

Tainiterma, a new genus of the subfamily Euphorinae (Hymenoptera: Braconidae) from Vietnam and China

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Achterberg, C. van & S.R. Shaw. *Tainiterma*, a new genus of the subfamily Euphorinae (Hymenoptera: Braconidae) from Vietnam and China.

Zool. Med. Leiden 75 (3), 24.xii.2001: 69-78, figs 1-29.— ISSN 0024-0672.

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Key words: Hymenoptera; Braconidae; Euphorinae; *Tainiterma*; new genus; new species; East Palaearctic; montane forest; Vietnam; China; Taiwan.

A new tribe (Tainitermini) and genus (*Tainiterma*) of the subfamily Euphorinae (Hymenoptera: Braconidae) are described and illustrated. A key to the two known species (the type species from Vietnam and China: *T. pachytarsis* spec. nov., and *T. maiphuquyi* spec. nov. from Vietnam) is added.

Introduction

During the 1999 Vietnam expedition by the National Museum of Natural History, Leiden and the Institute of Ecology and Biological Resources, Hanoi, two new species of a very aberrant genus of the subfamily Euphorinae Foerster, 1862, were collected by the first author. The second author recognized this genus as new 17 years ago but refrained from describing the genus because only one specimen was available to him and he hoped to find more to allow a better understanding of variation. The genus belongs to a new tribe (Tainitermini van Achterberg), which shows a resemblance to the tribe Centistini Capek, 1970. The wing venation is the same, the carination of the propodeum is similar, both have a large to medium-sized laterope, and in both tribes the ovipositor sheath is widened. However, members of the Centistini have the ovipositor laterally compressed, and its sheath setose and more or less convex, the spiracles and the laterope of the first metasomal tergite more basally situated, the eighth tergite of females largely retracted and this tergite without a round membranous medial area. The tribe Cosmophorini Capek, 1958, shares with the Centistini several character states including the laterally compressed ovipositor (van Achterberg & Quicke, 2000), but members have a derived wing venation, a derived head and mandibular structure, and the ovipositor sheath is not widened. The large laterope, and the widened ovipositor sheath unite the Centistini with the Tainitermini, but it is probably not the sistergroup of the Cosmophorini considering the many differences.

The biology of the new genus is unknown but the Centistini contain parasitoids of adult Coleoptera (Curculionidae and Chrysomelidae; Shaw, 1985).

For recognition of the subfamily Euphorinae, see van Achterberg (1990, 1993, 1997), for keys to the other genera, see Shaw (1985, 1997) or Chen & van Achterberg (1997), and for the terminology used in this paper, see van Achterberg (1988).

Tribus Tainitermini van Achterberg, nov.

(figs 1-23)

Diagnosis.— Antennal sockets situated between eyes (fig. 4); marginal cell of fore wing long (fig. 1); vein 1-M 1.5-2.0 times vein 1r-m of hind wing (fig. 1); tarsal claws simple (figs 6, 8, 13); metasoma depressed; first metasomal tergite subparallel-sided (fig. 9), with a large submedial or subbasal laterope (fig. 4), dorsope absent and its spiracle submedially situated; first tergite open ventrally and inserted near hind coxa and medially somewhat narrower than apically or basally, about twice as long as wide apically (fig. 9); seventh and eighth tergites of ♀ exposed, with at least eighth tergite distinctly longer than sixth tergite (figs 4, 19) and eighth tergite with membranous area medially (figs 15, 18, 29); hypopygium of ♀ glabrous, large, elliptical; ovipositor and ovipositor sheath strongly dorso-ventrally flattened, ribbon-like and dorsally glabrous and shiny, length of sheath much more than 3 times its maximum width (figs 4, 11, 19, 23, 28); apex of ovipositor without subapical notch.

Distribution.— East Palaearctic (one genus).

Tainiterma van Achterberg & Shaw, gen. nov.

(figs 1-23)

Type species: *Tainiterma pachytarsis* spec. nov.

Etymology.— From “tainia” (Greek for “ribbon”) and “terma” (Greek for “end”) because of the ribbon-like ovipositor sheath. Gender: neuter.

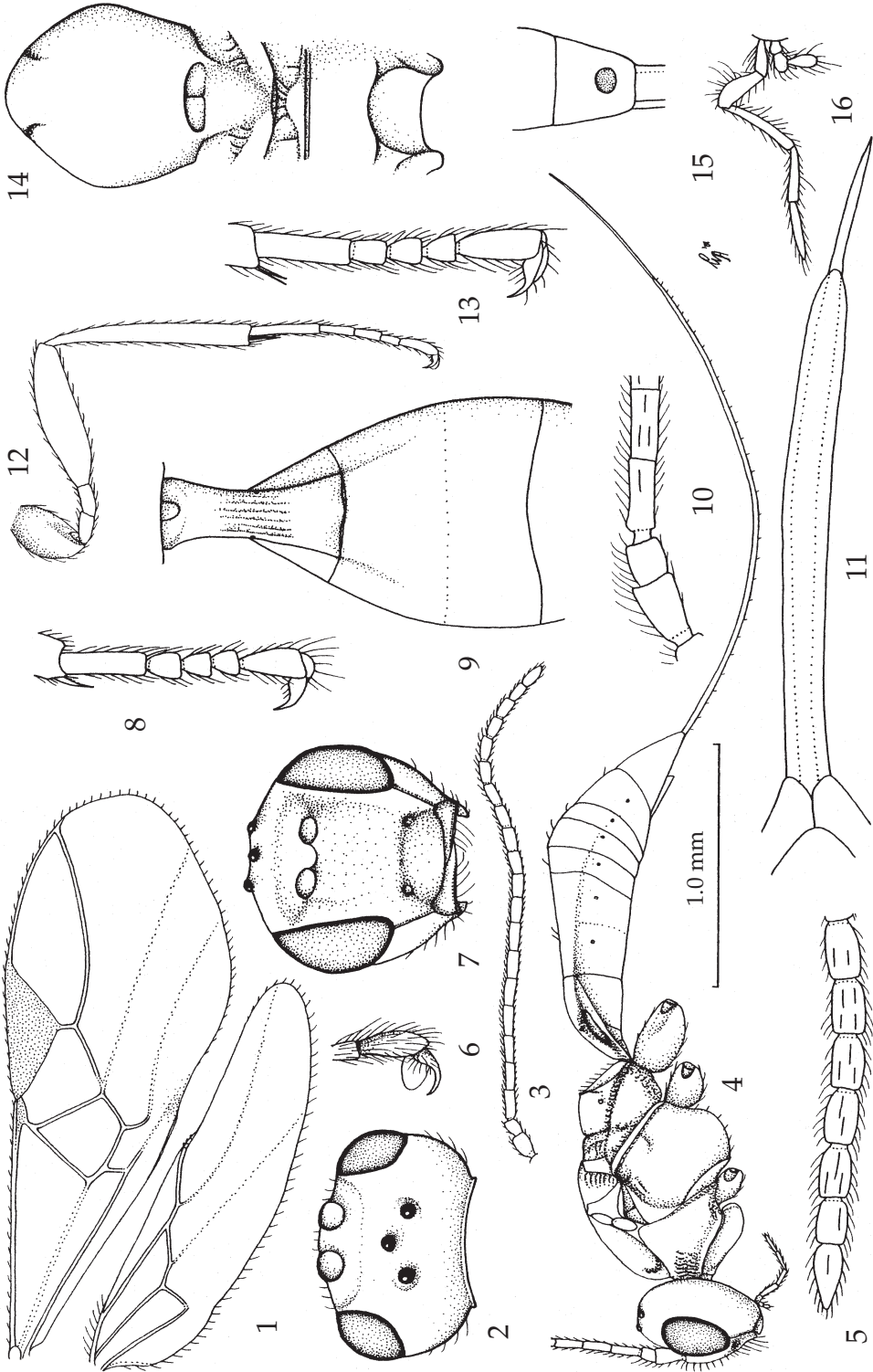
Diagnosis.— Antennal segments 21-25; scapus normal, not enlarged (figs 4, 10); apex of antenna without spine (fig. 5); maxillary palp with 5 segments, normal, and labial palp with 3 segments, shortened (figs 16, 17); head normally convex dorsally (fig. 4); occipital carina complete, united with hypostomal carina above base of mandible; epistomal suture present (fig. 7); frons without median carina; mandibles strongly twisted and narrow, smooth, except for a distinct and long ventral carina; prepectal carina present laterally (fig. 4); postpectal carina and precoxal sulcus absent; mesosternum normally setose and convex (fig. 4); propodeum largely smooth and with curved submedial carina enclosing a hemicircular posterior area (fig. 14); vein SR1 of fore wing complete; vein M+CU1 of fore wing largely reduced, unsclerotised (fig. 1); veins 1-SR+M, 2+3-CU1, and m-cu of fore wing and cu-a and SC+R1 of hind wing present (fig. 1); inner side of fore coxa normally setose; hind coxa rounded ventro-basally; tarsal claws evenly curved; hind telotarsus normal (fig. 6); tergites of third-eighth segments enclosing sternites (fig. 4).

Biology.— Unknown.

Distribution.— Montane forests of northern Vietnam and China (Taiwan).

Key to species of the genus *Tainiterma* nov.

1. Fourth segment of middle tarsus robust (fig. 13); telotarsi of fore and middle tarsi dark brown, darker than fourth tarsal segment; ovipositor sheath 0.8-0.9 times as long as fore wing and gradually tapering apicad in ventral or dorsal view (fig. 11),



Figs 1-16, *Tainiterma pachytarsis* gen. nov. & spec. nov., ♀, holotype. 1, wings; 2, head, dorsal aspect; 3, antenna, lateral aspect; 4, habitus, lateral aspect; 5, apex of antenna; 6, outer hind claw; 7, head, frontal aspect; 8, fore tarsus, dorsal aspect; 9, first-third metasomal tergites, dorsal aspect; 10, four basal antennal segments, lateral aspect; 11, ovipositor sheath, ventral aspect; 12, hind leg; 13, middle leg; 14, mesosoma, dorsal aspect; 15, eighth tergite, dorsal aspect; 16, palpi. 1, 3, 4, 11, 12, 15: 1 × scale-line; 2, 7, 9, 13: 1.7 ×; 5, 6, 8, 10, 14, 16: 2.5 ×.

and without projecting setae subapically (figs 4, 11); third antennal segment about 1.1 times as long as fourth segment and fourth segment about as wide as third segment (fig. 10); antennal segments of ♀ 21-22; vein 1-CU1 of fore wing similar in colour to vein 1-M; eighth tergite of ♀ and its membranous part more slender (fig. 15); medio-posterior depression of scutellum narrowly but distinctly crenulate (fig. 14) *T. pachytarsis* spec. nov.

- Fourth segment of middle tarsus comparatively slender (fig. 21); telotarsi of fore and middle tarsi brownish-yellow, similar in colour to fourth tarsal segment; ovipositor sheath about 0.5 times as long as fore wing and hardly tapering apicad in ventral or dorsal view (fig. 23), with projecting setae subapically (figs 19, 23); third antennal segment about 1.3 times as long as fourth segment and fourth segment somewhat wider than third segment (fig. 22); antennal segments of ♀ about 25; vein 1-CU1 of fore wing distinctly darker than vein 1-M; eighth tergite of ♀ and its membranous part more robust (fig. 18); medio-posterior depression of scutellum hardly crenulate *T. maiphuquyi* spec. nov.

Tainiterma pachytarsis van Achterberg & Shaw, spec. nov.
(figs 1-16)

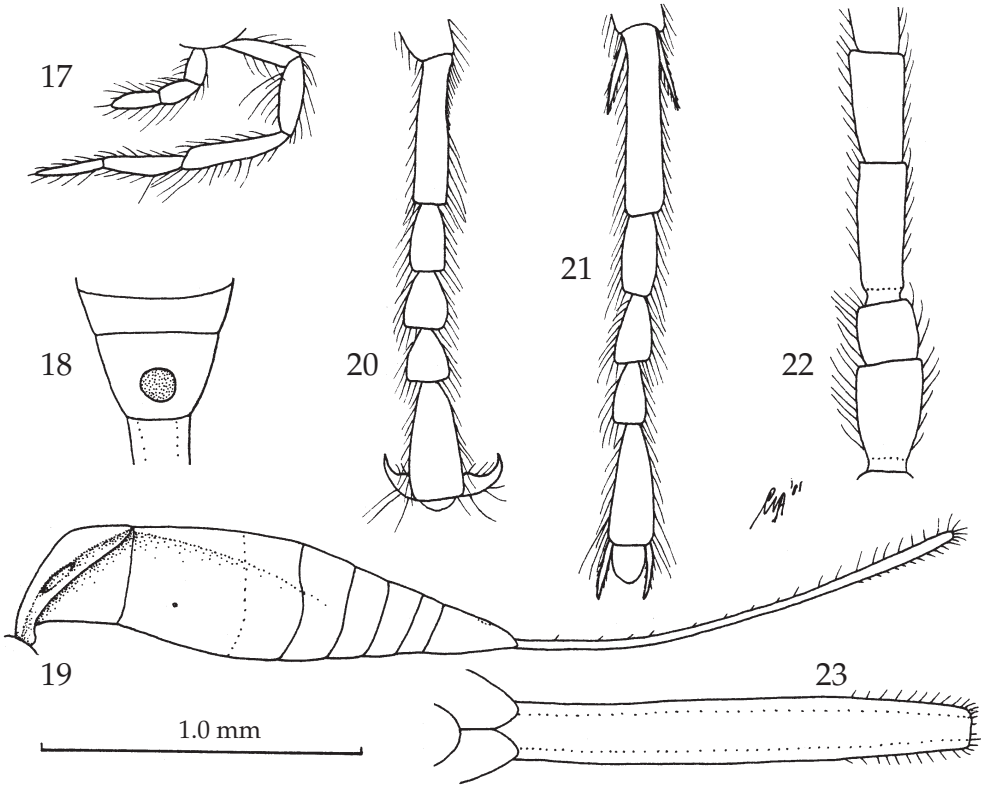
Material.— Holotype, ♀ (RMNH), “NW Vietnam: Tonkin, Hoang Lien N.R., 15 km W Sa Pa, c 1900 m, 15-21.x.1999, Malaise traps, C. v. Achterberg, RMNH’99”. Paratypes (2 ♀ ♀): 2 ♀ ♀ (AEIC, CNC), “Taiwan, Meifeng, 2150 m, 3.v.[19]83, MT., H. Townes”; 1 ♀ (AEI), id., but 10.v.1983, Henry Townes.

Holotype, ♀, length of body 2.4 mm, of fore wing 2.3 mm.

Head.— Antennal segments 21, third segment 1.1 times as long as fourth segment and of equal width, length of third, fourth and penultimate segments 2.8, 2.7 and 1.7 times their width, respectively (figs 5, 10); length of maxillary palp 0.7 times height of head; frons smooth and largely flat and glabrous; OOL:diameter of posterior ocellus:POL = 15:7:24; in dorsal view eye as long as temple (fig. 2), temples subparallel behind eyes and roundly narrowed posteriorly (fig. 2); face evenly convex, sparsely punctulate (fig. 7); clypeus convex and largely smooth, except some punctulation (fig. 7); malar suture long (fig. 7); occipital flange vertical, medium-sized; length of malar space 1.2 times basal width of mandible; outer tooth of mandible somewhat longer than inner tooth.

Mesosoma.— Length of mesosoma 1.4 times its height; pronope absent; side of pronotum largely smooth, but anteriorly rugose-crenulate (fig. 4); prepectal carina complete, medium-sized and reaching anterior margin of mesopleuron; precoxal sulcus absent except for indistinct depression posteriorly; remainder of mesopleuron smooth; pleural sulcus finely crenulate; episternal scrobe weakly developed; metapleuron largely smooth, except for some rugosity ventrally and anteriorly (fig. 4); mesosternal suture deep, finely crenulate; notauli absent dorsally, except for short punctate part anteriorly (figs 4, 14); mesoscutum glabrous, smooth; scutellar sulcus with one carina (fig. 14); scutellum convex, smooth, medio-posteriorly narrowly crenulate (fig. 14); surface of propodeum smooth, except for a rather irregular curved carina (fig. 14).

Wings.— Fore wing: 1-CU1:2-CU1 = 2:5; 1-SR short and first discal cell acute anteriorly (fig. 1); 2-M absent; SR1 weakly curved (fig. 1); 2-R1 short; r:3-SR+SR1:2-SR =



Figs 17-23, *Tainiterma maiphuquyi* gen. nov. & spec. nov., ♀, holotype. 17, palpi; 18, eighth metasomal tergite, dorsal aspect; 19, metasoma, lateral aspect; 20, fore tarsus, dorsal aspect; 21, middle tarsus, dorsal aspect; 22, four basal segments of antenna; 23, ovipositor sheath, ventral aspect. 18, 19, 23: 1 × scale-line; 17, 20-22: 2.5 ×.

3:46:15. Hind wing: M+CU:1-M = 21:6; SC+R1 long (fig. 1); 1r-m 1.5 times as long as 1-M.

Legs.— Hind coxa smooth except for some punctures; tarsal claws slender (fig. 6); length of fore spur 0.7 times fore basitarsus; fore and middle tarsal segments robust (figs 8, 13), especially compared with slender hind tarsal segments (fig. 12), fourth segment hardly longer than wide; length of femur, tibia and basitarsus of hind leg 3.8, 9.4 and 5.7 times their width, respectively; outer and inner hind tibial spurs 0.35 and 0.45 times hind basitarsus, respectively.

Metasoma.— Length of first tergite 2.0 times its apical width (fig. 9), its surface smooth, except for some longitudinal rugulae medially (fig. 9); second tergite smooth; eighth tergite with almost round and somewhat depressed membranous area comparatively slender (fig. 15); length of ovipositor sheath 0.85 times fore wing, sheath comparatively slender and tapered apically, pointed (fig. 11), ventrally with two sublateral rows of short and sparse setae, but without projecting setae apically (figs 4, 11).

Colour.— Black; face, clypeus, propleuron, antenna (but four basal segments largely brown, with pedicellus and third segment basally yellowish-brown), tegulae, pterostigma and parastigma, mesosternum, apical third of hind tibia, telotarsi and

hind tarsus, metasoma dorsally, and apical half of metasoma ventrally and ovipositor sheath dark brown or blackish-brown; basal half of metasoma and veins of fore wing largely brown; remainder of legs brownish-yellow; palpi and veins of hind wing largely pale brownish; wing membrane subhyaline.

Variation.— Paratypes: very similar to holotype; antennal segments 21(1), or 22(1); length of fore wing 2.4-2.5 mm, of body 2.5-2.8 mm; length of first tergite 1.6-1.8 times its apical width, one paratype has surface of first tergite smooth except for some punctures; length of ovipositor sheath 0.76-0.92 times fore wing; legs partly darkened; carina of propodeum regularly curved; marginal cell of fore wing slightly more slender than holotype.

In addition two males from Meifeng (Taiwan; AEIC) were examined which are excluded from the type series because they may belong to another species. The antenna have 27-29 segments, length of fore wing 2.5-2.9 mm, and of body 2.3-2.6 mm, first metasomal tergite with dorsal carinae distinct up to apical 0.2 of tergite, laterope droplet-shaped and subbasally situated and hind coxa dark brown.

Tainiterma maiphuquyi van Achterberg, spec. nov.
(figs 17-23)

Material.— Holotype, ♀ (RMNH), **NW Vietnam**: Tonkin, Hoang Lien N.R., 15 km W Sa Pa, c 1900 m, 15-21.x.1999, Malaise traps, C. v. Achterberg, RMNH'99".

Holotype, ♀, length of body 2.9 mm, of fore wing 2.6 mm. Similar to *T. pachytarsis*, but differs as follows.

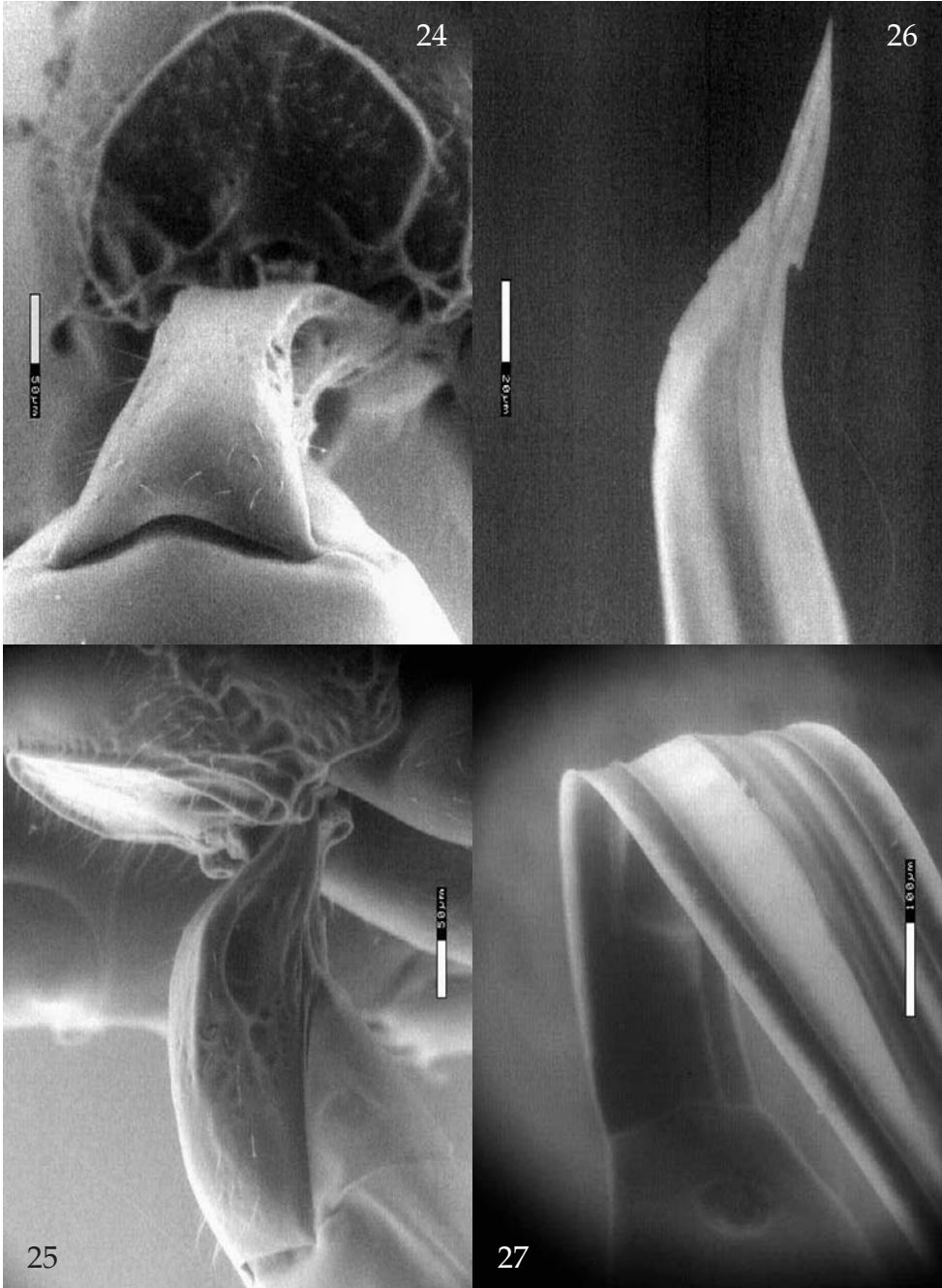
Head.— Antennal segments 25, third segment 1.4 times fourth segment, and narrower than fourth segment (fig. 22), length of third, fourth and penultimate segments 3.4, 2.1 and 1.3 times their width, respectively; length of maxillary palp 0.9 times height of head; labial palp comparatively slender (fig. 17); OOL:diameter of posterior ocellus:POL = 4:3:9; in dorsal view length of eye 1.2 times temple, temples comparatively wide (fig. 23); face largely smooth; length of malar space 1.2 times basal width of mandible.

Mesosoma.— Length of mesosoma 1.3 times its height; side of pronotum anteromedially distinctly crenulate and ventro-posteriorly finely rugose; mesosternal sulcus anteriorly smooth; precoxal sulcus absent but near middle coxa a small oval depression; episternal scrobe distinct, linear; metapleuron smooth dorsally and coarsely rugose ventrally and with crenulation anteriorly; medio-posterior depression of scutellum almost smooth; metanotum without a short median carina.

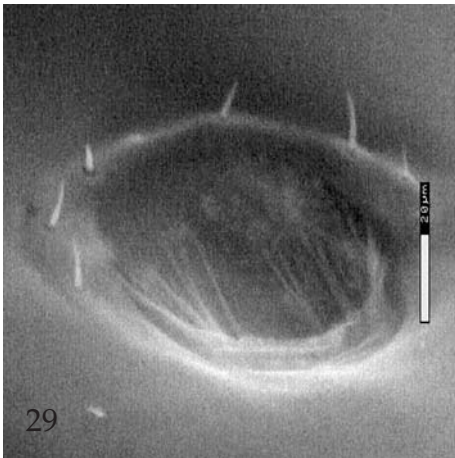
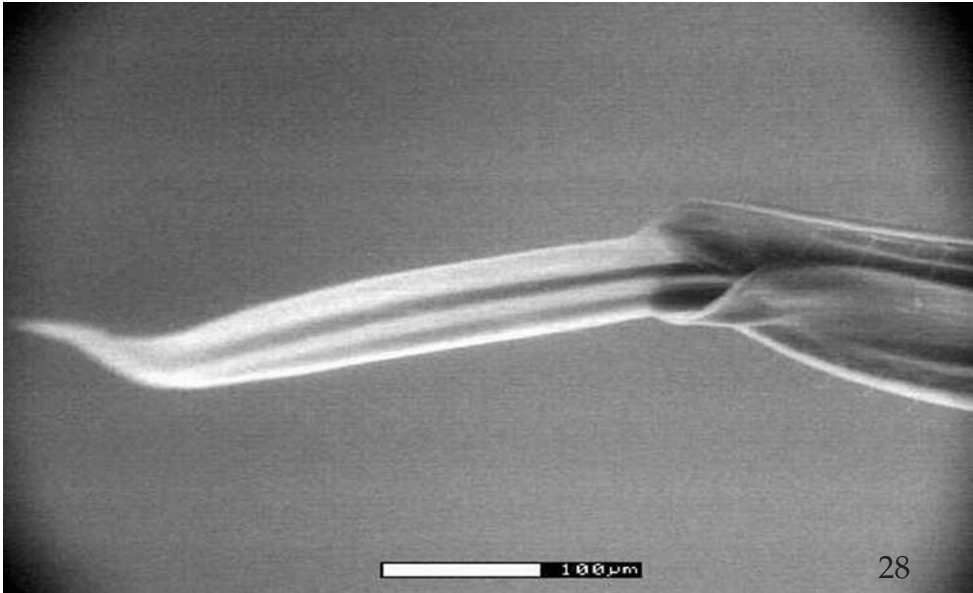
Wings.— Fore wing: r:3-SR+SR1:2-SR = 3:46:13; 1-CU1:2-CU1 = 1:3. Hind wing: M+CU:1-M = 4:1; 1r-m 2.0 times 1-M.

Legs.— Length of femur, tibia and basitarsus of hind leg 3.9, 10.4 and 6.7 times their width, respectively; fore and middle tarsi comparatively slender, fourth tarsal segment of middle tarsus about 1.5 times as long as wide (figs 20, 21).

Metasoma.— Length of first tergite 1.8 times its apical width, its surface smooth; seventh tergite hardly longer than sixth tergite (fig. 19); eighth tergite and its round membranous area comparatively robust (fig. 18); length of ovipositor sheath 0.52 times fore wing, sheath hardly tapering apicad in ventral or dorsal view (fig. 23), with projecting setae subapically (figs 19, 23).



Figs 24-27, *Tainiterma pachytarsis* gen. nov. & spec. nov., ♀, paratype, Taiwan, Meifeng. 24, first metasomal tergite, dorso-posterior aspect; 25, id., but lateral aspect; 26, apex of ovipositor, lateral aspect; 27, basal part of ovipositor sheath and apex of metasoma, ventral (upper part) and dorso-lateral aspect. 24, 25: scale-bar = 50 µm; 26 = 20 µm; 27 = 100 µm.



Figs 28-29, *Tainiterma pachytarsis* gen. nov. & spec. nov., ♀, paratype, Taiwan, Meifeng. 28, apex of ovipositor and of sheath, dorso-lateral aspect; 29, dorsal pit of eighth metasomal tergite, dorsal aspect. 28: scale-bar = 100 μm; 29 = 20 μm.

Colour.— Black; four basal antennal segments and annellus yellowish-brown; propleuron posteriorly, tegulae, pterostigma and parastigma, metasoma ventrally, apical half of hind tibia and hind tarsus, ovipositor sheath, veins r, 3-SR+SR1, 2-SR and 1-CU1 of fore wing dark brown; veins of hind wing largely pale brownish; palpi and remainder of legs brownish-yellow as vein 1-M of fore wing, remainder of veins of fore wing brown; fore and middle tibia (except basally) and tarsi somewhat darkened; fore and middle telotarsi similar in colour to remainder of tarsi; wing membrane subhyaline.

Note.— It is a pleasure to name this species after the entomologist Prof. Dr Mai Phu Quy (Hanoi) for his excellent assistance during fieldwork in North Vietnam under often difficult conditions.

Acknowledgements and abbreviations

The first author wishes to express his gratitude to the counterparts of the Institute of Ecology and Biological Resources, Hanoi, for their assistance during fieldwork in Vietnam, and we wish to thank Dr D. Wahl (Gainesville) for the loan of additional specimens, and Dr M.R. Shaw (Edinburgh) for his critical remarks on an earlier draft of this paper.

AEIC stands for the American Entomological Institute, Gainesville; CNC for the Canadian National Collection, Ottawa; and RMNH for the Nationaal Natuurhistorisch Museum, Leiden.

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Received: 1.ii.2001

Accepted: 30.v.2001

Edited: M.J.P. van Oijen

