

NEW WESTERN PALAEARCTIC SPECIES OF THE GENUS *DINOTREMA* FOERSTER, 1862 WITH WIDELY SCULPTURED PROPODEUM (HYMENOPTERA: BRACONIDAE: ALYSIINAE)

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Abstract.— Descriptions of seven new species of the genus *Dinotrema* Foerster with widely sculptured propodeum are suggested: *D. agaricophagum* sp. nov. (Denmark and Ireland), *D. curtisetum* sp. nov. (Denmark), *D. deprane* sp. nov. (Denmark), *D. haeselbarthi* sp. nov. (Denmark and Italy), *D. lobatum* sp. nov. (Denmark, Finland and Portugal), *D. paludellae* sp. nov. (Denmark) and *D. setaceum* sp. nov. (Germany). The comparisons of these new species with the most similar Palaearctic *Dinotrema* taxa are given.



Key words.— endoparasitoids, Braconidae, Alysiinae, *Dinotrema*, new species, Western Palaeartic.

INTRODUCTION

The genus *Dinotrema* Foerster 1862 is the largest genus in subfamily Alysiinae with approximately 320 species described over all the World (Yu *et al.* 2005). Already about 250 species of this genus were recorded in the European fauna (Fischer 1972, 1973a, 1993, 1996; Achterberg 1988; Tobias 2003, 2004a, 2004b, 2006, etc), but in spite of this number the numerous Palaearctic *Dinotrema* species remain yet undescribed.

The current status of *Dinotrema* was established by Achterberg (1988). This genus differs from the closely related *Aspilota* Foerster 1862 in the size of paraclypeal areas which are distinctly separated from inner margin of compound eye. The members of *Dinotrema* are endoparasitoids of Diptera and mainly belonging to

family Phoridae (Achterberg 1988). The records as host of the flies from families Anthomyiidae and Platypezidae (Fischer *et al.* 2008) need to be verified.

We are working now on the revision of the available type material of this genus for the European fauna with aim to estimate here the real composition of *Dinotrema* species. As result, we suggest in this paper the descriptions of seven new *Dinotrema* species with sculptured propodeum: *D. agaricophagum* sp. nov., *D. curtisetum* sp. nov., *D. deprane* sp. nov., *D. haeselbarthi* sp. nov., *D. lobatum* sp. nov., *D. paludellae* sp. nov., and *D. setaceum* sp. nov.

For the terminology of the morphological features and sculpture, measurements and wing venation nomenclature, see Fischer (1973b). Measurements of the length and width of mandible are showed on the Fig.1.

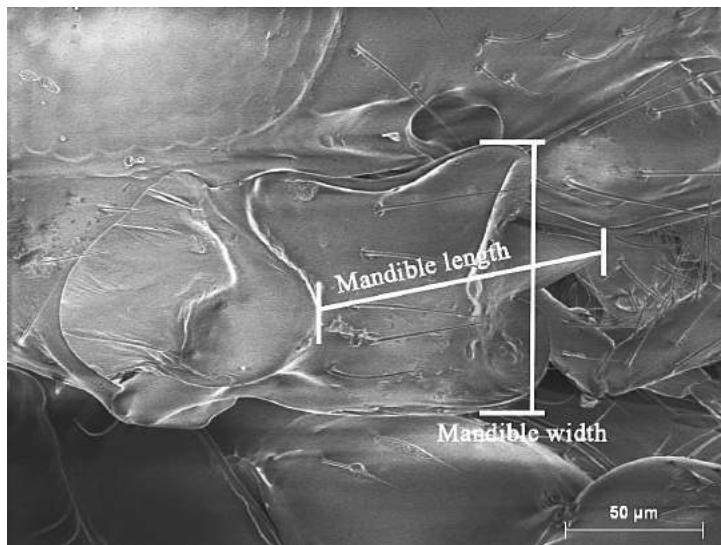


Figure 1. Measurements of the length and width of mandible.

The following abbreviations are used in the paper:
 POL – postocellar line,
 OOL – ocular-ocellar line,
 OD – maximum diameter of lateral ocellus.

The types of described species are deposited in the following entomological depositaries:
 ENV – Entomological Collection of the University of Valencia (Valencia, Spain);
 NMA – Naturhistorisk Museum (Århus, Denmark);
 NHMW – Naturhistorisches Museum (Wien, Austria).

TAXONOMIC PART

Dinotrema agaricophagum Munk
 et Peris-Felipo, sp. nov.
 (Figs 2–13)

Etymology. Named is derived from *Agaricus* fungi where specimens were collected and from Greek “phagus” meaning “devour” because it was founded over hosts..

Description. Female.

Head. In dorsal view, 1.65–1.70 times as wide as median length, 1.45–1.50 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.55–1.60 times as high as wide and 0.95 times as wide as temple. POL 2.90 times OD; OOL 2.70–2.75 times OD. Face 1.45–1.50 times as wide as high; inner margins of eyes subparallel. Clypeus 2.50 times as wide as high, slightly curved ventrally. Paraclypeal fovea small, not reaching the middle distance between clypeus and eye. Mandible distinctly widened towards apex, 0.90–0.95 times as long as its maximum width. Upper tooth pointed, almost as long as middle tooth

and wider it basally. Middle tooth wide basally and pointed apically. Lower tooth rounded, shorter and wider than upper tooth. Antennae thick, 21-segmented, shorter than body. Scape 2.05 times as long as pedicel. First flagellar segment 2.50 times as long as its apical width, 1.25–1.30 times as long as second segment; second segment 1.60 times as long as its maximum width. Third to eighteenth flagellar segments 1.75–1.85 times as long as their width; nineteenth segment 2.10 times as long as wide.

Mesosoma. In lateral view, 1.15–1.20 times as long as high. Mesoscutum 1.05–1.10 times as long as maximum width, with two rows of double setae. Notauli mainly absent. Mesoscutal pit present, slender and elongate. Prescutellar depression smooth, with two fine lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior margins of mesopleuron. Posterior mesopleural furrow smooth below. Propodeum with median longitudinal carina crossing from its anterior to posterior margins, from this carina emerging short carinae towards posterior margin giving aspect of three median carinae. In third anterior part emerging lateral carinae reaching with propodeal edges. Propodeal spiracles relatively small.

Legs. Hind femur 4.50 times as long as wide. Hind tibia weakly widened towards apex, 7.80–7.90 times as long as its maximum subapical width, 0.85–0.90 times as long as hind tarsus. First segment of hind tarsus 2.00 times as long as second segment.

Wings. Length of fore wing 2.45–2.50 times its maximum width. Vein r1 present. Radial cell reaching to apex of wing, 4.90–5.00 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell

closed, widened apically, 3.00 times as long as its maximum width. Hind wing 4.90–5.00 times as long as its maximum width.

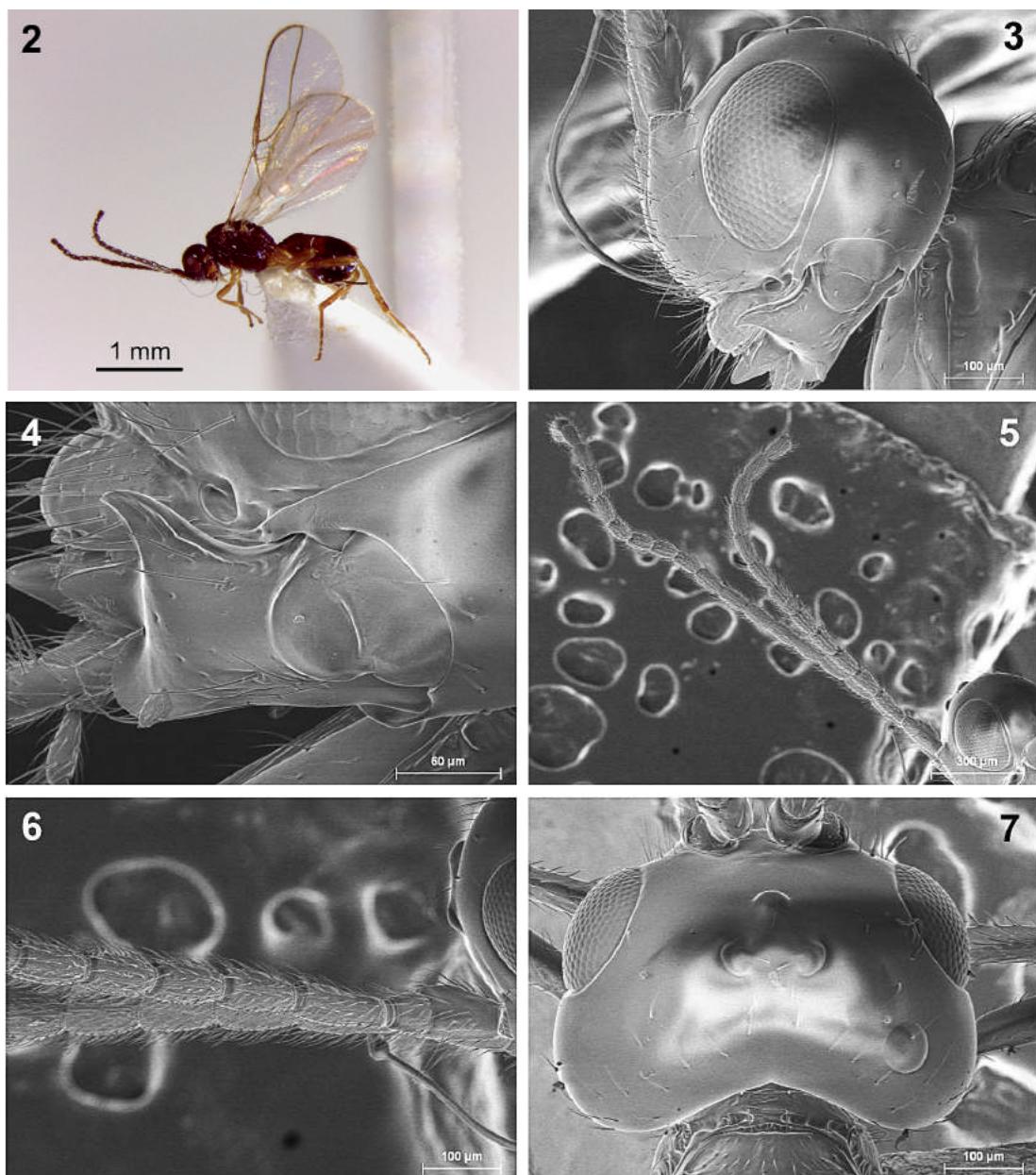
Metasoma. Distinctly compressed. First tergite weakly widened towards apex, 2.15 times as long as its apical width, distinctly rugose-striate in apical half. Ovipositor 1.05–1.10 times as long as first tergite, shorter than metasoma, 0.65–0.70 times as long as hind femur.

Colour. Body dark brown. Mandible and legs brown. Wings hyaline. Pterostigma brown.

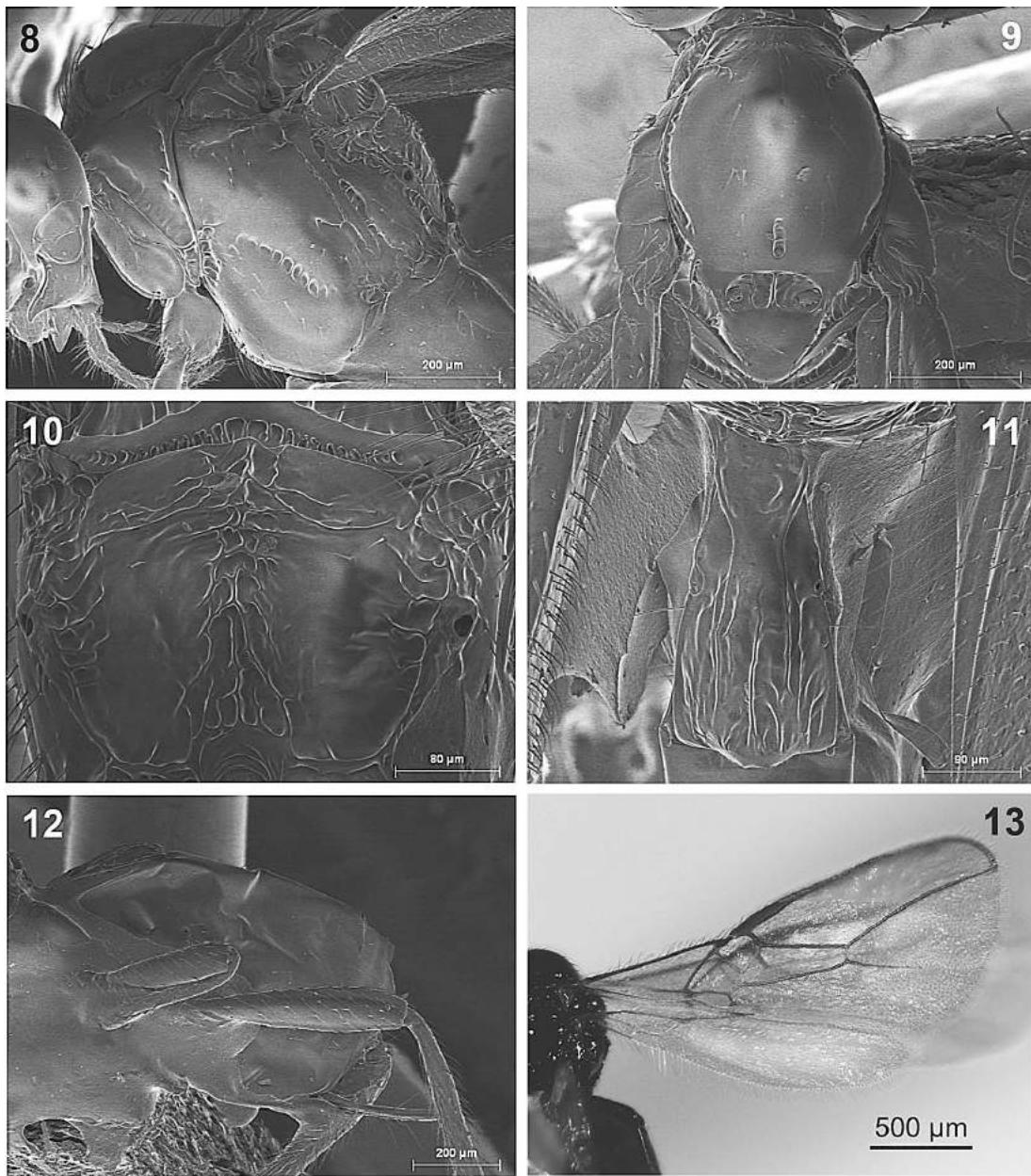
Length. Body 2.00–2.05 mm; fore wing 2.25–2.30 mm. Male. Unknown.

Type material. Holotype: female, Denmark, E-Jutland, Mols Strandkær, 56°14'N 10°25'E, 04.10.1983 (Munk leg.) (NMA). Paratypes. 1 ♀, Denmark, N-Jylland, Astrup Skov, NJ67, 16.09.1982 (Munk leg.) (NHMW); 1 ♀, Denmark, N-Jylland, NJ77, 20.08. 1985 (Munk leg.) (NHMW).

Additional material. 2 ♀ ♀, Denmark, E-Jutland, Mols, Strandkær, 56°14'N 10°25'E, 04.10.1983 (Munk leg.) (ENV); 2 ♀ ♀, Ireland, N. Bull G. DU. AWS,



Figures 2–7. *Dinotrema agaricophagum* sp. nov. (female) (2) Habitus, lateral view; (3) Head, lateral view; (4) Mandible; (5) Antenna; (6) Basal segments of antenna; (7) Head, dorsal view.



Figures 8–13. *Dinotrema agaricophagum* sp. nov. (female) (8) Mesosoma; (9) Mesonotum; (10) Propodeum; (11) First metasomal tergite; (12) Metasoma and ovipositor; (13) Fore and hind wings.

27.08.1951 (A. W. Stelfox Collection 1966) (NMA); 1 ♀, Ireland, Sliddery Fard, CO. DO. AWS. 28.09. 1964 (A. W. Stelfox Collection 1966) (NMA); 1 ♀, Ireland, Regerstown, M. BU. AWS., 27.07.1943 (A. W. Stelfox Collection 1966) (NMA).

Diagnosis. This new species resembles *D. contracticorne* (Fischer) and *D. setaceum* sp. nov. *D. agaricophagum* differs from *D. contracticorne* in having the middle flagellar segments 1.75–1.80 times as long as wide (1.25 times in *D. contracticorne*), hind femur 4.50 times as long as its maximum width (3.50 times in

D. contracticorne), paraclypeal fovea not reaching the middle distance between clypeus and eye (reaching the middle distance in *D. contracticorne*), and prescutellar depression with two fine lateral carinae (with four distinct lateral carinae in *D. contracticorne*). New species differs from *D. setaceum* in having the mandible 0.90 times as long as wide (1.40 times in *D. setaceum*), first flagellar segment 2.50 times as long as wide (4.10 times in *D. setaceum*), and hind femur 4.50 times as long as its maximum width (4.90–5.00 times in *D. setaceum*).

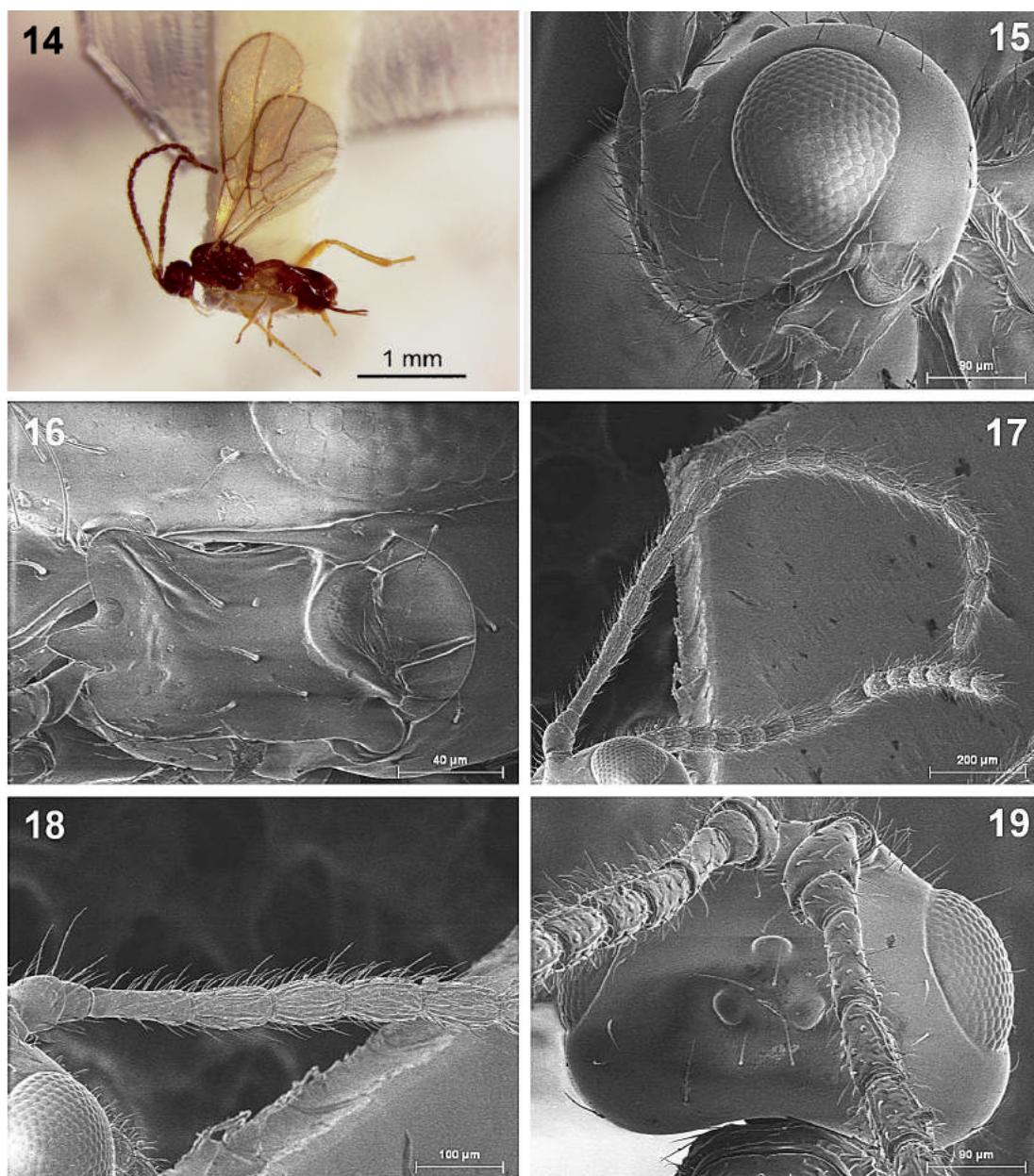
Dinotrema curtisetum Munk et Peris-Felipo, sp. nov.
(Figs 14–25)

Etymology. The name is referring to the short setae on mesoscutum.

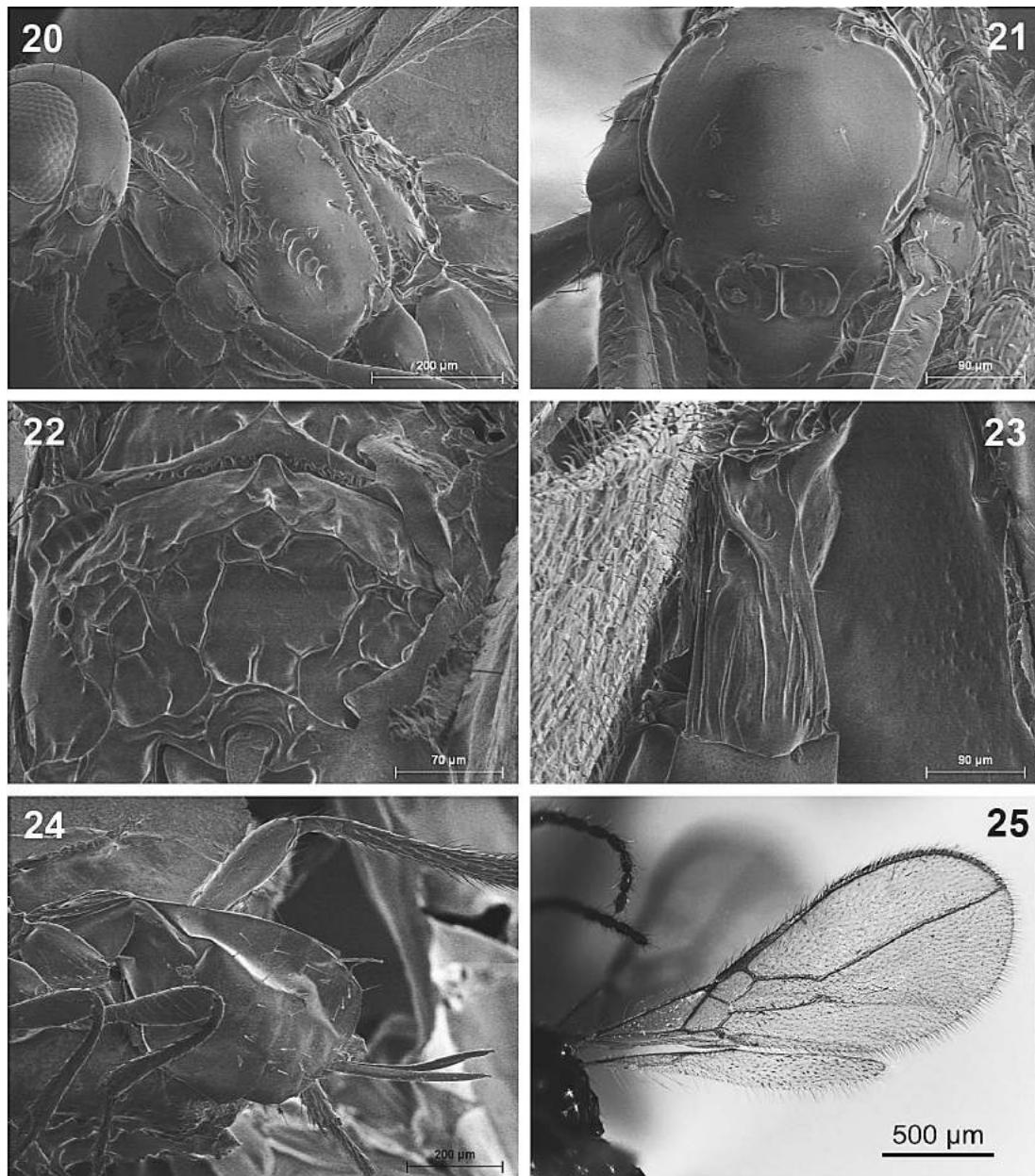
Description. Female.

Head. In dorsal view, 1.50 times as wide as median length, 1.50 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.25 times as high as wide and 1.65 times as wide as temple. POL 3.15 times OD; OOL 3.40–3.45 times OD.

Face 2.10–2.20 times as wide as high; inner margins of eyes subparallel. Clypeus 1.90–1.95 times as wide as high, slightly curved ventrally. Paraclypeal fovea small, not reaching the middle distance between clypeus and eye. Mandible weakly widened towards apex, 1.25–1.30 times as long as its maximum width. Upper tooth very width more than middle and lower tooth, distinctly shorter than middle tooth. Middle tooth the longest, wide basally and pointed apically. Lower tooth rounded and as long as upper tooth. Antennae thick, 18-segmented, shorter than body. Scape 2.00 times as long as



Figures 14–19. *Dinotrema curtisetum* sp. nov. (female) (14) Habitus, lateral view; (15) Head, lateral view; (16) Mandible; (17) Antenna; (18) Basal segments of antenna; (19) Head, dorsal view.



Figures 20–25. *Dinotrema curtisetum* sp. nov. (female) (20) Mesosoma; (21) Mesonotum; (22) Propodeum; (23) First metasomal tergite; (24) Metasoma and ovipositor; (25) Fore and hind wings.

pedicel. First flagellar segment 3.00 times as long as its apical width, 1.15–1.20 times as long as second segment; second segment 1.85–1.90 times as long as its maximum width. Third to fifteenth flagellar segments 1.80–1.90 times as long as their width; sixteenth segment 2.60 times as long as wide.

Mesosoma. In lateral view, 1.05–1.10 times as long as high. Mesoscutum about as long as width with two rows of single setae. Notauli mainly absent. Mesoscutal pit absent. Prescutellar depression smooth, without

lateral carinae. Sternaulus (precoxal suture) present, reaching with anterior part of mesopleuron but not posterior part. Posterior mesopleural furrow crenulated. Propodeum with an areola, sculptured in the edge but smooth inside. Propodeal spiracles small.

Legs. Hind femur 4.00 times as long as wide. Hind tibia weakly widened towards apex, 10.00 times as long as its maximum subapical width, as long as hind tarsus. First segment of hind tarsus 1.65 times as long as second segment.

Wings. Length of fore wing 2.40–2.50 times its maximum width. Vein r₁ present. Radial cell reaching to apex of wing, 3.80–3.85 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell closed, 3.30 times as long as its maximum width. Hind wing 8.60–8.70 times as long as its maximum width.

Metasoma. Distinctly compressed. First tergite weakly widened towards apex, 2.20 times as long as its apical width, striated. Ovipositor 1.50 times as long as first tergite, shorter than metasoma, 1.05–1.10 times as long as hind femur.

Colour. Body brown to dark brown. Legs, first metasomal tergite and first flagellar segment yellow brown. Wings hyaline. Pterostigma brown.

Length. Body 1.60–1.70 mm; fore wing 2.10 mm.

Male. Unknown.

Type material. Holotype: female, Denmark, E-Jutland, Hessel s. Grenå, 56°23'N 10°52'E, 09.08.1989 (Munk leg.) (NMA). Paratypes. 1 ♀, same label as holotype, but 13.08.1989 (Munk leg.) (ENV); 1 ♀, Denmark, S-Jutland, Klemlund Plant, 23.08.1986 (Munk leg.) (NMA).

Diagnosis. This new species resembles *D. areolatum* (Stelfox & Graham), *D. dimidiatum* (Thomson) and *D. jaculans* (Haliday). *D. curtisetum* differs from *D. areolatum* in having the mandible 1.25–1.30 times as long as wide (2.00 times in *D. areolatum*), first flagellar segment 3.00 times as long as wide (4.00 times in *D. areolatum*), hind femur 4.00 times as long as its maximum width (5.00 times in *D. areolatum*) and ovipositor shorter than metasoma (longer than metasoma in *D. areolatum*). New species differs from *D. dimidiatum* in having the prescutellar depression without lateral carinae (with lateral carinae in *D. dimidiatum*), mandible 1.25–1.30 times as long as wide (0.75–0.80 times in *D. dimidiatum*), upper tooth wider than lower tooth (lower tooth wider than upper tooth in *D. dimidiatum*) and first metasomal tergite 2.20 times as long as its apical width (1.50 times in *D. dimidiatum*). Finally, new species differs from *D. jaculans* in having the ovipositor shorter than metasoma (longer than metasoma in *D. jaculans*), first flagellar segment 3.00 times as long as wide (4.00 times in *D. jaculans*), and sternaulus (precoxal suture) reaching with the anterior part of mesopleuron but not with the posterior part (not reaching with anterior and posterior parts of mesopleuron in *D. jaculans*).

Dinotrema drepane Munk et Peris-Felipo, sp. nov. (Figs 26–37)

Etymology. The name is derived from Greek “drepano” meaning sickle, referring to the long and curved ovipositor.

Description. Female.

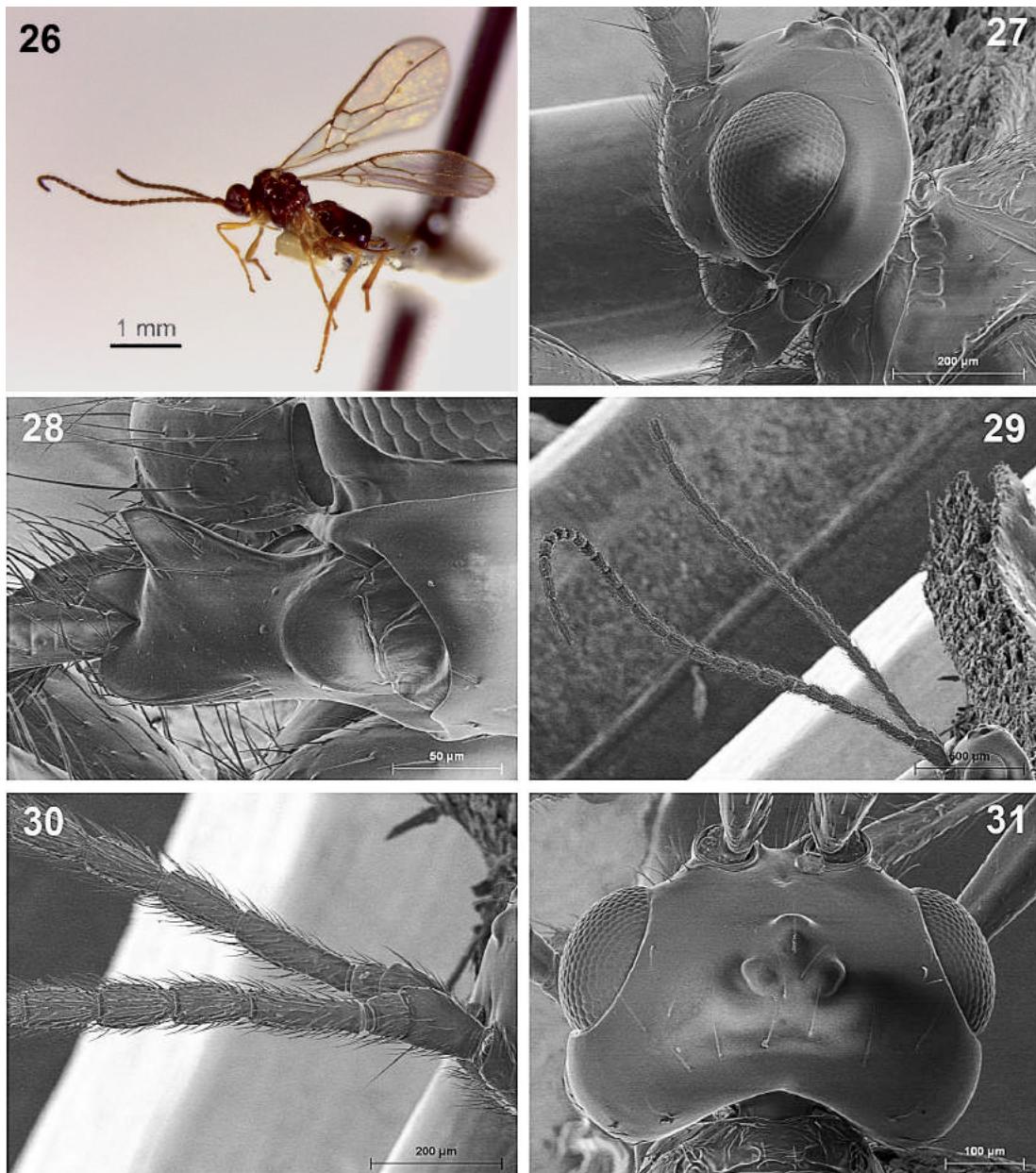
Head. In dorsal view, 1.70–1.75 times as wide as median length, 1.30–1.35 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.30–1.35 times as high as wide and 1.40–1.45 times as wide as temple. POL 3.05–3.10 times OD; OOL 3.50–3.55 times OD. Face 1.50–1.60 times as wide as high; inner margins of eyes subparallel. Clypeus 2.45–2.50 times as wide as high, slightly curved ventrally. Paraclypeal fovea large, crossing the middle distance between clypeus and eye. Mandible widened towards apex, as long as its maximum width. Upper tooth as long and as wide as middle tooth. Middle tooth the longest, widened basally and pointed apically. Lower tooth rounded and longer and wider than upper tooth. Antennae thick, 27-segmented, longer than body. Scape 2.15–2.20 times as long as pedicel. First flagellar segment 3.25 times as long as its apical width, about 1.50–1.55 times as long as second segment; second segment 1.70 times as long as its maximum width. Third to fifteenth flagellar segments 1.70–1.80 times as long as their width; sixteenth to twenty-fourth segments 2.40 times as long as wide; twenty-fifth flagellar segments 3.75 times as long as wide.

Mesosoma. In lateral view, 1.05–1.10 times as long as high. Mesoscutum 1.10–1.15 times as long as maximum width with many short setae in the middle part. Notauli mainly absent. Mesoscutal pit present, elongated. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching anterior and posterior parts of mesopleuron. Posterior mesopleural furrow crenulated. Propodeum with median longitudinal carina running from its anterior to posterior margins, in third anterior part emerging lateral carinae reaching with the propodeal edges. From lateral carinae emerging several short carinae. Propodeal spiracles small.

Legs. Hind femur 4.00 times as long as wide. Hind tibia weakly widened towards apex, 9.15–9.20 times as long as its maximum subapical width, as long as hind tarsus. First segment of hind tarsus 2.25 times as long as second segment.

Wings. Length of fore wing 2.40–2.50 times its maximum width. Vein r₁ present. Radial cell reaching to apex of wing, 4.25 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell closed, widened apically, 2.80 times as long as its maximum width. Hind wing 9.10–9.20 times as long as its maximum width.

Metasoma. Distinctly compressed. First tergite weakly widened towards apex, 1.70 times as long as its apical width, distinctly rugose-striate in apical half. Ovipositor 2.15–2.20 times as long as first tergite, shorter than metasoma, 1.40 times as long as hind femur.



Figures 26–31. *Dinotrema deprane* sp. nov. (female) (26) Habitus, lateral view; (27) Head, lateral view; (28) Mandible; (29) Antenna; (30) Basal segments of antenna; (31) Head, dorsal view.

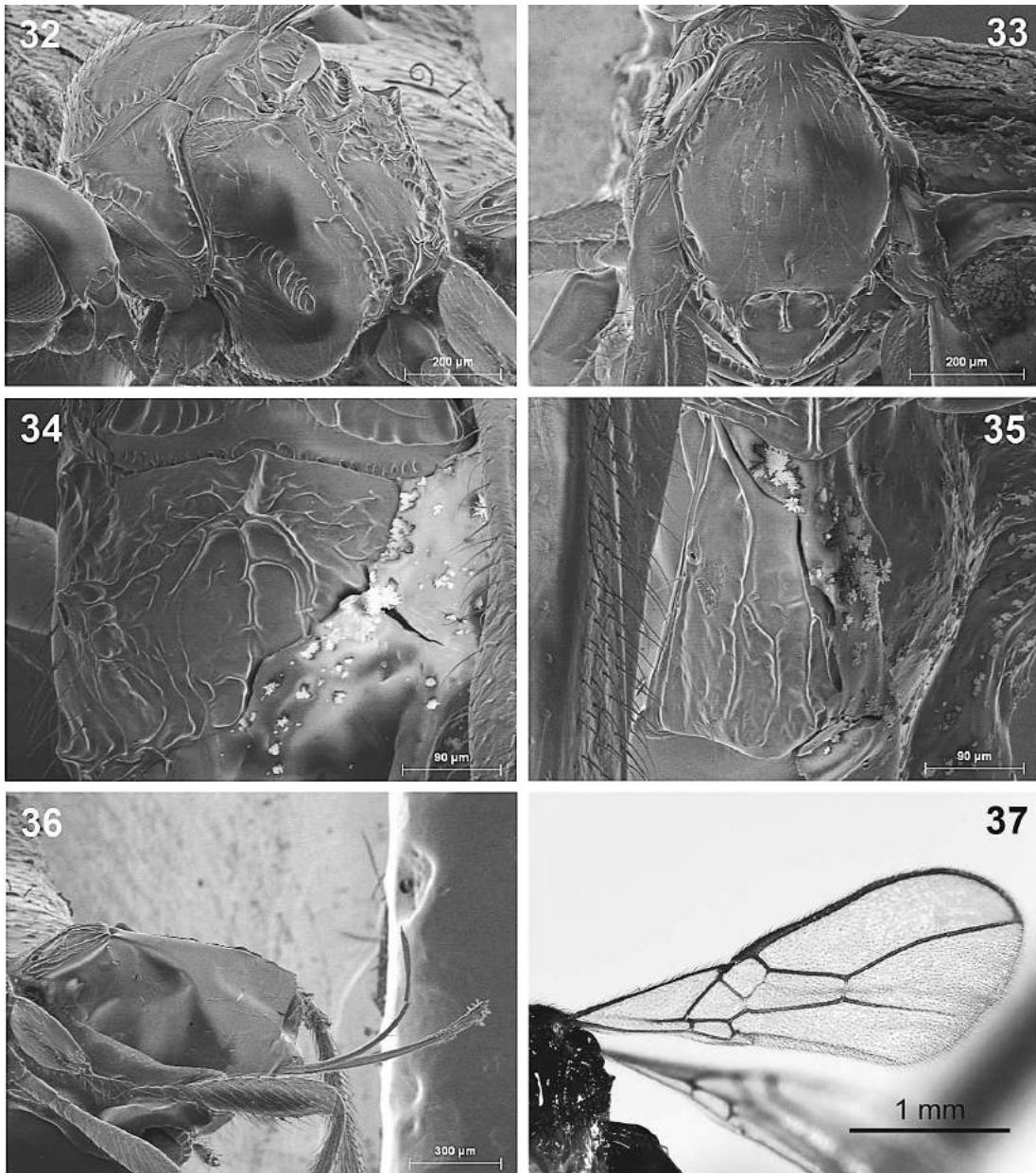
Colour. Body brown to dark brown. Mandible and legs yellow brown. Wings hyaline. Pterostigma brown.

Length. Body 2.10–2.15 mm; fore wing 2.90–3.00 mm.

Male. Unknown.

Type material. Holotype: female, E-Jutland, Højen Bæk, 19.09.1984 (Munk leg.) (NMA). Paratypes. 1 ♀, same label as holotype but, 01.07.1982; 3 ♀ ♀, same label as holotype but, 06.06.1983; 2 ♀ ♀, same label as holotype but, 12.06.1984; 6 ♀ ♀, same label as holotype but, 16.06.1986 (NMA); 1 ♀, same label as holotype but, 07.07.1984 (ENV).

Diagnosis. This new species resembles *D. eumandibulatum* (Fischer), but differs in having the hind femur 4.00 times as long as its maximum width (3.50 times in *D. eumandibulatum*), first metasomal tergite 1.70 times as long as its apical width (2.20 times in *D. eumandibulatum*), presence several short carinae emerging from lateral carinae of propodeum (only a few carinae in *D. eumandibulatum*), and ovipositor 2.15–2.20 times as long as first metasomal tergite (1.50 times in *D. eumandibulatum*).



Figures 32–37. *Dinotrema deprane* sp. nov. (female) (32) Mesosoma; (33) Mesonotum; (34) Propodeum; (35) First metasomal tergite; (36) Metasoma and ovipositor; (37) Fore wing.

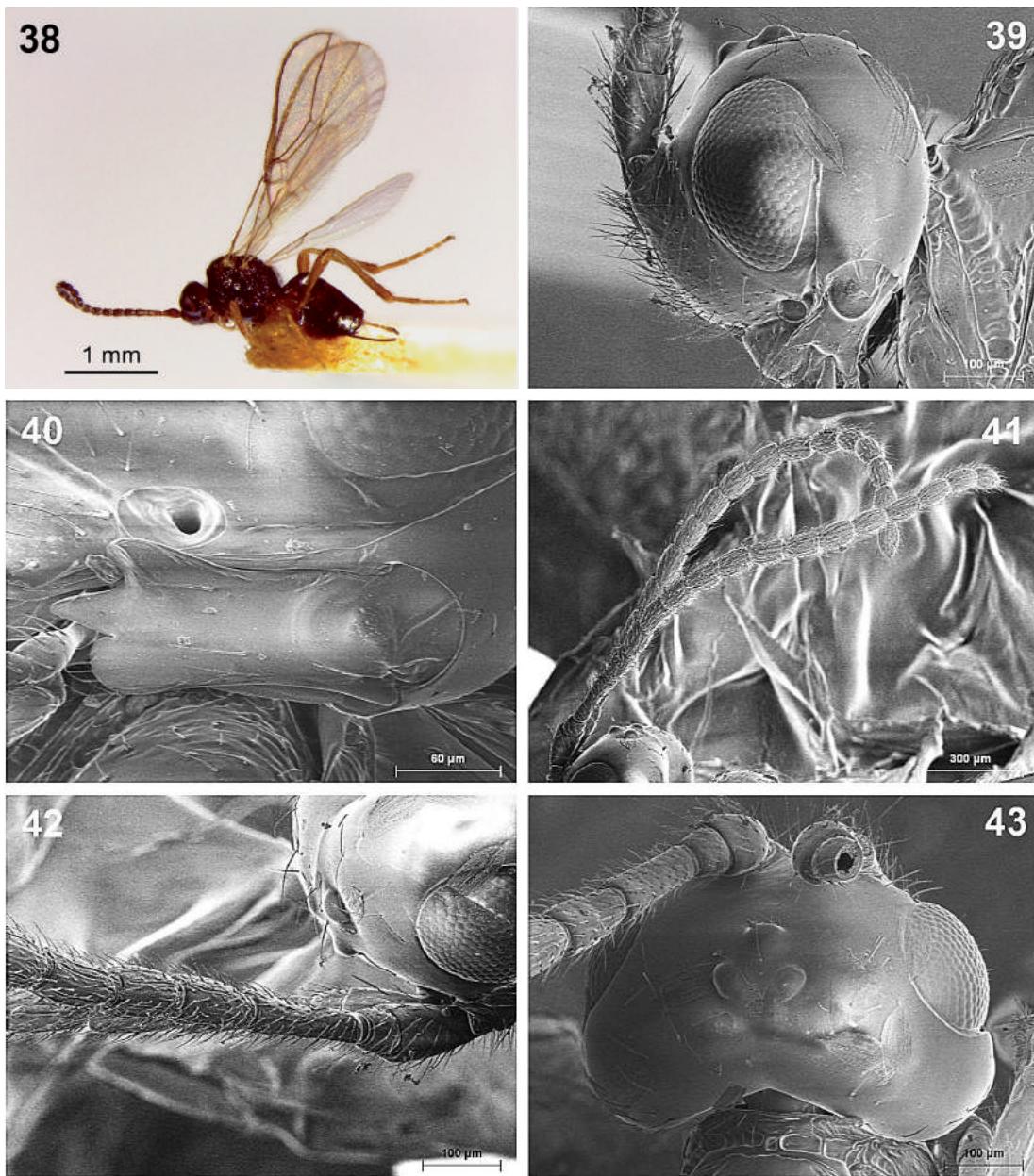
***Dinotrema haeselbarthi* Munk et Peris-Felipo,
sp. nov.
(Figs 38–49)**

Etymology. The name is honor Dr. Erasmus Haezelbarth, well-known Germany hymenopterist.

Description. Female.

Head. In dorsal view, 1.75 times as wide as long, 1.40 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.55–1.60 times as high as wide and 1.00–1.05 times as wide as

temple. POL 2.50–2.55 times OD; OOL 2.75–2.80 times OD. Face 1.80 times as wide as high; inner margins of eyes subparallel. Clypeus 2.3 times as wide as high, slightly curved ventrally. Paraclypeal fovea reaching the middle distance between clypeus and eye. Mandible weakly widened towards apex, 1.50–1.55 times as long as its maximum width. Upper tooth shorter and as wide as middle tooth. Middle tooth the longest, widened basally and pointed apically. Lower tooth rounded and longer and wider than upper tooth. Antennae thick, 17-segmented, shorter than body. Scape 2.00–2.10



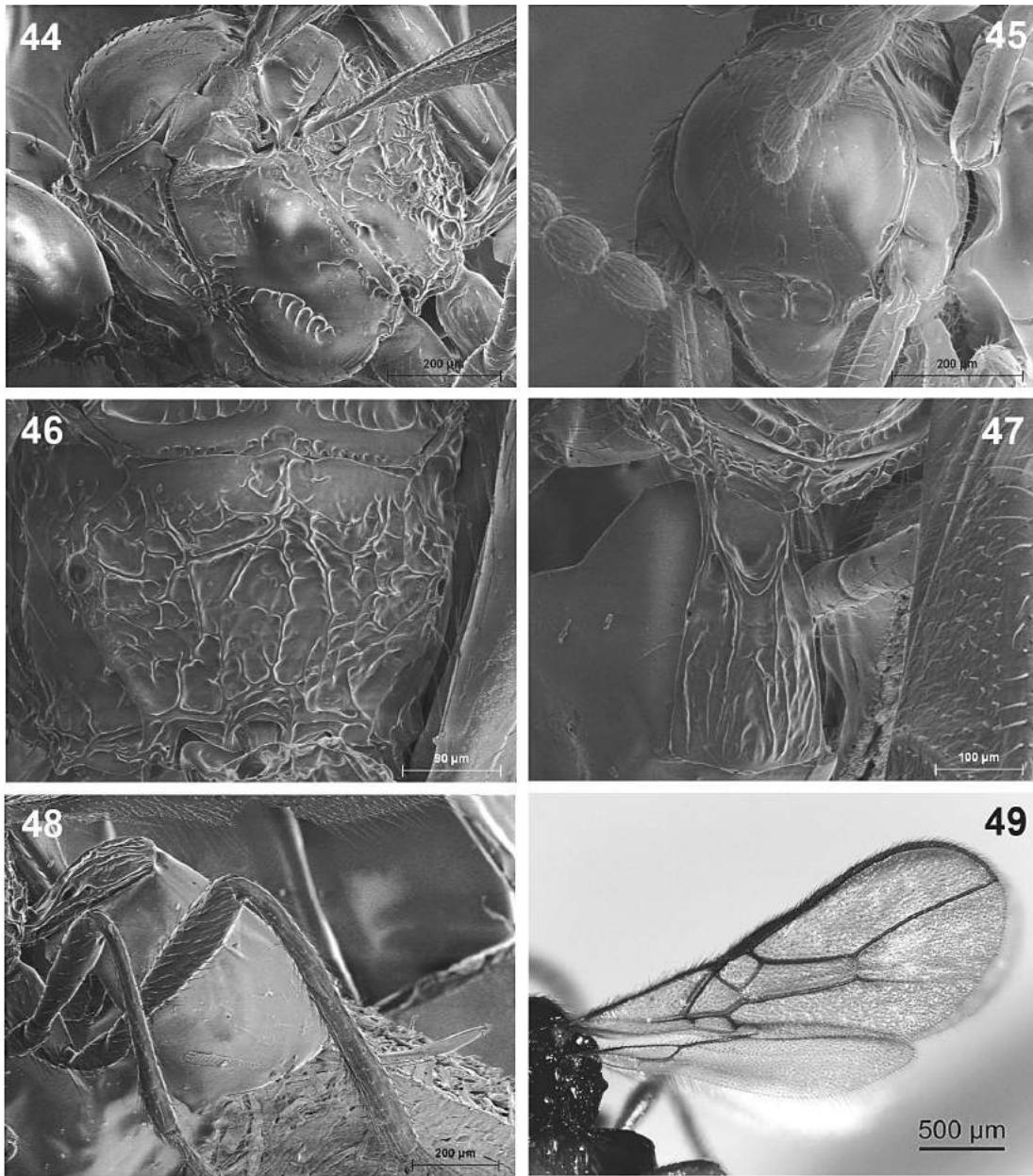
Figures 38–43. *Dinotrema haeselbarthi* sp. nov. (female) (38) Habitus, lateral view; (39) Head, lateral view; (40) Mandible; (41) Antenna; (42) Basal segments of antenna; (43) Head, dorsal view.

times as long as pedicel. First flagellar segment 3.20–3.25 times as long as its apical width, 1.70–1.75 times as long as second segment; second segment 1.50–1.55 times as long as its maximum width. Third to fifteenth flagellar segments 1.60–1.70 times as long as their width.

Mesosoma. In lateral view, 1.05–1.10 times as long as high. Mesoscutum 1.10–1.15 times as long as maximum width with two rows of double setae. Notauli mainly absent. Mesoscutal pit present and elongated. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, reaching

with the anterior part of mesopleuron not reaching posterior part. Posterior mesopleural furrow crenulated. Propodeum completely sculptured, with median longitudinal carinae, with emerging several lateral carinae. From lateral carina emerging several carinae. Propodeal spiracles relatively small.

Legs. Hind femur 4.00 times as long as wide. Hind tibia weakly widened towards apex, 9.60–9.65 times as long as its maximum subapical width, long as hind tarsus. First segment of hind tarsus 1.80 times as long as second segment.



Figures 44–49. *Dinotrema haeselbarthi* sp. nov. (female) (44) Mesosoma; (45) Mesonotum; (46) Propodeum; (47) First metasomal tergite; (48) Metasoma and ovipositor; (49) Fore and hind wings.

Wings. Length of fore wing 2.40–2.50 times its maximum width. Vein r_1 present. Radial cell reaching to apex of wing, 3.80–3.85 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell closed, widened apically, 3.00 times as long as its maximum width. Hind wing 5.70–5.80 times as long as its maximum width.

Metasoma. Distinctly compressed. First tergite weakly widened towards apex, 2.00 times as long as its apical width, distinctly rugose-striate in apical half.. Ovipositor 1.20 times as long as first tergite,

shorter than metasoma, as long as hind femur.

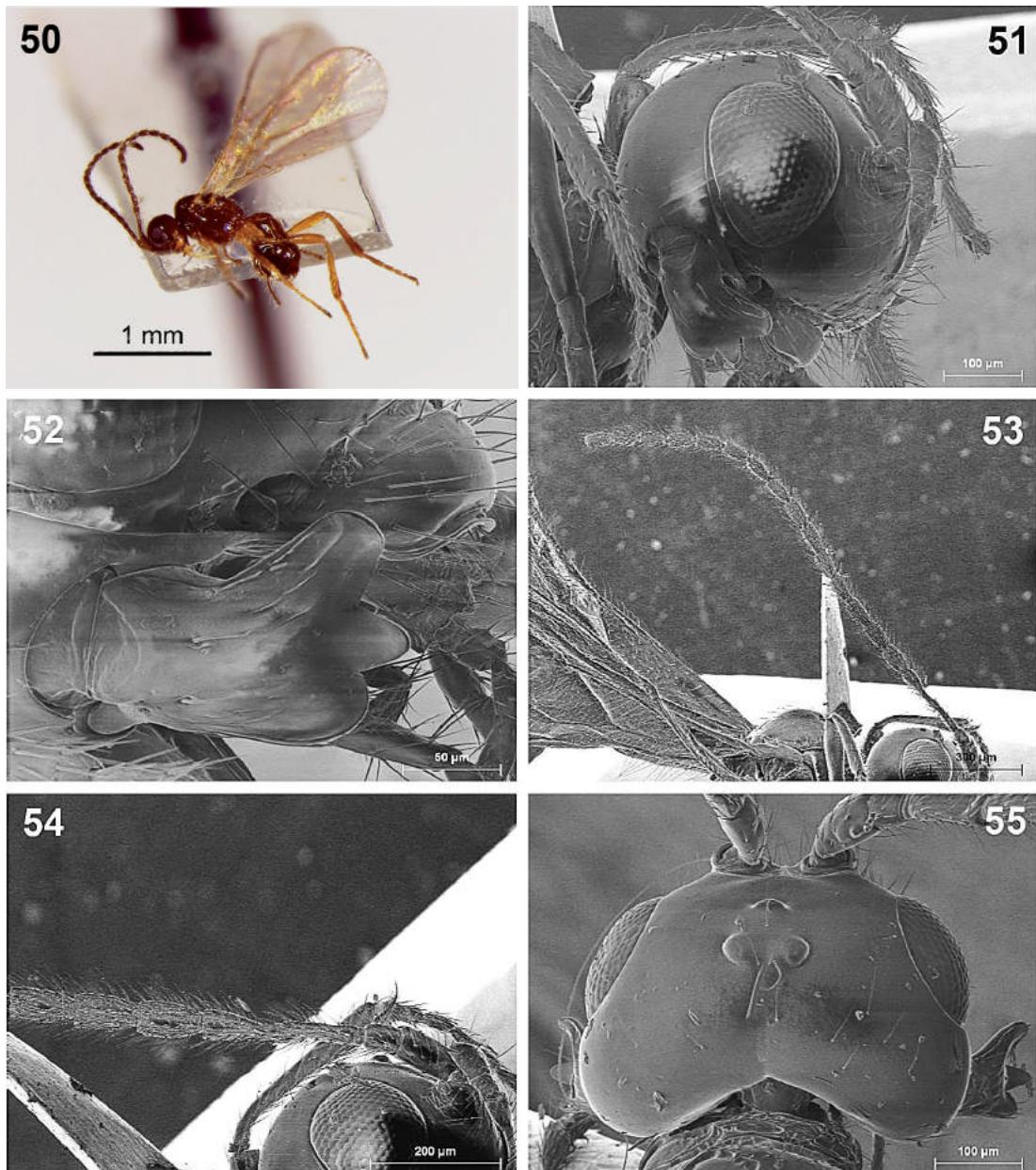
Colour. Body dark brown with a red tone, except propleuron, scapus, pedicellus and anterior half of metasoma infuscate reddish. Clypeus and legs yellow.

Length. Body 2.00–2.10 mm; fore wing 2.70–2.80 mm.
Male. Unknown.

Type material. Holotype: female, Italy, St. Peter/Ahrntal, Südtirol, 1950 m, Ja./26.08.1967 (Haeselbarth leg.) (NMA). Paratypes. 1 ♀, Denmark, E-Jutland, Yding Skov, 56°00'N 9°48'E, 24.05.1985 (Munk leg.) (NMA); 1 ♀, Denmark, Funen Fjelstedskov, 55°27'N

9°59'E, 08.06.1982 (Munk leg.) (NMA); 1 ♀, Denmark, Funen Fjelstedskov, 55°27'N 9°59'E, 24.06.1985 (Munk leg.) (ENV); 1 ♀, Denmark, E-Jutland, Højen Bæk, 5 km s. of Vejle, 07.07.1984 (Munk leg.) (ENV).

Diagnosis. This new species resembles *D. falsificum* (Stelfox & Graham) but differs in having the mandible 1.50 times as long as wide (2.00 times in *D. falsificum*), hind femur 4.00 times as long as its maximum width (5.00 times in *D. falsificum*), and ovipositor shorter than metasoma (as long as metasoma in *D. falsificum*).



Figs 50–55. *Dinotrema lobatum* sp. nov. (female). (50) Habitus, lateral view; (51) Head, lateral view; (52) Mandible; (53) Antenna; (54) Basal segments of antenna; (55) Head, dorsal view.

Dinotrema lobatum Munk et Peris-Felipo, sp. nov.
(Figs 50–61)

Etymology. Name from Latin “lobatus” referring to the lobed incised margin of the shape.

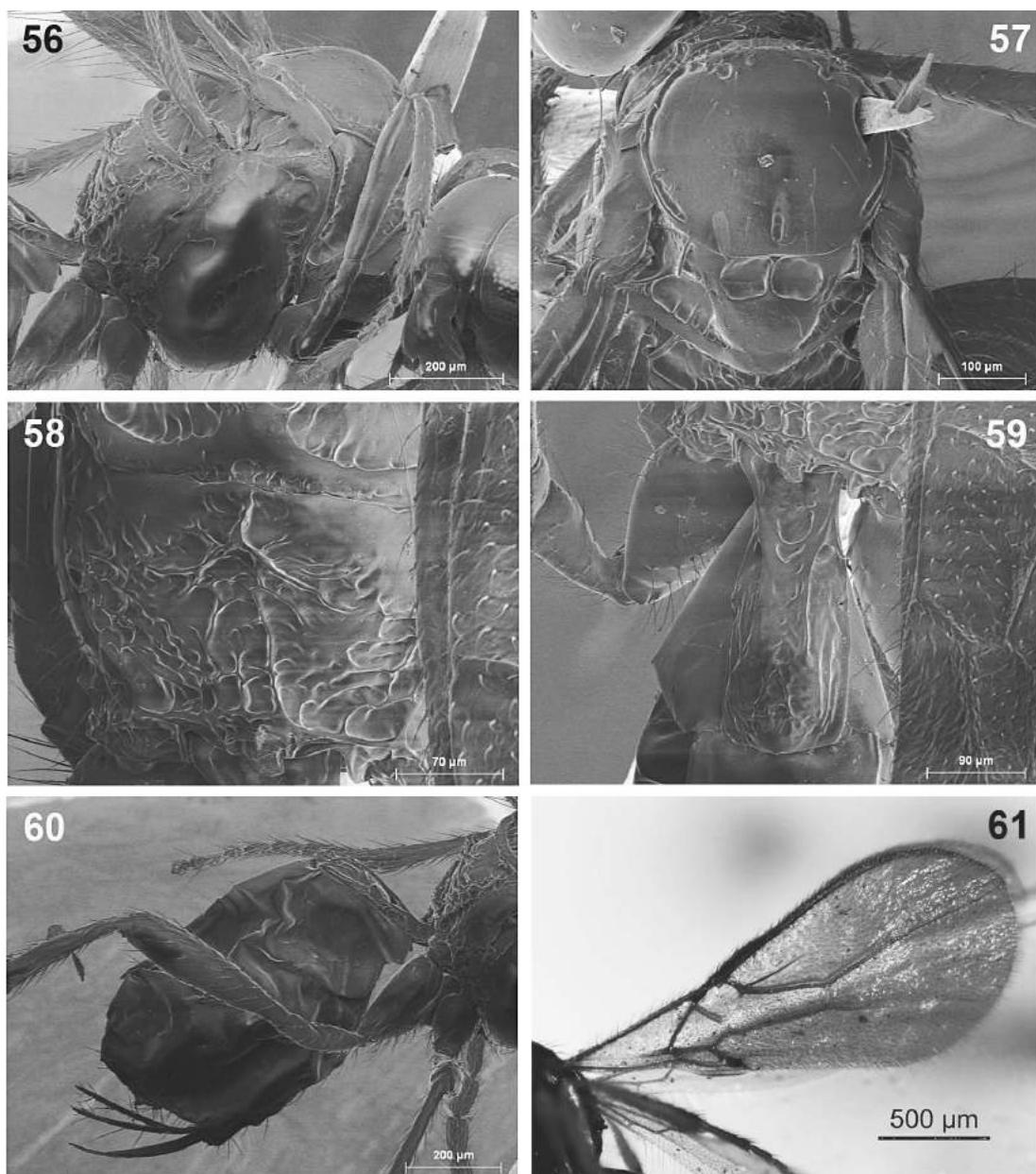
Description. Female.

Head. In dorsal view, 1.85–1.90 times as wide as median length, 1.55–1.60 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.25–1.30 times as high as wide and 1.25–1.30 times as wide as temple. POL 3.05–3.10 times OD; OOL

3.75–3.80 times OD. Face 1.40 times as wide as high; inner margins of eyes subparallel. Clypeus 3.00 times as wide as high, slightly curved ventrally. Paraclypeal fovea reaching the middle distance between clypeus and eye. Mandible strongly widened towards apex, 1.15–1.20 times as long as its maximum width. Upper tooth longer and wider than middle and lower tooth. Middle tooth widened basally and pointed apically. Lower tooth rounded and shorter than upper tooth. Antennae thick, 22-segmented, longer than body. Scape 1.75 times as long as pedicel. First flagellar segment

4.80–4.90 times as long as its apical width, 1.10 times as long as second segment; second segment 2.50 times as long as its maximum width. Third to nineteenth flagellar segments 1.90–2.00 times as long as their width; twentieth segment 2.20 times as long as width.

Mesosoma. In lateral view, 1.10 times as long as high. Mesoscutum 0.90–0.95 times as long as maximum width with few setae around notaui. Notaui mainly absent. Mesoscutal pit present and elongated. Prescutellar depression smooth, without lateral carinae. Sternaulus (precoxal suture) present, not reaching



Figures 56–61. *Dinotrema lobatum* sp. nov. (female) (56) Mesosoma; (57) Mesonotum; (58) Propodeum; (59) First metasomal tergite; (60) Metasoma and ovipositor; (61) Fore wing.

with anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carinae running from its anterior to posterior margins, in anterior third with transverse angulated carinae. From lateral carinae emerging carinae reaching with propodeal edges. Propodeal edges striated. Propodeal spiracles relatively small.

Legs. Hind femur 4.05–4.10 times as long as wide. Hind tibia weakly widened towards apex, 9.85–9.90 times as long as its maximum subapical width, as long as hind tarsus. First segment of hind tarsus 2.30 times as long as second segment.

Wings. Length of fore wing 2.20–2.25 times its maximum width. Vein r₁ present. Radial cell reaching to apex of wing, 4.00–4.05 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell closed, widened apically, 3.00 times as long as its maximum width. Hind wing 6.00 times as long as its maximum width.

Metasoma. Distinctly compressed. First tergite weakly widened towards apex, 2.40 times as long as its apical width, finely striate in apical half. Ovipositor as long as first tergite, shorter than metasoma, 0.75 times as long as hind femur.

Colour. Body brown. Mandible and legs yellow brown. Wing hyaline. Pterostigma yellow brown.

Length. Body 2.00–2.10 mm; fore wing 2.10–2.20 mm.

Male. Unknown.

Type material. Holotype: female, Denmark, E-Jutland, Højen Bæk, 5 km S of Vejle, 23.07.1984 (Munk leg.) (NHMW). Paratypes: 1 ♀, Denmark, N-Jutland, near Rold Skov, 25km s. Of Alborg, 27.07.1985 (Munk leg.) (NHMW); 1 ♀, Denmark, N-Jylland, NJ77, Sindal, 22.07. 1985 (Munk leg.) (NHMW); 1 ♀, Denmark, N-Jylland, NJ77, Sindal, 22.07.1985 (Munk leg.) (NMA).

Additional material. 1 ♀, Finland, Suomi, U. Helsinki, 6682:386, 20.07.1976 (M. Koponen leg.) (NMA); 3 ♀ ♀, Portugal, T. Geres, near Cabri, 08.07.1991 (Munk leg.) (ENV).

Remark. Specimens from Denmark were collected in deciduous woods consisting of *Fagus*, *Fraxinus*, *Alnus* and *Corylus*, but specimen from Funen was taken very close to the sea cost.

Diagnosis. This new species resembles *D. mediocorne* (Fischer) and *D. toleratum* (Fischer). *D. lobatum* differs from *D. mediocorne* in having the mandible 1.50 times as long as wide (1.30 times in *D. mediocorne*), first flagellar segment 4.80–4.90 times as long as wide (4.00 times in *D. mediocorne*), and hind femur 4.05–4.10 times as long as its maximum width (4.50 times in *D. mediocorne*). New species differs from *D. toleratum* in having the strongly develop upper tooth (not strongly develop in *D. toleratum*), first flagellar segment 4.80–4.90 times as long as wide (4.00 times in *D. toleratum*), middle flagellar seg-

ments 1.90–2.00 times as long as wide (1.60 times in *D. toleratum*), and the first metasomal tergite 2.40 times as long as its apical width (1.90 times in *D. toleratum*).

***Dinotrema paludellae* Munk et Peris-Felipo sp. nov.**
(Figs 62–73)

Etymology. The name is due to *Paludella squarrosa*, a characteristic moss species growing in the type locality.

Description. Female.

Head. In dorsal view, 1.80 times as wide as median length, 1.35–1.40 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.55–1.60 times as high as wide and 0.85–0.90 times as wide as temple. POL 3.40–3.45 times OD; OOL 3.75 times OD. Face 1.40 times as wide as high; inner margins of eyes subparallel. Clypeus 3.10 times as wide as high, slightly curved ventrally. Paraclypeal fovea reaching the middle distance between clypeus and eye. Mandible not widened towards apex, 1.85–1.90 times as long as its maximum width. Upper tooth small, shorter than middle tooth. Middle tooth the longest, widened basally and pointed apically. Lower tooth rounded, as wide as middle tooth and longer and wider than upper tooth. Antennae thick, 16–18-segmented, shorter than body. Scape 1.75 times as long as pedicel. First flagellar segment 2.30–2.40 times as long as its apical width, 1.25 times as long as second segment; second segment 1.40 times as long as its maximum width. Third to thirteenth flagellar segments 1.10 times as long as their width; fourteenth segment 1.90–1.95 times as long as wide.

Mesosoma. In lateral view, 1.15–1.20 times as long as high. Mesoscutum about as long as maximum width with two rows of couple setae along notauli. Notauli mainly absent. Mesoscutal pit present, oval. Prescutellar depression smooth, without lateral carina. Sternaulus (precoxal suture) present, not reaching with the anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carinae running from its anterior to posterior margins, with emerging lateral carinae reaching with the propodeal edges. From lateral carinae emerging more carinae. Propodeal spiracles small.

Legs. Hind femur 3.60–3.65 times as long as wide. Hind tibia weakly widened towards apex, 8.00 times as long as its maximum subapical width, 0.90–0.95 times as long as hind tarsus. First segment of hind tarsus 1.90–1.95 times as long as second segment.

Wings. Length of fore wing 2.20–2.30 times its maximum width. Vein r₁ present. Radial cell reaching to apex of wing, 3.50–3.55 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell

closed, widened apically, 2.00 times as long as its maximum width. Hind wing 5.50–5.60 times as long as its maximum width.

Metasoma. Distinctly compressed. First tergite weakly widened towards apex, 2.25–2.30 times as long as its apical width, almost smooth with finely striate apical half. Ovipositor as long as first tergite, shorter than metasoma, 0.65 times as long as hind femur.

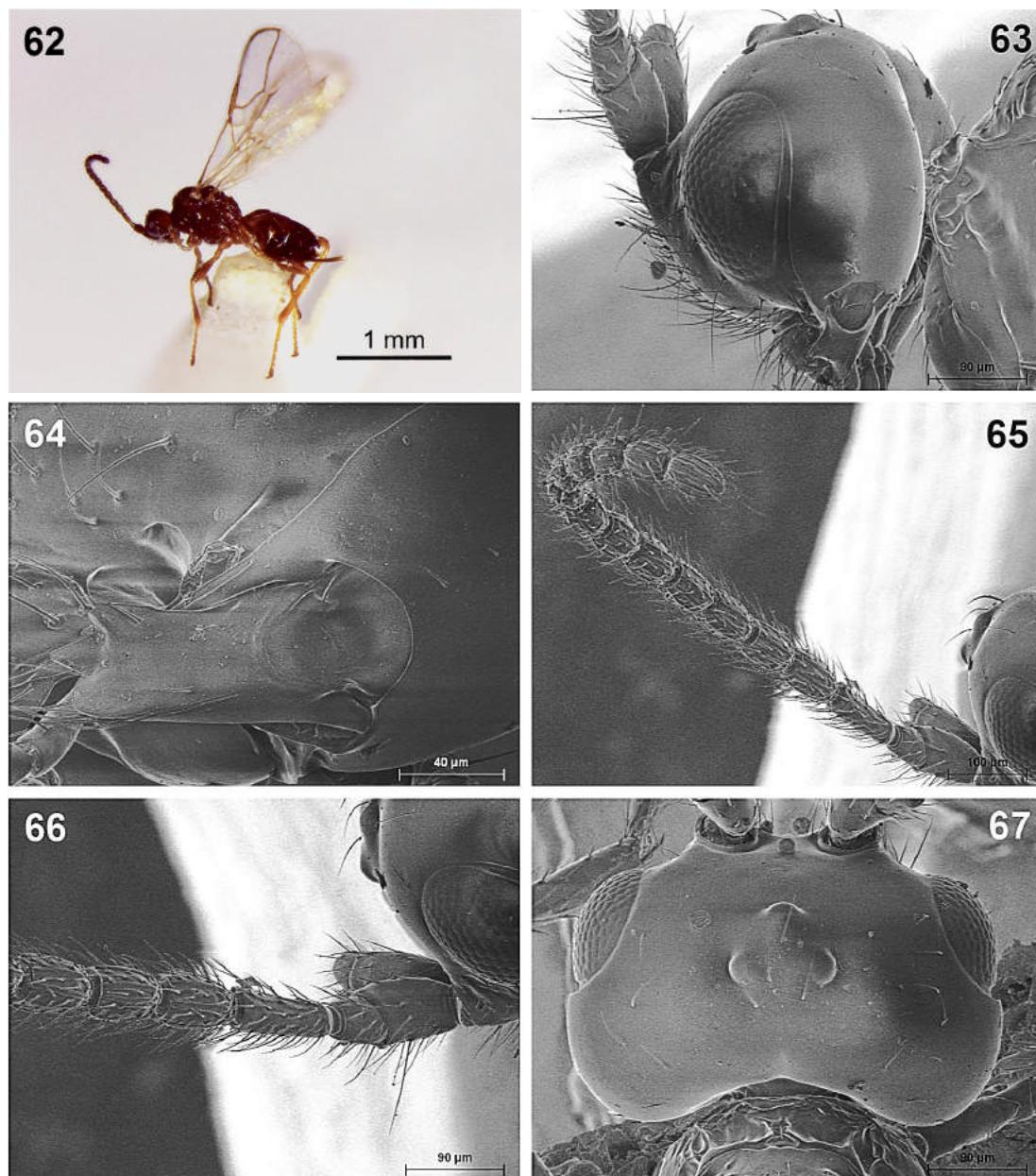
Colour. Body from brown to dark brown. Legs yellow brown. Wings hyaline. Pterostigma brown.

Length. Body 1.50–1.60 mm; fore wing 1.50–1.60 mm.

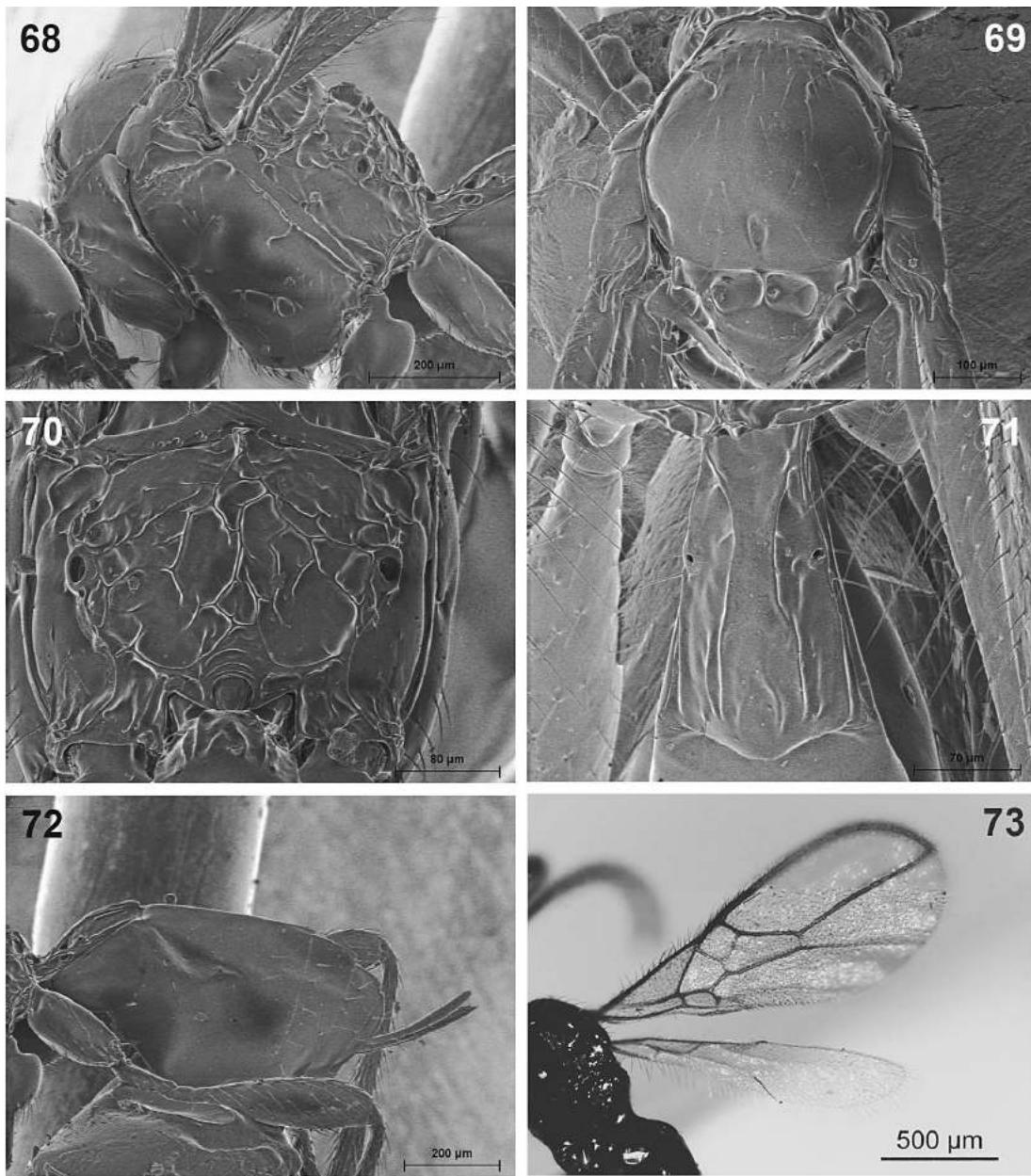
Male. Unknown.

Type material. Holotype: female, Denmark, W-Jutland, Sillerup 12 km sw. of Silkeborg, 19.05.1986 (Munk leg.) (NMA). Paratypes. 2 ♀♀, same label as holotype but, 24.05.1986 (Munk leg.) (NMA); 1 ♀, Denmark, W-Jutland, Bredsgårde, 56°27'N 9°16'E, 30.05.1985 (Munk leg.) (NMA).

Additional material. 1 ♀, Denmark, E-Jylland, Klatstrup s. Vejle, 27.08.1982 (Munk leg.) (ENV); 1 ♀, Denmark, N-Jutland, Villestrup, 56°46'N 9°56'E, 15.06.1984 (Munk leg.) (ENV).



Figures 62–67. *Dinotrema paludellae* sp. nov. (female) (62) Habitus, lateral view; (63) Head, lateral view; (64) Mandible; (65) Antenna; (66) Basal segments of antenna; (67) Head, dorsal view.



Figures 68–73. *Dinotrema paludellae* sp. nov. (female) (68) Mesosoma; (69) Mesonotum; (70) Propodeum; (71) First metasomal tergite; (72) Metasoma and ovipositor; (73) Fore and hind wings.

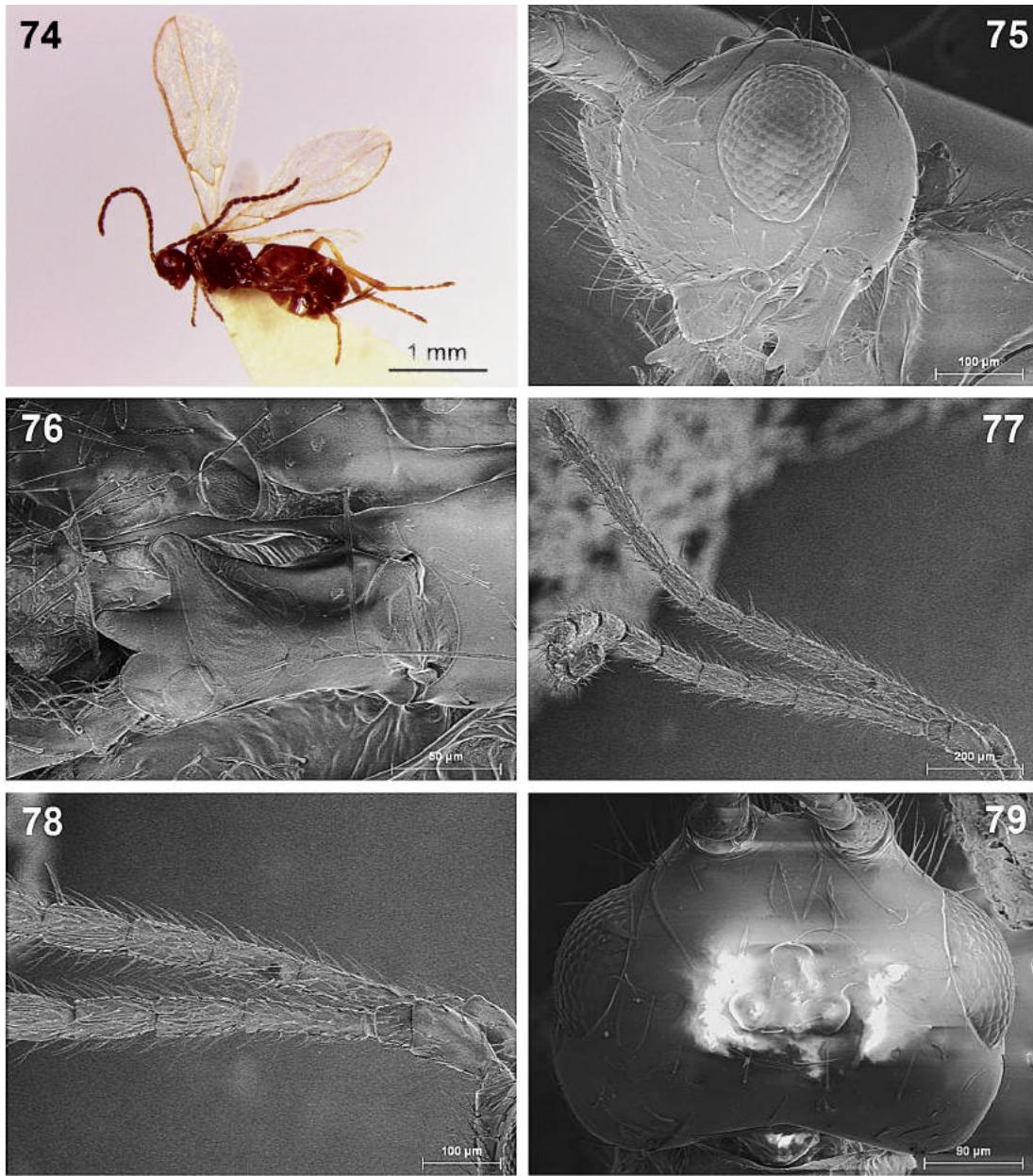
Diagnosis. This new species resembles *D. falsificum* (Stelfox & Graham), but differs in having the first flagellar segment 2.30–2.40 times as long as wide (3.50 times in *D. falsificum*), middle flagellar segments 1.10 times as long as wide (2.00 times in *D. falsificum*), hind femur 3.60–3.65 times as long as its maximum width (5.00 times in *D. falsificum*), paraclypeal fovea reaching the middle distance between clypeus and eye (not reaching the middle distance in *D. falsificum*), and ovipositor shorter than metasoma (as long as metasoma in *D. falsificum*).

***Dinotrema setaceum* Munk et Peris-Felipo, sp. nov.**
(Figs 74–85)

Etymology. From Latin “setaceus” due to the many long bristly setae on the most part of body.

Description. Female.

Head. In dorsal view, 1.40–1.45 times as wide as median length, 1.40–1.45 times as wide as mesoscutum, smooth, with rounded temples behind eye. Eye in lateral view 1.40 times as high as wide and 1.10–1.15 times as wide as temple. POL 2.95–3.00 times OD; OOL

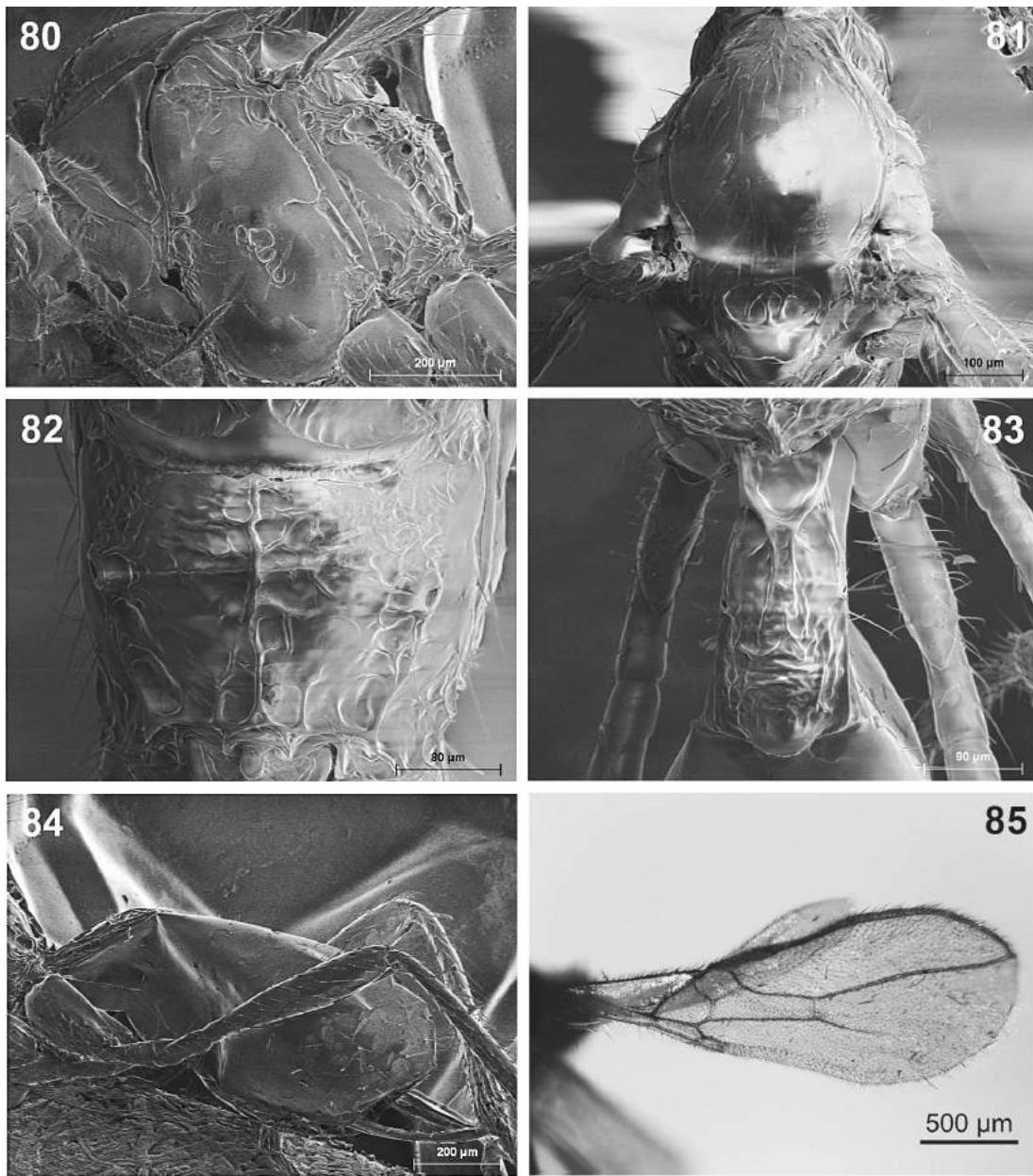


Figures 74–79. *Dinotrema setaceum* sp. nov. (female) (74) Habitus, lateral view; (75) Head, lateral view; (76) Mandible; (77) Antenna; (78) Basal segments of antenna; (79) Head, dorsal view.

2.75–2.80 times OD. Face 2.00 times as wide as high; inner margins of eyes subparallel. Clypeus 2.00 times as wide as high, slightly curved ventrally. Paraclypeal fovea short, not reaching the middle distance between clypeus and eye. Mandible widened towards apex, 1.40 times as long as its maximum width. Upper tooth wider than middle tooth. Middle tooth pointed apically, with a very angular join with upper tooth. Lower tooth rounded and longer and as wide as upper tooth. Antennae thick, 20–22-segmented, shorter than body. Scape 2.50 times as long as pedicel. First

flagellar segment 4.10 times as long as its apical width, 1.30–1.35 times as long as second segment; second segment 2.30 times as long as its maximum width. Third to ninth flagellar segments 1.95–2.00 times as long as their width; tenth to seventeenth segments 1.35–1.40 times as long as wide; eighteenth segment 1.80 times as long as wide.

Mesosoma. In lateral view, 1.15–1.20 times as long as high. Mesoscutum 1.10–1.15 times as long as maximum width with two rows of couple setae. Notauli mainly absent. Mesoscutal pit present and elongated.



Figures 80–85. *Dinotrema setaceum* sp. nov. (female) (80) Mesosoma; (81) Mesonotum; (82) Propodeum; (83) First metasomal tergite; (84) Metasoma and ovipositor; (85) Fore wing.

Prescutellar depression smooth, with lateral carinae. Sternaulus (precoxal suture) present, not reaching with the anterior and posterior parts of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with median longitudinal carinae running from its anterior to posterior margins, with emerging lateral carinae in half anterior part reaching with propodeal edges. Propodeal spiracles small.

Legs. Hind femur 4.90–5.00 times as long as wide. Hind tibia weakly widened towards apex, 9.40–9.50 times as long as its maximum subapical width,

1.35–1.40 times as long as hind tarsus. First segment of hind tarsus 1.75 times as long as second segment.

Wings. Length of fore wing 2.70–2.75 times its maximum width. Vein r_1 present. Radial cell reaching to apex of wing, 4.85–4.90 times as long as its maximum width. Nervulus distinctly postfurcal. Brachial cell closed, elongated, widened apically, 3.80 times as long as its maximum width. Hind wing 6.00 times as long as its maximum width.

Metasoma. Distinctly compressed. First tergite weakly widened towards apex, 2.25–2.30 times as long

as its apical width, completely striated. Ovipositor 1.25–1.30 times as long as first tergite, shorter than metasoma, 0.75 times as long as hind femur.

Colour: Body from brown to dark brown. Hind tibia and hind tarsus yellow brown. Wings hyaline. Pterostigma brown.

Length. Body 2.00–2.10 mm; fore wing 2.40–2.50 mm.

Male. Unknown.

Type material. Holotype: female, Germany, Meesen B., 04.06.1967 (Haeselbarth leg.) (NMA). Paratypes. 6 ♀♀, same label as holotype (NMA). Additional material. 2 ♀♀, Germany, Meesen B., 04.06.1967 (Haeselbarth leg.) (ENV); 1 ♀, Finland, Suomi, U. Helsinki, 6682:382, 11.09.1976 (M. Koponen leg.) (ENV).

Diagnosis. This new species resembles *D. agaricophagum* sp. nov., but differs in having the mandible 1.40 times as long as wide (0.90 times in *D. agaricophagum*), first flagellar segment 4.10 times as long as wide (2.50 times in *D. agaricophagum*) and hind femur 4.90–5.00 times as long as its maximum width (4.50 times in *D. agaricophagum*).

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