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Dencyrtus gen. nov. (Hymenoptera, Chalcidoidea, Encyrtidae) from the Late Eocene Danish Amber

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Abstract—Based on two females from the Danish amber collection of the Zoological Museum of University of Copenhagen, *Dencyrtus vilhelmseni* gen. and sp. nov. is described. The antennae of the new genus are very similar in structure to that of *Eocencyrtus* Simutnik, 2001 from the Rovno and Baltic ambers. However, the presence of the filum spinosum on the linea calva of the forewing disc indicates that it belongs to a different subfamily.

Keywords: Encyrtidae, *Dencyrtus*, filum spinosum, Eocene, Danish amber

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INTRODUCTION

General information on the locality, age, and composition of the fauna from Danish amber were provided in works of Larsson (1978), Dlussky and Rasnitsyn (2009), Perkovsky (2011, 2016), Guénard et al. (2015), and Nadein et al. (2016). Two encyrtids belonging to different subfamilies have previously been described from the Danish amber (Simutnik, 2015; Simutnik and Perkovsky, 2017). The material is stored in the collection of the Zoological Museum of University of Copenhagen (ZMUC). The photographs are taken with an Olympus C-4040ZOOM camera and Olympus CX41 microscope, and treated using HeliconFocus 6.0.18 software.

SYSTEMATIC PALEONTOLOGY

Family Encyrtidae Walker, 1837

Subfamily Encyrtinae Walker, 1837

Genus *Dencyrtus Simutnik*, gen. nov.

Etymology. From Denmark and the generic name *Encyrtus* Latreille, 1809; masculine gender.

Type species. *Dencyrtus vilhelmseni* sp. nov.

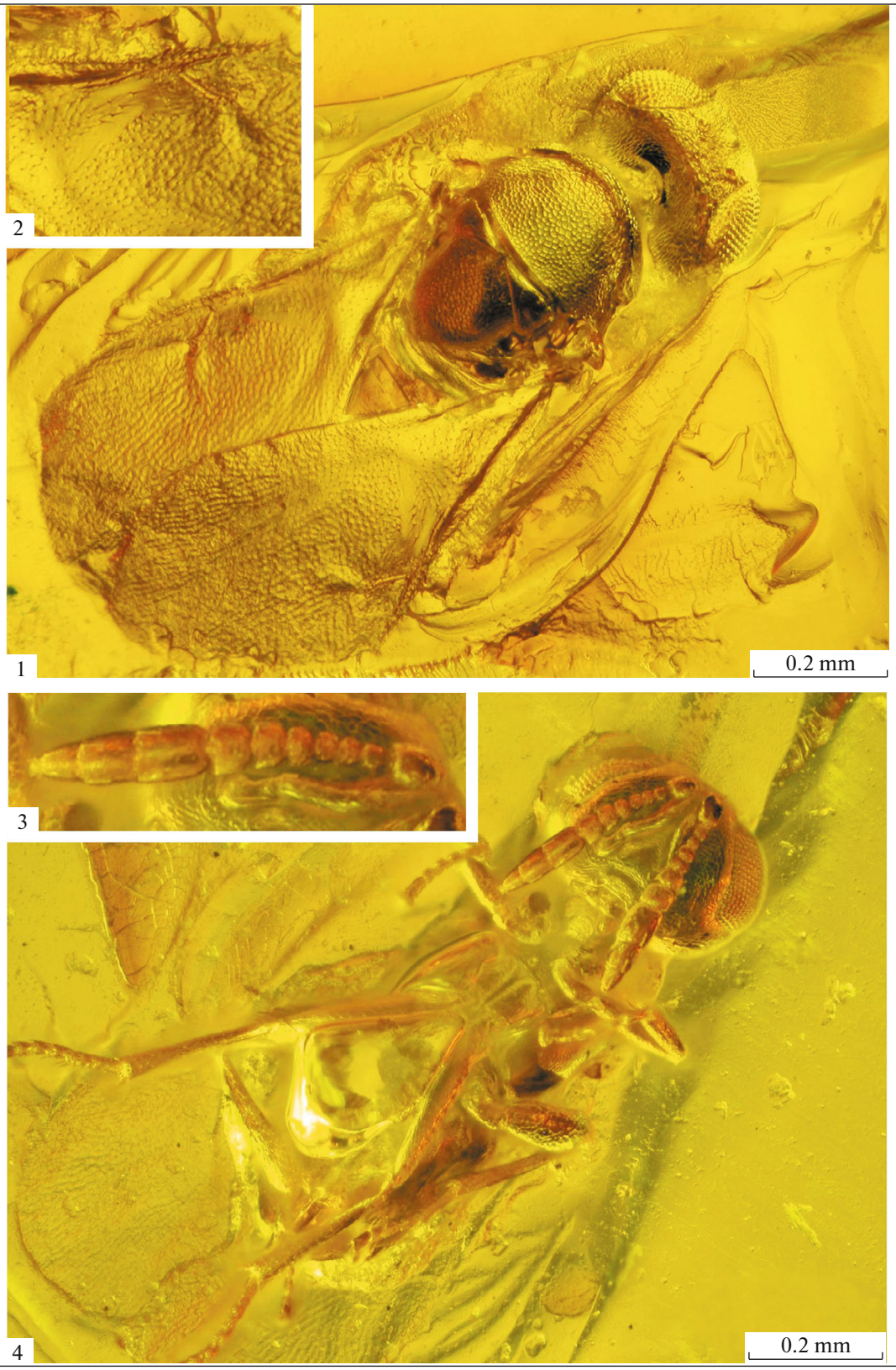
Diagnosis. Female. Head and mesosoma dark, with metallic shine. Occipital margin rounded; ocelli forming right triangle; mandibles three(?)-toothed; number of palpal segments unknown; genal suture distinct; facial cavity deep, antennae attached somewhat lower than lower eye margin; scape slightly widened and flattened; flagellum 6-segmented, all flagellomeres not longer than wide; pedicel conical, 2.5 times longer than wide, as long as three first flagellomeres; cluva 3-segmented, somewhat wider than last flagellomere, apically pointed, as long as flagellum; three first flagellomeres small, ring-shaped, flagellomeres 3–6 widened apically; pronotum short, transversal; mesoscutum convex, without notauli; internal angles of axillae joined; scutellum convex, with rounded apex; forewings transparent; apical one-third of submarginal vein without expansion; postmarginal vein thrice longer than marginal vein and somewhat longer than radial vein; radial vein with uncus; linea calva well developed, filum spinosum present; hairs of marginal fringe short; tarsi 5-segmented; spur of middle tibia shorter than first segment of middle tarsus; metasoma as long as mesosoma, location level of pygostyles (cerci) on metasoma unknown; hypopygium triangular, almost reaching top of metasoma; ovipositor protruding.

Male unknown.

Species composition. Type species.

Comparison and remarks. The assignment of the new genus to the subfamily Encyrtinae is based on the presence of filum spinosum. It is impossible to ascertain more precisely the position of the genus in the subfamily Encyrtinae. The antennae of the new genus are very similar to that of *Eocencyrtus* Simutnik, 2002 described from Rovno amber and, subsequently, from Baltic amber (Simutnik et al., 2014). The female antennae are of great importance for searching for appropriate hosts; therefore; their structural similarity may result from similar host specialization. Tryapitzyn (1989) noted that specialization of the antennae developed independently and in parallel in different systematic groups of the family. In

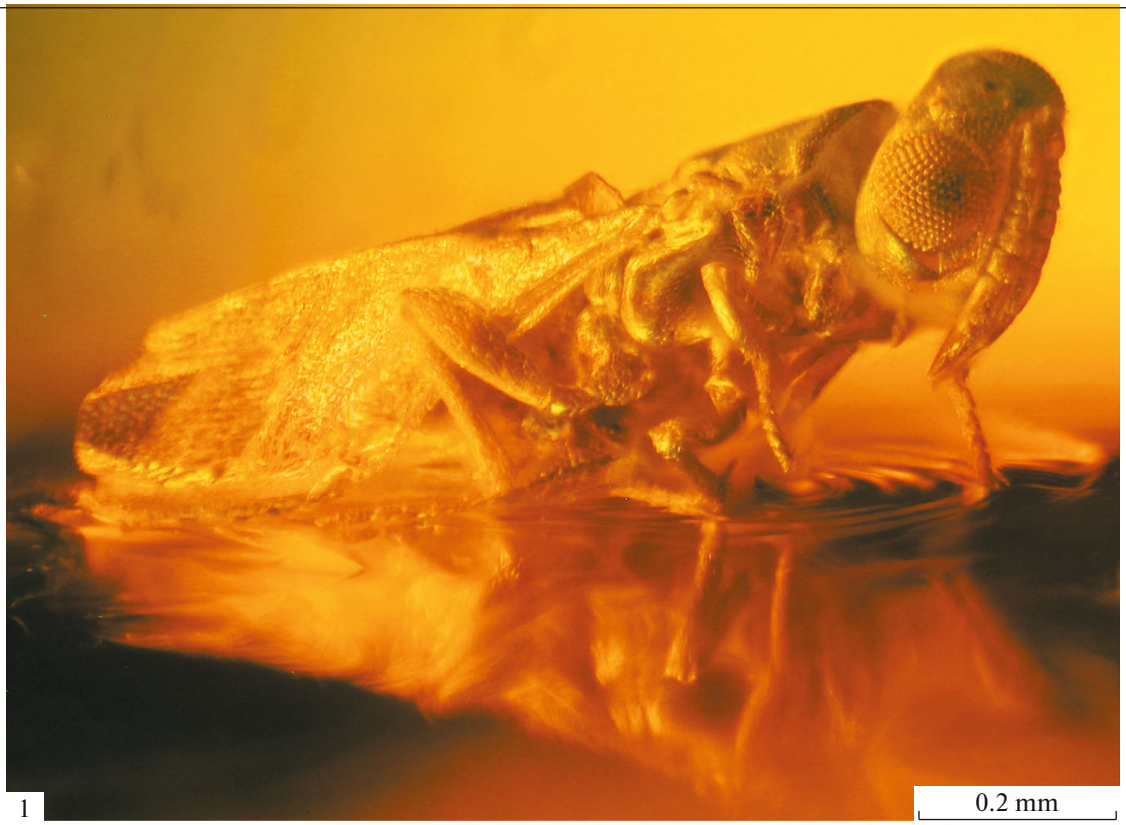
Plate 13



Explanation of Plate 13

Figs. 1–4. *Dencyrtus vilhelmseni* gen. et sp. nov., holotype ZMUC, Encyrtidae, B.V. Henningsen, 1-5-1967, female: (1) dorsal view; (2) forewing venation; (3) antenna; (4) ventral view.

Plate 14



Explanation of Plate 14

Figs. 1, 2. *Dencyrtus vilhelmseni* gen. et sp. nov., paratype ZMUC, A.K. Andersen, 28-3-1968, female: (1) lateral view; (2) dorsal view.

Eocencyrtus, the filum spinosum at the linea calva is absent and it likely belongs to a different subfamily, the Tetracneminae. The specific antennal structure in representatives of the genera *Dencyrtus* and *Eocencyrtus* also distinguishes them from extant encyrtid genera.

***Dencyrtus vilhelmseni* Simutnik, sp. nov.**

Plate 13, figs. 1–4; Plate 14, figs. 1 and 2

Etymology. In honor of Lars Vilhelmsen, curator of the amber collection of the Dr. Lars, Zoological Museum of University of Copenhagen.

Holotype. ZMUC, Encyrtidae, B.V. Henningsen, 1-5-1967, ♀, Danish amber; Late Eocene. The inclusion is split into the upper and lower parts and enclosed in two oval pieces of 15 × 8 × 4 and 12 × 7 × 2 mm. Syninclusions are absent.

Description. The sculpture of the head, mesonotum, and scutellum is cellular (Pl. 13, fig. 1; Pl. 14, fig. 2). The mesosoma has a metallic shine. The tegulae are dark. The antennae and legs are unicolor, lacking dark or light parts. The proportions of the antennomeres are shown in Pl. 13, fig. 3. The funicular segments lack pubescence. The mesoscutum is as long as the scutellum. The position of setae along the linea calva and forewing venation are shown in Pl. 13, fig. 2.

Measurement, mm. Body length of the holotype, 0.95.

Material. Holotype and paratype, female, ZMUC, Chalcidoidea, A.K. Andersen, 28-3-1968, ♀; Danish amber; Late Eocene. The inclusion is enclosed in a 9 × 3 × 3 mm amber piece irregular in shape. Syninclusions are absent.

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