

***Proclithrophorus genalis* sp. n. from northern Finland representing a genus new to European fauna (Hymenoptera: Braconidae: Euphorinae)**

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Proclithrophorus genalis sp. n. is described on the basis of one female from Pudasjärvi, northern Finland. The new species is compared with eastern Palaearctic type species of the genus, *P. mandibularis* Tobias et Belokobylskij, 1981.

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1. Introduction

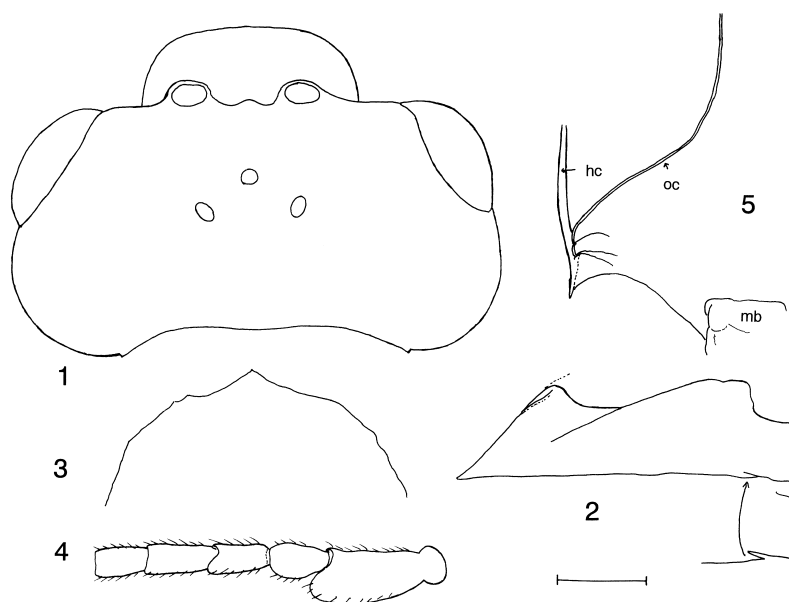
The euphorine genus *Proclithrophorus* and its type species *P. mandibularis* were described from the Russian Far East by Tobias and Belokobylskij (1981) based on four females from two localities. Shaw (1985) keyed the euphorine genera of the world. He gave a full diagnosis for *Proclithrophorus* and included 68 character states in the phylogenetic matrix. Since then the type species was further figured by van Achterberg (1993). Later on, one female was found in north-eastern China: Jilin, Mt Changbai and figured by Chen and van Achterberg (1997). The genus is characterized by a large and broad head with subhorizontally forward-protruding clypeus and with antenna shifted toward its base and by enormously enlarged mandibles with a step-like subapical incision. Other characters of the genus were summarized by Chen and van Achterberg (1997).

During the summer excursion of the Entomological Society of Finland, one female of *Proclith-*

rophorus was unexpectedly caught on 4 July 2000 in Pudasjärvi, Livo (65°32'N, 26°57'E) in northern Finland by the second author. The specimen appeared to be darker than the specimens of *P. mandibularis* according to the original description. Through the kindness of Dr. Sergey Belokobylskij, Zoological Institute, Russian Academy of Sciences, St. Petersburg, one female paratype of *P. mandibularis* was loaned for comparison. The Finnish female was reported as a member of a new genus to Europe at the meeting of the Entomological Society of Finland in December 2000 by the second author and is described as a new species of the genus in this paper.

2. Material and methods

The specimens were studied under a stereomicroscope at magnifications of 50× and 100×; the light source was a halogen lamp of 12V/20W with a light beam width of 10 degrees. The light was diffused by placing a piece of thick (0.2 mm) tracing acetate near the specimen. Measurements



Figs. 1–5. *Proclithrophorus genalis* sp. n. holotype. (1) Head in dorsal view. (2) Right mandible in lateral view. Insert: apex more below to show lower tooth. (3) Upper part of occipital carina. (4) Base of right antenna, inner lateral view. (5) *P. mandibularis* Tobias & Belokobylskij paratype. Lower part of right occipital carina (oc) joining hypostomal carina (hc), mediad of mandibular base (mb), oblique lateral view from back and below. Scale line 0.2 mm (Figs. 1–4) and 0.1 mm (Fig. 5).

and drawings were made using a grid of squares (50 × 50, side 0.20 mm) in one eyepiece.

Terminology of the body parts is according to Wharton *et al.* (1997). LOL = distance between median ocellus and lateral ocellus, OOL = distance between eye and nearest lateral ocellus, POL = distance between lateral ocelli. Mesosoma length was measured beginning from the lower anterior margin of the mesoscutum and mesosoma width as the width of the mesoscutum. Metasomal tergum 1 length and metasoma length were measured beginning from the insertion point of the extensor tendon. Postpetiolus is the caudal part of tergum 1 posterior of spiracles.

3. Results

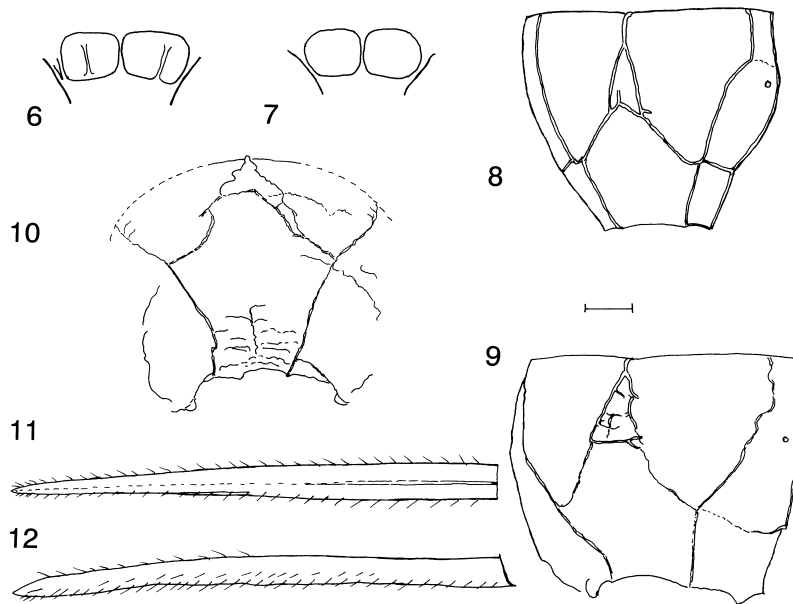
3.1 Description of *Proclithrophorus genalis* sp. n.

Female. Length of body ca. 3.2 mm, of forewing 3.0 mm.

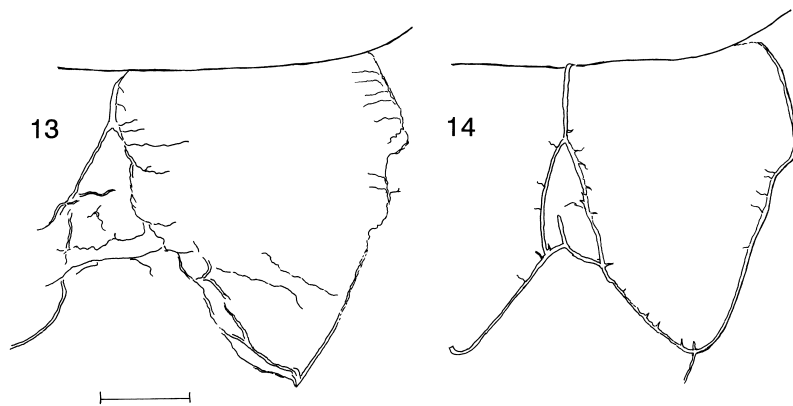
Head black, malar space brown. Mandible brownish yellow, apically pale brown. Labrum, and mouth parts including palpi brownish yellow. Scape and pedicel dark brown, flagellum basally blackish brown, toward apex brownish black. Mesosoma black. Flange of propleuron brown.

Tegula yellowish brown, pterostigma brownish black, venation of forewing mostly dark, of hind wing yellowish. Legs yellowish brown, hind coxa and tibia slightly infuscate. Metasoma black. Base of petiole brownish, ovipositor sheath basally brownish black, apically black.

Head large, 1.6 as broad as mesoscutum, in dorsal view transverse, length/width index 0.67, without protruding clypeus 0.52. Gena strongly developed, head slightly (1.025) broader behind eyes than at eyes (Fig. 1). In anterior view head transverse, height/width index 0.70. Mandibles (Fig. 2) symmetrical, maximum length/width index 3.4. Maxillar palpus 5-segmented, labial palpus 3-segmented. OOL/POL index 2.2, POL 3.3 times as wide as diameter of median ocellus and 2.0 times as wide as LOL. Occipital carina (Fig. 3) complete, weak carina present also dorsomedially, lower part strongly bent inwards before joining with hypostomal carina much mediad of mandibular base as in *P. mandibularis* (Fig. 5). Scape (Fig. 4) broadened apically, with rather sharp anterior margin, 2.0 as long as wide. Number of flagellomeres 21 (right) or 20 (left



Figs. 6–12. *Proclithrophorus genalis* sp. n. holotype. (7–8) *P. mandibularis* Tobias & Belokobylskij, paratype. (6–7) Scutellar sulcus. (8–9) Propodeum, slightly right lateral view. (10) Propodeum, petiolar area from behind. (11) Ovipositor sheath, dorsal view. (12) Ovipositor sheath, right lateral view. Scale line 0.1 mm.



Figs. 13–14. Propodeal areola and right medio-basal area. (13) *Proclithrophorus genalis* sp. n. holotype. (14) *P. mandibularis* Tobias & Belokobylskij paratype. Scale line 0.1 mm.

antenna). Flagellomere 2 the longest, 1.3 as long as flagellomere 1 or 3, 2.1 as long as wide. Apical flagellomeres becoming gradually smaller, penultimate 0.69 as long as the first, 1.8 as long as wide.

Mesosoma 1.8 as long and 1.5 as high as wide. Scutellar sulcus (Fig. 6) divided by medial carina and the large pits have one weaker longitudinal carina each. Propodeum (Fig. 9) anteriorly with short median carina and areolated. Propodeal areola (Fig. 13) rather broad, triangular and wrinkled. Petiolar area (Fig. 10) broad and strongly excavated above and strongly wrinkled below. Basal medial area laterally and basal lateral area rugose and with carinae rather low. Hind femur (without trochantellus) 4.8 as long as high. Hind

tibia 1.18 as long as hind tarsus, tibial spurs slender, subequal, inner spur 0.41 as long as basitarsus.

Metasomal tergum 1 petiolate, widening posteriorly, 2.0 as long as posteriorly wide, with spiracles at the middle, with tergum and sternum entirely separate, chitinized sternum ending before spiracle. Fused terga 2–3 in dorsal view 1.3 as wide as long. Ovipositor sheath in dorsal view (Fig. 11) apically narrow, sharp, hairy, in lateral view (Fig. 12) apically broader, 0.35 as long as forewing.

Male. Unknown.

Holotype female. Finland, [Grid 27°E] 72727:4983. Oba: Pudasjärvi, 4.7.2000, M. Koponen leg. (coll. Department of Applied Biology, University of Helsinki).

Table 1. Measurements, colour and other characters of *Proclithrophorus genalis* sp. n. and a female paratype of *P. mandibularis*.

Measurements (mm)	Pudasjärvi	Spassk
Body length ca.	3.2	3.2
Forewing length	3.0	3.0
Head width at eyes	1.075	1.05
Head width at temples	1.10	1.04
Head length, dorsal view	0.74	0.75
Head height, anterior view	0.77	0.70
Clypeus width	0.50	0.53
Distance between eyes	0.64	0.63
Mandible: length/width	0.78/0.23 = 3.4	0.82/0.20 = 4.1
Eye	0.37 × 0.27	0.35 × 0.27
OOL	0.372	0.352
POL	0.166	0.126
Median ocellus width	0.051	0.057
LOL	0.085	0.071
Scape: length/width	0.26/0.13	0.24/0.105
Pedicel	0.13	0.13
Flagellomere 1	0.13	0.13
Flagellomere 2: L/W	0.17/0.08	0.145/0.065
Flagellomere 3	0.13	0.13
Flagellomere 4	0.14	0.13
Flagellomere 5	0.125	0.11
Flagellomere 19 or 20: L/W	0.09/0.05	0.09/0.05
Flagellomere 20 or 21	0.14	0.15
Mesosoma length	1.25	1.29
Mesosoma width	0.68	0.60
Mesosoma height	1.01	1.00
Propodeum, median carina	0.05	0.08
Prop., petiolar area width	0.36	0.25
Hind femur: L/W	0.84/0.175 = 4.8	0.82/0.155 = 5.3
Hind tibia	1.19	1.16
Hind tibia, inner/outer spur	0.18/0.16	0.15/0.13
Hind tarsus	1.07	1.04
Hind basitarsus (dorsal)	0.44	0.43
Metasoma length	1.47	1.28
Tergum 1, length	0.77	0.75
Tergum 1, narrowest width	0.13	0.08
Tergum 1, width at spiracles	0.23	0.18
Postpetiolus length	0.40	0.42
Postpetiolus width, max.	0.375	0.35
Metasomal terga from 2nd on	0.83	0.80
Terga 2–3 midlength/width	0.53/0.70	0.53/0.63
Ovipositor sheath	1.06	1.05
Colour characters		
Ground colour of body	black	blackish brown
Scape, pedicel	dark brown	brownish yellow
Propleuron	black	brownish yellow
Pronotum, laterocaudally	black	brownish yellow
Mesepisternum, ventrally	black	brown
Pterostigma	blackish brown	brown
Forewing vein RS2	dark brown	yellowish
Tergum 2	black	brown
Other characters		
Genae behind eyes	broadening	parallel
Number of flagellomeres	21–20	21–21
Occipital carina above	complete	0.3 mm missing
Scutellar sulcus	with 3 keels	with one keel
Propodeum, wrinkles	strong	weak

The only specimen was swept near Livojoki river in the yard of an abandoned dwelling house in the village of Livo. The host is unknown. The coordinates of the type locality were determined by a Garmin GPS 12 navigator. The Finnish female fits to the generic description of the genus *Proclithrophorus* given by Chen and van Achterberg (1997) if not mentioned otherwise. The specific name is derived from the genae which are more strongly developed than in the type species of the genus.

3.2 Comparison of the new species and *Proclithrophorus mandibularis* Tobias et Belokobylskij, 1981

The holotype of *P. genalis* sp. n. and a female paratype of *P. mandibularis* are compared with each other in Table 1. The paratype of *P. mandibularis* was collected in Russian Far East: Primorskij krai, 30 km E of Spassk, 16.6.1980, Belokobylskij leg.

The new species *P. genalis* differs from *P. mandibularis* in many characters: the colour of body is darker (the most distinct differences are in the colour of propleuron and pronotum), gena is more swollen, occipital carina is complete, POL is wider and POL/OOL index is larger (0.45 contra 0.36), scape is wider (length/width index 2.0 contra 2.3), scutellar sulcus has three carinae, hind femur is stouter and there are differences in the structure and surface sculpture of propodeum: median keel is shorter, areola and petiolar area are broader and rugose sculpture is stronger in *P. genalis*.

The figured characters of the Chinese female of *P. mandibularis* fit to the characters of the paratype of *P. mandibularis*; it has 22 flagellomeres (fig. 451 in Chen et van Achterberg 1997).

The comparison of the above description of the holotype of *P. genalis* with 7 other specimens of *P. mandibularis*, including the holotype and two paratypes, in the Zoological Institute, Russian Academy of Sciences, St. Petersburg was made by Dr. Sergey Belokobylskij: "the colour characters and the structure of the occipital carina appear to be good separating characters. Other characters, especially the shape of the areas and the sculpture of the propodeum show considerable variation in *P. mandibularis* specimens".

4. Discussion

The finding of a representative of the genus *Proclithrophorus* in Finland was rather unexpected because earlier records are some 6000 km away near the coast of the Pacific Ocean. The only Finnish specimen differs in many colour and structural characters from eastern Palaearctic specimens and giving it a name seems moderately well founded. More European specimens are needed to see how stable the used characters are.

The enormously enlarged mandibles are obviously used to grasp the unknown host species (possibly an adult beetle) during the ovipositing, as in the genus *Cosmophorus* Ratzeburg (tribe Cosmophorini). In many characters the genus *Proclithrophorus* was found to be closely related to the genera *Microctonus* Wesmael and *Streblocera* Westwood by Tobias and Belokobylskij (1981). The euphorine genera of the world were reviewed by Shaw (1985) and their phylogeny and biology were discussed by Shaw (1988). He (Shaw 1985) placed *Proclithrophorus* in a new tribe Microctonini together with *Microctonus*, *Streblocera* and *Ecclitura* Kokujev. The known hosts of the tribe Microctonini are adult beetles of the families Chrysomelidae, Curculionidae, Alleculidae, Cerambycidae, Tenebrionidae and Carabidae (Shaw 1988). The hosts of *Proclithrophorus* are unknown. A new tribe Proclithrophorini Tobias was created for *Proclithrophorus* by Tobias (1986). This monotypic tribe was based solely on the adult characters of the mandibles and the clypeus; when the host is known, we can better estimate if it is really needed.

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