; 3 – right lateral view. Body length 3.8 mm.

setae; scape subcylindrical, about 2.5× as long as wide, about 1.3× as long as pedicel; pedicel cylindrical, 2.0× as long as wide; antennomere 3 cylindrical, slightly longer than antennomere 4; antennomeres 4–5 subcylindrical, slightly dilated apically, nearly as long as wide; antennomeres 6–8 thickened apically, transverse; antennomeres 9–11 forming compact club, flattened, about 0.3× as long as antennomeres 1–8 combined, about 2.5× as wide as long; antennomere 11 with subacute apex, nearly as long as wide; relative length ratios of antennomeres 1–11 equal to 8:6:5:3:3:3:3:3:5:4:8.



FIGURES 4–5. *Melipriopsis baltica* sp. nov., holotype, No 6897 [MAIG]: 4 – head and prothorax with appendages, ventral view; 5 – habitus, oblique dorsolateral view. Body length 3.8 mm.



FIGURES 6–7. *Melipriopsis baltica* sp. nov., holotype, No 6897 [MAIG], ovipositor: 6 – dorsal view; 7 – dorso-lateral view. Length of ovipositor 0.7 mm. Abbreviation: st – styli.

Pronotum subrectangular, transverse, 1.8× as wide as long, widest at base and slightly narrowed anteriorly; with evenly convex disc and gently sloping at sides. Posterior margin weakly bisinuate, with distinct, narrowly bordered along middle; lateral margins weakly rounded, subparallel, with narrow bordering; anterior margin weakly bisinuate in dorsal view, apparently not beaded. Posterior angles distinct, obtuse, slightly projecting posteriorly; anterior angles rounded, slightly projecting anteriorly. Prosternum with disc convex; intercoxal prosternal process about 0.9× as wide as width of antennomere 10, flat, slightly dilated in apical one-fourth forming arrow-like apex, distinctly bordered along entire length, with rounded apex.

Scutellar shield transverse, suboval to subpentagonal and with widely rounded apex.

Elytra elongate, about 1.25× as long as wide combined, very widely arcuate at sides, with maximum width at mid length, 2.3× times as long as pronotum, at base nearly as wide as pronotum; evenly convex at disc and gently sloping at sides; lateral margins narrowly bordered; adsutural lines distinct in distal half; apices very widely rounded to subtruncate. Pygidium exposed, slightly convex, with widely rounded apex. Epipleura moderately wide and about as wide as antennal club. Mesoventrite apparently subflattened medially. Metaventrite slightly convex, with shallow medial impression; postmesocoxal line distinct, arcuately deviating at outer end of mesocoxae; posterior margin between metacoxae angularly excised.

Legs long and moderately thick. Procoxae about 2.3× as wide as long; mesocoxae somewhat more narrowly separated than procoxae; metacoxae 2.1× as wide as long; all coxae distinctly separated, distance between metacoxae about 2× as distance between mesocoxae. Femora widened medially, moderately flattened, about 1.9× as wide as prosternal process maximum width. Tibiae subtriangular, distinctly dilated and widened apically, slightly shorter than femora and slightly narrower than antennal club; protibiae with fine crenulation along outer margin; meso- and metatibiae with one row of dense and short setae along outer margin; apical spurs short and stout. Tarsi long, about

0.7× as long as tibia; protarsi apparently 0.5× as wide as prosternal process; tarsomeres 1–3 slightly dilated apically; pro- and mesotarsomere 5 longest, slightly curved. Tarsal claws simple, narrow, long.

Abdomen nearly flat; ventrite 1 longest, slightly longer than ventrites 2–4 combined, submetacoxal line situated closely to posterior edge of metacoxal cavity; ventrite 5 (hypopygidium) subtruncate, without impression basally; relative length ratios of ventrites 1–5 equal to 35:9:10:12:28 (medially).

Ovipositor (Figs 6–7) strongly turned anteroventrally and only its upper side somewhat observable (because of obscured amber matrix), comparatively long; valvifer moderately wide and slightly narrowing distally, its length apparently about half of total length; outer lobes of gonocoxites apparently rather short and wide (about 0.3× as long as inner lobes); inner lobes becoming narrow and rather sclerotized, subparallelsided before blunt apex; short styli located apically closely to each other and oriented distally.

Diagnosis. *Melipriopsis baltica* sp. nov. differs from the type species of its genus in the wider and less convex body, the markedly finer and denser punctation of the integument, the widely explanate pronotal and elytral sides, the presence of the plumbeous lustre on the upper body surface, the smaller and narrower antennal club, the slightly projecting pronotal anterior and posterior angles (the anterior angles not projecting and posterior ones significantly projecting in *Melipriopsis rasnitsyni*), the shorter ultimate abdominal segment, and the narrower legs with particularly tarsi.

Etymology. The epithet is pointing on the origin of the holotype of this new species in Baltic amber.

Note. In general, beetle ovipositor is rarely fully exposed (extracted from abdomen), and the ovipositor of the holotype of *Melipriopsis baltica* sp. nov. is the first case among the fossil nitidulids. Many extant nitidulids of all phyletic lines possess a rather generalized structure of the ovipositor, including most meligethines.

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