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The Genus Wesmaelia Foerster of Taiwan (Hymenoptera: Braconidae: Euphorinae) 【Research report】

臺灣產衛斯繭蜂屬(膜翅目：小繭蜂科：優繭蜂亞科)【研究報告】

Jeno Papp, Liang-Yih Chou*
Jenö Papp、周樑鎰*

*通訊作者E-mail :

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Abstract

The genus Wesmaelia Foerster (Hymenoptera：Braconidae：Euphorinae) is revised for Taiwan. Of the 3 included species, W. decurta sp. n. is new to science, W. lepos Belokoylskij and W. pendula Foerster are new to Taiwan. Besides the description of the new species and the redescription of W. lepos, a key for the four Wesmalia species of the world is given and 34 original figures are included.

摘要

衛斯繭蜂屬 (Wesmaelia) 隸膜翅目、小繭蜂科、優繭蜂亞科，全世界已知之種類僅3種。本文首次記錄與描述臺灣產之3種衛斯繭蜂；其中1種為新種。文中並附全界衛斯繭蜂屬之分種檢索表與形質圖。

Key words: Hymenoptera, Braconidae, Euphorinae, Wesmaelia, Taiwan.
關鍵詞: 膜翅目、小繭蜂科、優繭蜂亞科、衛斯繭蜂屬、臺灣。

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The Genus *Wesmaelia* Foerster of Taiwan (Hymenoptera: Braconidae: Euphorinae)

Jenö Papp Department of Zoology, Hungarian Natural History Museum, Budapest, pf. 137, H-1431, Hungary.
Liang-yih Chou* Department of Applied Zoology, Taiwan Agricultural Research Institute, Wufeng, Taichung, Taiwan 413, R.O.C.

ABSTRACT

The genus *Wesmaelia* Foerster (Hymenoptera: Braconidae: Euphorinae) is revised for Taiwan. Of the 3 included species, *W. decurta* sp. n. is new to science, *W. lepos* Belokobylskij and *W. pendula* Foerster are new to Taiwan. Besides the description of the new species and the redescription of *W. lepos,* a key for the four *Wesmaelia* species of the world is given and 34 original figures are included.
Key words: Hymenoptera, Braconidae, Euphorinae, *Wesmaelia,* Taiwan.

Introduction

Heretofore 3 species of the genus *Wesmaelia* have been described: the 1st species in the last century under the name *W. pendula* Foerster, 1862; the 2nd species under the name *W. topali* Papp, 1990; and the 3rd species recently under the name *W. lepos* Belokobylskij, 1992. The 1st species is widely distributed (though not frequent) in the Holarctic, Neotropic and Oriental Regions, the 2nd and 3rd species are known only from India and the Far East Russian Federation, respectively. In this paper 1 further new species from Taiwan is added. Besides the description of the new species and the redescription of *W. lepos,* a key is presented for the recognition and distinction of the 4 *Wesmaelia* species of the world.

The genus *Wesmaelia* Foerster is first recorded by the authors from Taiwan. The junior author of this paper sorted out and arranged the specimens representing the euphorine genus *Wesmaelia.* This *Wesmaelia* material was taxonomically elaborated by the senior author who also prepared the first draft of the present paper. The junior author concluded the final text, completing it with illustrations. In the material examined sections only "in BP" (=in Museum Budapest) is indicated as the depository institution; where not indicated the depository is the Department of Applied Zoology, Taiwan Agricultural Research Institute, Taichung, Taiwan.

In the lists of material examined, the following abbreviations are used for the collectors: B.H. Chen (BHC), C.C. Chen (CCC), C.C. Chien (CCCh), K.C. Chou (KCC), L.Y. Chou (LYC), S.P. Huang (SPH), C.J. Lee (CJL), K.S. Lin (KSL), S.C. Lin (SCL), T. Lin (TL), C.C. Pang (CCP), W.S. Tang (WST), C.H. Wang (CHW), and C.H. Yang (CHY).

Genus *WESMAELIA* Foerster

Wesmaelia Foerster, 1862. Verh. naturh.

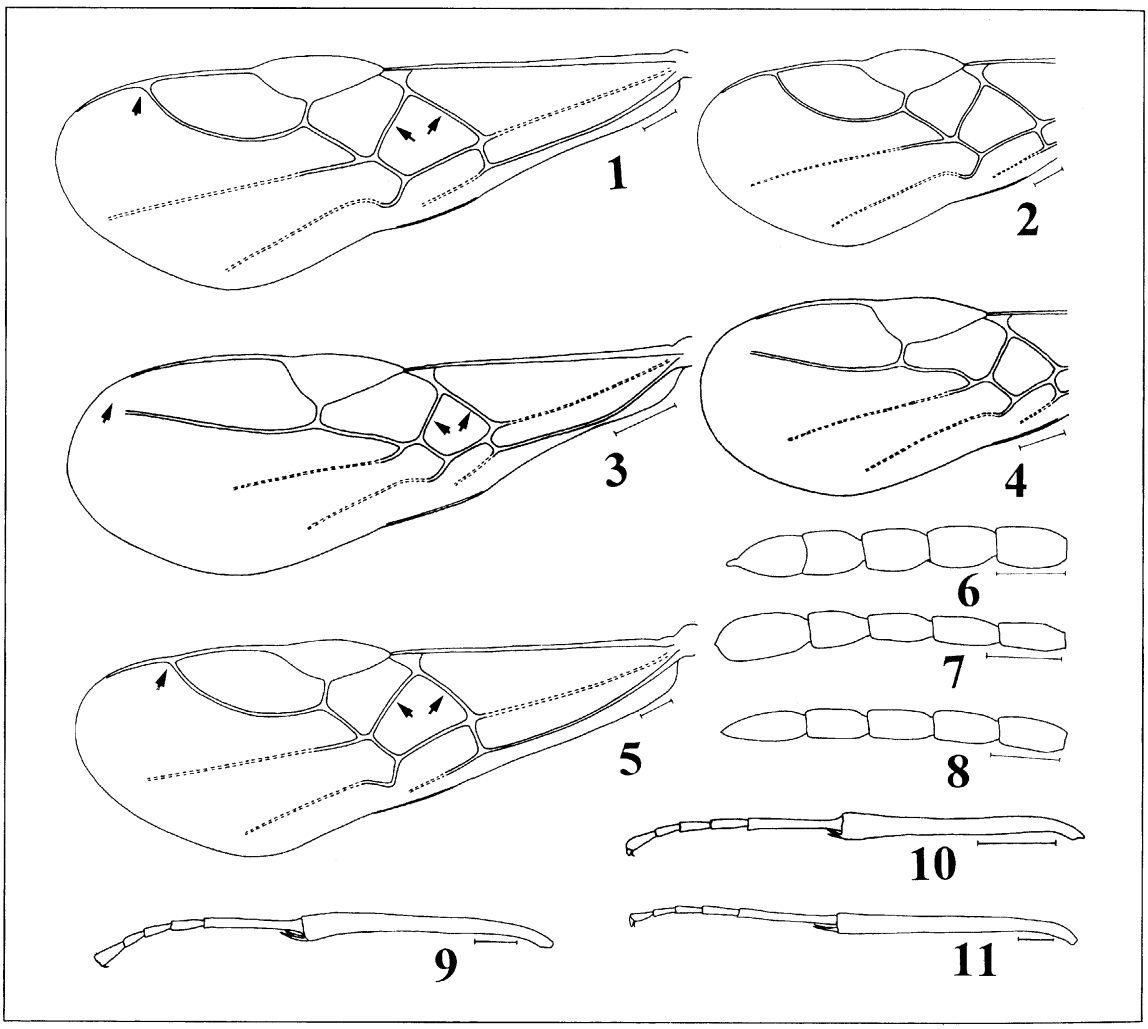
*Correspondence / reprint request address

Ver. preuss. Rheinl. 19:251. Type species: *Wesmaelia pendula* Foerster, by original designation. - Shaw, 1985. Entomography 3:342.

The genus *Wesmaelia* is easy to recognize and to distinguish from its related euphorine genera with long and posteriorly non-broadening petiole (Shaw, 1985): mesosoma (except propodeum) smooth (at most mesonotum punctate) to polished, vein r-m of forewing absent, notauli present, legs thin, petiole long (at least 1/2 as long as metasoma).

Key to species of the genus *Wesmaelia* of the world

1. Distal 1/5 of vein R1 and vein 3+4/Rs shortened and not meeting each other apically (Fig. 3); last flagellomere thickened club-form, penultimate flage-



Figs. 1-11. *Wesmaelia* spp. 1-5, forewings: 1, *W. lepos* Belokobylskij, ♀; 2, *W. lepos* Belokobylskij, ♂; 3, *W. decurta* sp. n. ♀; 4, *W. decurta* sp. n. ♂; 5, *W. pendula* Foerster ♀. 6-8, distal end of antenna, ♀: 6, *W. lepos* Belokobylskij; 7, *W. decurta* sp. n.; 8, *W. pendula* Foerster. 9-11, hind tibia and tarsus, ♀: 9, *W. lepos* Belokobylskij; 10, *W. decurta* sp. n.; 11, *W. pendula* Foerster (scale=0.2 mm, except Figs. 6-8 in which scale 0.1 mm).

llomere also somewhat thickened (Fig. 7)·····*decurta* sp. n.

– .Distal end of vein R1 and vein 3+4/Rs evenly sclerotized and meeting each other apically (Figs. 1, 5); last two flagellomeres not thickened (Figs. 6, 8)·····2

2. Cell 2R1 of forewing long, along vein R 1 almost twice as long as stigma (Fig. 2 in Papp 1990: 177); antenna with 15 antennomeres, first flagellomere short, 2.3 times longer than broad·*topali* Papp

– .Cell 2R1 of forewing short, along vein R1 about as long as stigma (Figs. 1, 5); antenna at least with 21-22 antennomeres, first flagellomere 4-5 times longer than broad·····3

3. First flagellomere 1.5-1.6 times as long as 2nd flagellomere; inner margin of eyes parallel (Fig. 22); petiole evenly thick throughout (Fig. 26) and as long as mesosoma·····*lepos* Belokobylskij

– .First flagellomere hardly longer than 2 nd flagellomere; inner margin of eyes converging ventrally (Fig. 30); petiole somewhat though distinctly thickened medially (Fig. 31) and shorter than mesosoma·····*pendula* Wesmael

Wesmaelia decurta sp. n. (Figs. 3, 4, 7, 10, 19-26)

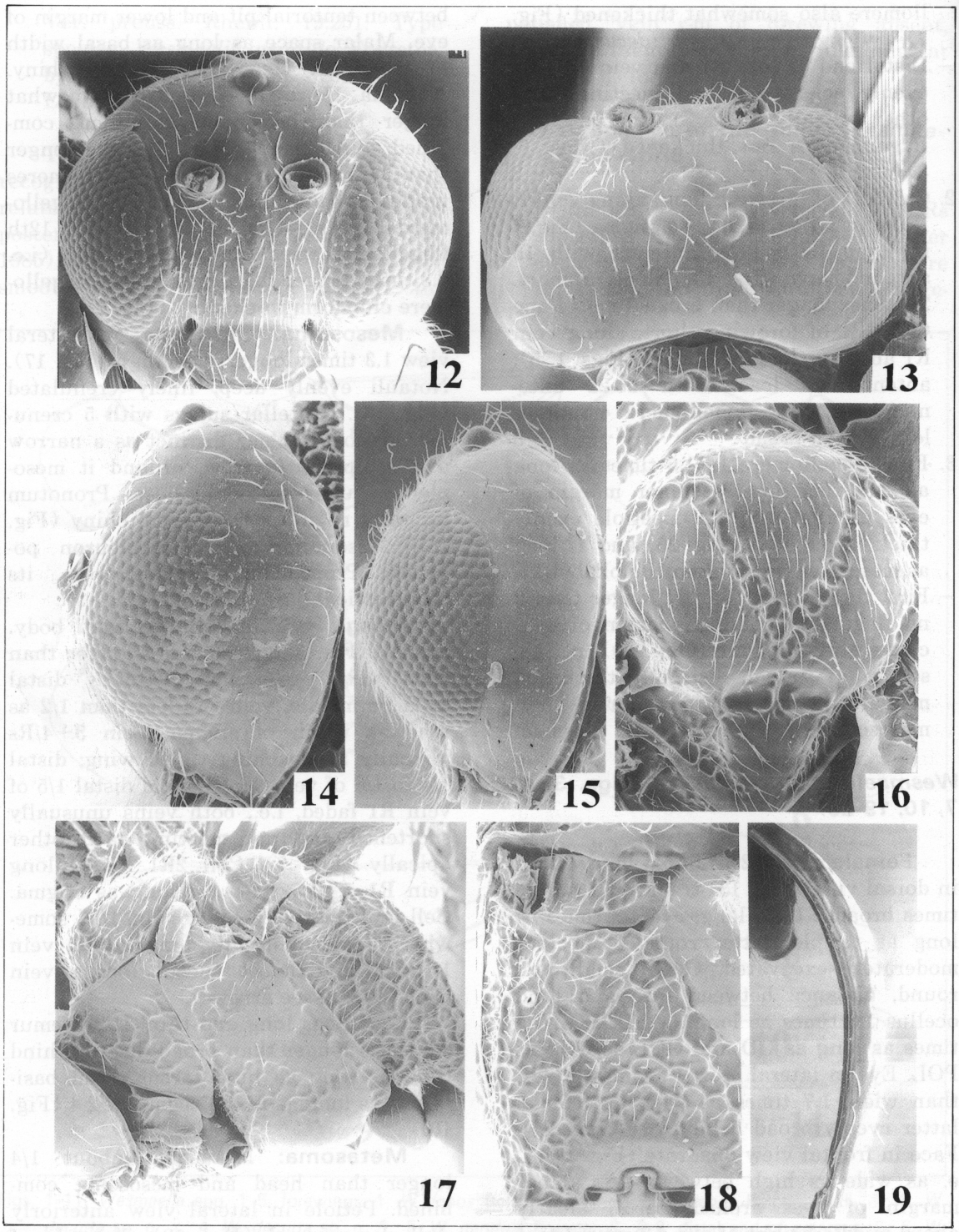
Female: Body 2.4-2.5 mm long. **Head** in dorsal view (Fig. 13) transverse, 1.5-1.6 times broader than long; eye 1.8 times as long as temple, latter rounded; occiput moderately excavated. Ocelli small and round, distance between fore and hind ocellus 1.3 times as long as OD, POL 1.5 times as long as OD and OOL as long as POL. Eye in lateral view 1.5 times higher than wide, 1.7 times as wide as temple, latter evenly broad behind eye (Fig. 14). Face in frontal view quadrate (Fig. 12), i. e. as wide as high between eyes, inner margin of eyes arched; toruli clearly above middle height of eye. Clypeus twice as wide as high, distance between tentorial pits 5 times as long as shortest distance between tentorial pit and lower margin of eye. Malar space as long as basal width of mandible. Head smooth and shiny. Antenna 15 to 16-segmented, somewhat longer than head and mesosoma combined. First flagellomere 4 times longer than broad apically, further flagellomeres gradually shortening so that 11th flagellomere 3.3 times longer than broad, 12th flagellomere somewhat thickening (i.e. 2.3 times longer than broad), last flagellomere club-form thickening (Fig. 7).

Mesosoma: Mesosoma in lateral view 1.3 times longer than high (Fig. 17). Notauli evenly deep, finely crenulated (Fig. 16). Scutellar sulcus with 5 crenulae. Precoxal sulcus distinct as a narrow and sculptured furrow, around it mesopleuron uneven to rugulose. Pronotum laterally rugulose to uneven, shiny (Fig. 18). Mesonotum and mesopleuron polished. Propodeum areolate-rugose, its hind vertical part concave.

Wing: Forewing shorter than body. Stigma (Fig. 3) 2.3-2.6 times longer than wide, vein r-rs issues distinctly distal from its middle, vein r-rs less than 1/2 as long as width of stigma, vein 3+4/Rs virtually approaching tip of wing; distal 1/4 to 1/6 of vein 3+4/Rs and distal 1/5 of vein R1 faded, i.e., both veins unusually shortened and not meeting each other apically (Fig. 3). Cell 2R1 long, along vein R1 1.4-1.5 times as long as stigma. Cell 1M relatively high, vein 1/M somewhat though distinctly longer than vein 1/Rs+M and almost twice as long as vein m-cu (Fig. 3, see arrows).

Leg: Legs long and thin. Hind femur 6.6 times longer than broad distally; hind tibia as long as hind tarsus, hind basitarsus as long as tarsal segments 2-4 (Fig. 10).

Metasoma: Metasoma about 1/4 longer than head and mesosoma combined. Petiole in lateral view anteriorly well downcurved (Fig. 19), its pair of spiracles indistinct and situated dorsally just before middle of petiole. Petiole



Figs. 12-19. *Wesmaelia decurta* sp. n., ♀ (except 15♂). 12, head in frontal view; 13, head in dorsal view; 14, head in lateral view; 15, head in lateral view; 16, mesonotum in dorsal view; 17, mesosoma in lateral view; 18, propodeum in dorsal view; 19, petiole in lateral view (12-16, 18, at 220 x; 17, at 150 x; 19, at 170 x).

anterior from spiracles and laterally uneven, posterior from spiracles smooth, shiny. Rest of metasoma polished. Ovipositor sheath short, in lateral view as long as 3rd segment of hind tarsus.

Color: Ground color of head and mesosoma brown to dark brown; prothorax yellowish to dark brown. Mandible and palps yellow. Ground color of metasoma yellow, tergita 2-4 with brown suffusion; exceptionally entirely brown. Exceptionally ground color of body yellow, mesosoma brown, prothorax yellow, upper or horizontal part of propodeum light brownish. Antenna yellow; in holotype flagellum yellow to darker yellow, last 2 flagellomeres brownish. Legs yellow. Wings subhyaline. Stigma opaque yellowish-brown, basally rather pale yellow; veins opaque yellowish.

Non-paratypic female (1♀): Only fore pair of legs present. Ground color of head and mesosoma dark brown, metasoma dark brown to brown, antenna and tegula yellow.

Male: Similar to female. Body 2.1-2.6 mm long. Head in dorsal view transverse, 1.6-1.7 times broader than long. Eye in lateral view (Fig. 15) 1.6-1.8 times higher than wide, temple always less wide than eye. Antenna 15 to 16-segmented. Stigma (Fig. 4) 2.1-2.7 times longer than wide. Ground color of body brown to dark brown, petiole yellow(ish), legs yellow, tegula yellow. Scape and pedicel yellow, flagellum more or less darker brownish.

Material examined: Holotype ♀: NANTOU HSIEN: Meifeng 2,150 m, 24-26-VI-1981, KSL & WST. Paratypes: HUALIEN HSIEN: Fuli, 1♀, 16-II-1984, KCC & CCP; Tayuling 2,560 m, 1♀2♂, 12-15-IX-1980, KSL & CHW (1♀ in BP, Hym. Typ. No. 7496). NANTOU HSIEN: Leinhuachi 650 m, 1♂, 23-26-V-1980, KSL & BHC; Lushan 1,000 m, 1♀1♂, 27-31-V-1980, KSL & LYC; Meifeng 2,150 m, 1♂, 8-9-IX-1978, KSL; 1♂, 5-9-X-1980, CCC & CCCh (in BP, 7499); 1♂, 24-26-VI-1981, KSL & WST; 1♂, 28-29-VIII-1981, LYC & SCL (in BP, 7500); Sungkang 2,100 m, 1♀1♂, 13-15-IX-1984, KSL & SCL; 1♀, X.1984, KSL & KCC; Tsuifeng 2,300 m, 1♂, 25-27-VI-1981, KSL & WST (in BP, 7502); Tungpu 1,200 m, 1♀1♂, 25-29-IX-1980, LYC & TL; 2♂, 28-IV-2-V-1981, TL & CJL (1♂ in BP, 7501); 1♀, 5-8-X-1981, TL & WST (in BP, 7497); 1♂, 18-23-X-1981, TL & WST; Wushe 1,150 m, 1♂, 19-22-IV-1983, KCC & SPH. TAICHUNG HSIEN: Shengkuang 1,850 m, 1 ♂, IX-1968, KSL (in BP, 7498); Wuling 1,900 m, 1♂, 27-29-VI-1979, KSL & LYC.

Distribution: Taiwan.

Host: Unknown.

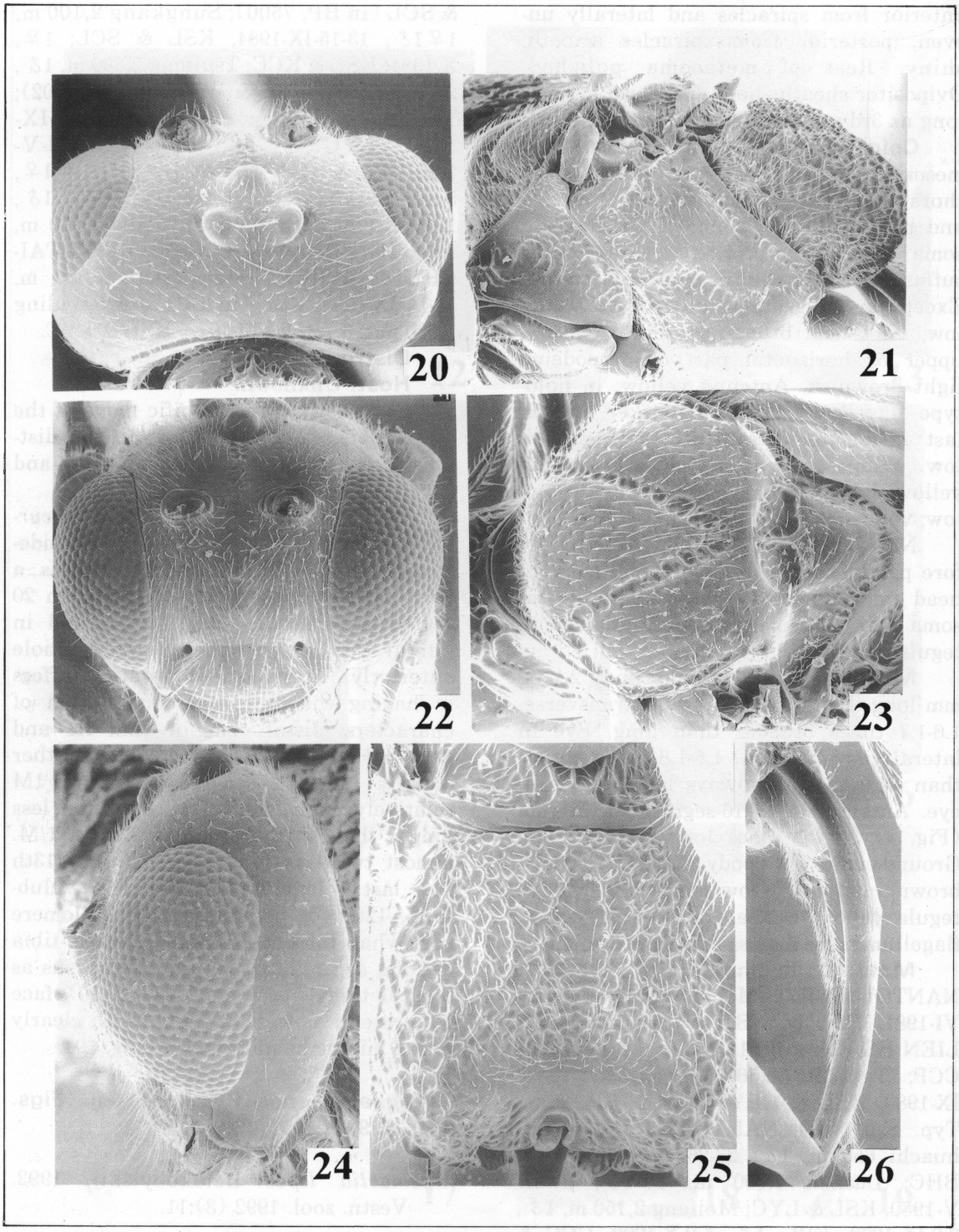
Etymology: The specific name of the new species "*decurta*" refers to the distally shortened (or faded) veins R1 and 3+4/Rs.

Remarks: The new species, *W. decurta,* is related to *W. topali* Papp, considering their common features, such as a long 2R1 cell, antenna with less than 20 segments (antenna itself short), and in lateral view a clearly downcurved petiole anteriorly. This species, however, differs in having the following combination of characters: distal ends of vein R1 and vein 3+4/Rs not meeting each other distally (Fig. 3, see arrows); cell 1M relatively high, vein 1/M more or less longer than vein 1/Rs+M and vein 1/M. almost twice as long as vein m-cu; 13th (or last) flagellomere thickened club-form, 12th (or penultimate) flagellomere somewhat thickened (Fig. 7); hind tibia as long as hind tarsus, hind basitarsus as long as tarsal segments 2-4 (Fig. 10); face quadrate or as wide as high; toruli clearly above middle height of eyes (Fig. 19).

Wesmaelia lepos Belokobylskij (Figs. 1, 2, 6, 9, 20-26)

Wesmaelia lepos Belokobylskij, 1992. Vestn. zool. 1992 (3):11.

Female: Body 3.5-3.6 mm long. **Head** in dorsal view transverse (Fig. 20), 1.7-1.8



Figs. 20-26. *Wesmaelia lepos* Belokobylskij, ♀. 20, head in dorsal view; 21, mesosoma in lateral view; 22, head in frontal view; 23, mesonotum in dorsal view; 24, head in lateral view; 25, propodeum in dorsal view; 26, petiole in lateral view (20, 22, 23, at 150 x; 21, 26, at 100 x; 24, 25, at 170 x).

times broader than long, eye 1.4-1.8 times as long as temple, latter rounded, occiput excavated. Ocelli small and elliptic, distance between fore and hind ocellus as long as greatest OD, POL 1.3 times as long as OD and OOL 1.6-1.7 times as long as POL. Eye in lateral view (Fig. 24) 1.6-1.8 times higher than wide and 1.1-1.5 times as wide as temple, latter widest about middle of eye narrowing ventrally. Face subquadrate (Fig. 22) 1.4 times wider than high, inner margin of eyes parallel. Clypeus just less than 3 times wider than high, distance between tentorial pits 3 times as long as shortest distance between tentorial pit and lower margin of eye. Malar space about 1/2 as long as basal width of mandible. Face punctate, interspaces about as large as punctures, laterally along inner margin of eye smooth, shiny. Head polished. Antenna 21 to 22-segmented, about as long as head, mesosoma and half petiole combined. First flagellomere 4 times longer than broad apically, further ones gradually shortening and slightly thickening so that penultimate flagellomere 1.4 times longer than broad (Fig. 6).

Mesosoma: Mesosoma in lateral view 1.5 times longer than high (Fig. 21). Notauli evenly deep, finely crenulated (Fig. 23). Scutellar sulcus with 3 crenulae. Precoxal sulcus wide and rugose. Pronotum laterally rugose, along its margin smooth, shiny (Fig. 25). Mesonotum punctate, punctation of its median lobe somewhat stronger than that of lateral pair of lobes. Scutellum and mesopleuron polished. Propodeum areolate-rugose, its hind vertical part concave.

Wing: Forewing shorter than body. Stigma (Fig. 1) 2.7-3.0 times longer than wide, vein r-rs issues just distally from its middle, vein r-rs short, 0.6 times as long as width of stigma, vein 3+4/Rs short and ending far before tip of wing; cell 2R1 short, along vein R1 1/6 shorter than stigma. Vein 1/R1 1/5 longer than vein 2/R1. Cell 1M relatively high, vein 1/M somewhat (i.e. 1/6) longer than vein 1/Rs+M (Fig. 1, see arrows).

Leg: Legs long and thin. Hind femur 6-7 times longer than broad distally; hind tibia slightly longer than hind tarsus (Fig. 9), hind basitarsus as long as tarsal segments 2-4.

Metasoma: Metasoma hardly 1/3 longer than head and mesosoma combined. Petiole in lateral view moderately curved (Fig. 26), its pair of very small spiracles situated dorsally and before middle of petiole. Petiole as well as rest of metasoma polished. Ovipositor sheath in lateral view as long as hind tarsus.

Color: Ground color of body brown with rich yellow pattern on head (except vertex and occiput), prothorax, and tegula; a pair of lateral spots on propodeum, petiole and sternites. Antenna and legs yellow. Wings subhyaline, stigma and veins opaque yellow. Ovipositor sheath basally pale yellow, posteriorly brown to dark brown.

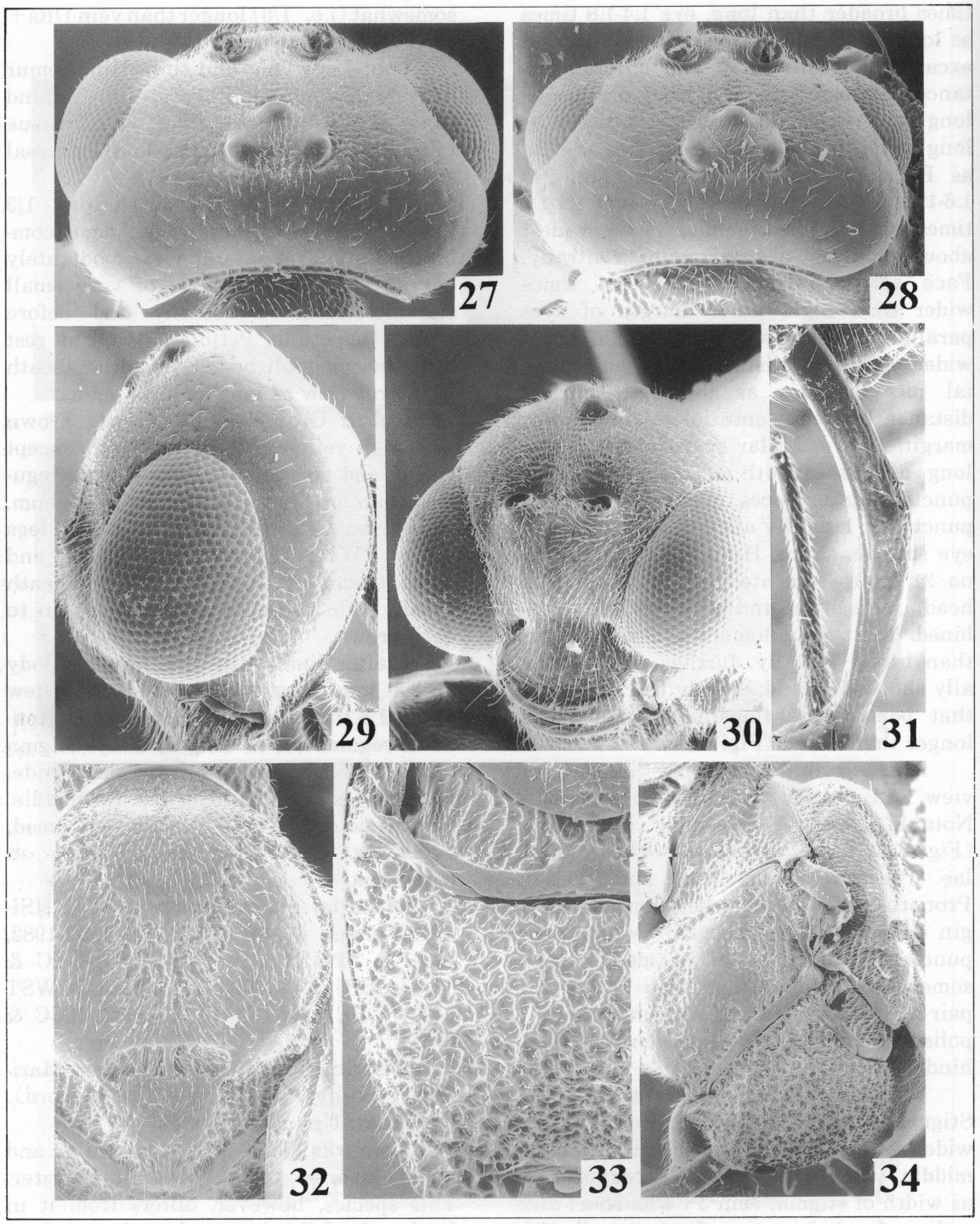
Male: Similar to the female. Body 3.4-3.5 mm long. Head in dorsal view about 1.8 times broader than long. Antenna 28-segmented, as long as body. Stigma (Fig. 2) 2.3-2.5 times longer than wide, vein r-rs issues distally from its middle. Brown color of body darker on head, mesosoma and metasoma or only on metasoma.

Material examined: NANTOU HSIEN: Tungpu 1,200 m, 1♀, 22-25-XI-1982, KCC & SPH; 1♂, 25-29-IX-1980, LYC & TL (in BP); 2♀, 18-23-XI-1981, TL & WST (1♀ in BP); 1♀1♂, 10-14-I-1983, KCC & SPH.

Distribution: Russia (Far East Maritime Territory) and Taiwan (new record).

Host: Unknown.

Remarks: This species is similar and stands nearest to *W. pendula* Foerster. This species, however, differs from it in having the following combination of characters: head in dorsal view (Fig. 20) transverse, 1.7-1.8 times (♀) and about 1.8 times (♂) broader than long, eye ante-



Figs 27-34. *Wesmaelia pendula* Foerster, ♀ (except 28♂). 27, head in dorsal view; 28, head in dorsal view; 29, head in lateral view; 30, head in frontal view; 31, petiole in lateral view, 32, mesonotum in dorsal view; 33, propodeum in dorsal view; 34, mesosoma in lateral view (27, 31, at 120 x; 28, 29, 32, at 130 x; 30, at 110 x; 33, at 170 x; 34, at 80 x).

riorly not protruding; temple more rounded, eye 1.4-1.8 times as long as temple; cell 1M relatively high, vein 1/M somewhat longer than vein 1/Rs+M (Fig. 1, see arrows); inner margin of eyes parallel (Fig. 22); flagellomeres of female relatively short, first flagellomere 4 times and penultimate flagellomere 1.4 times longer than broad, antenna 21 to 22-segmented (♀); ground color of body brown with yellow pattern.

Wesmaelia pendula Foerster (Figs. 5, 8, 11, 27-34)

Wesmaelia pendula Foerster, 1862. Verh. naturh. Ver. preuss. Rheinl. 19:251.

The Taiwanese specimens are identical with the European representatives of this species except for the following features: (1) Antenna 27 to 33-segmented (♀) and 28 to 29-segmented (♂) (European forms: 25-27 (♀) and 25-26 (♂)); (2) Petiole brownish, only its basal 1/3 yellow(ish) (European forms: petiole beyond spiracles, i.e., its hind half dark); (3) 1 Taiwanese female specimen with exceptional color pattern: scutellum blackish, propodeum yellow (the usual color pattern is the reverse).

Material examined: NANTOU HSIEN: Tungpu 1,200 m, 1♂, 25-29-IX-1980, LYC & TL; 1♀, 18-23-XI-1981, TL & WST; 1♀, 10-14-I-1983, KCC & SPH; 2♀,16-20-IV-1984, KCC & CHY (1 ♀ in BP); Wushe 1,150 m, 2♀1♂, 30-VIII - 2-IX-1982, LYC & KCC (1♀1♂ in BP). TAITUNG HSIEN: Tawu, 1♀, 12-14-II-1981, LYC & TL.

Distribution: Europe, Mexico, Taiwan (new record) and USA.

Host: Unknown.

Remarks: This species is similar and stands nearest to *W. lepos* Belokobylskij. This species, however, differs from it in having the following combination of characters: head in dorsal view (Fig. 27) cubic, 1.5 times (♀) and 1.6-1.7 times (♂) broader than long, eye anteriorly somewhat protruding; temple less rounded, eye 1.2-1.5 times as long as temple; cell 1M relatively less high, vein 1/M and vein 1/Rs+M either equal in length (Fig. 5, see arrows) or vein 1/Rs+M somewhat longer; inner margin of eyes converging orally (Fig. 30); flagellomeres of female relatively long, first flagellomere 5 times and penultimate flagellomere 1.6 times longer than broad, antenna 24 to 33-segmented (♀); ground color of body yellow with brown pattern.

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References

Belokobylskij, S.A. 1992. *Wesmaelia* and *Syrrhizus* species (Hymenoptera, Braconidae, Euphorinae) in the Far East. Vestn. zool. 1992: 8-16 (in Russian).

Chou, L.Y. 1990. The Braconidae (Hymenoptera) of Taiwan, II. The genus *Streblocera* (Euphorinae). J. Taiwan Mus. 43: 89-148.

Huber, J. T., and M. J. Sharkey. 1993. Structure. In: Goulet, H., and J. T. Huber, editors. Hymenoptera of the World: An Identification Guide to Families. Ottawa: Agriculture Canada. p 13-59.

Papp, J. 1990. New braconid wasps (Hymenoptera, Braconidae) in the Hungarian Natural History Museum, 1. Annls hist.-nat. Mus. natn. hung. 82: 175-190.

Shaw, S. R. 1985. A phylogenetic study of the subfamilies Meteorinae and Euphorinae (Hymenoptera: Braconidae). Entomography 3: 277-370.

Tobias, V.I. 1986. Keys to the insects of the European part of the USSR. III. Hymenoptera, 4: 1-501. Nauk, Leningrad (in Russian).

Wahl, D. B., and M. J. Sharkey. 1993. Superfamily Ichneumonoidea. pp358-509. *in:* Goulet, H., and J.T. Huber, editors. Hymenoptera of the World: An Identification Guide to Families. Ottawa: Agriculture Canada.

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臺灣產衛斯繭蜂屬(膜翅目：小繭蜂科：優繭蜂亞科)

Jenö Papp Department of Zoology, Hungarian Natural History Museum, Budapest, pf. 137, H-1431, Hungary.

周樑鎰* 臺灣省農業試驗所 臺中縣霧蜂鄉中正路189號

摘　要

衛斯繭蜂屬(*Wesmaelia*)隸膜翅目、小繭蜂科、優繭蜂亞科，全世界已知之種類僅3種。本文首次記錄與描述臺灣產之3種衛斯繭蜂；其中1種為新種。文中並附全世界衛斯繭蜂屬之分種檢索表與形質圖。

關鍵詞：膜翅目、小繭蜂科、優繭蜂亞科、衛斯繭蜂屬、臺灣。

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