

New Nematinae species (Hymenoptera: Symphyta, Tenthredinidae) from Japan and Korea

A. Haris & B. Zsolnai

Haris, A. & B. Zsolnai. New Nematinae species (Hymenoptera: Symphyta: Tenthredinidae) from Japan and Korea.

Zool. Med. Leiden 81 (7), 8.vi.2007: 137-147, figs. 1-18.— ISSN 0024-0672.

Attila Haris, H-8142 Urhida, Petöfi u. 103, Hungary (e-mail: attilaharis@yahoo.com).

Balázs Zsolnai, Plant Protection and Soil Conservation Service of County Fejér, H-2481, Velence, Ország u. 23, Hungary (e-mail: zsolnai.balazs@fejer.ontsz.hu).

Key words: Hymenoptera; Symphyta; Tenthredinidae; *Pristiphora*; *Pachynematus*; *Pontania*; *Euura*; Japan; Korea; new species.

Seven new species of Nematinae (Tenthredinidae) from Japan and Korea are described: *Pachynematus hirowatari* spec. nov., *P. hayachinensis* spec. nov., *Pristiphora nigrocoreana* spec. nov., *P. issikii* spec. nov., *P. shinoharai* spec. nov., *Pontania nipponica* spec. nov. and *Euura soboensis* spec. nov. *Pristiphora punctifrons* (Thomson, 1871) is new record for Japan.

Introduction

Matsumura (1912) was the first to study intensively the sawfly fauna of Japan. However, the Nematinae sawflies are a group that has been neglected and its species are still poorly known. As a comparison, 116 Nematinae species occur in the post-Trianon Hungary (93,000 mi²) (Haris, 2001), yet only 94 species are recorded from Japan (377,835 mi²). In this paper, I add eight species to the Japanese and Korean fauna, seven of which are new and one is new record. A revision of the Nematinae of Japan and the Far East will be published in a separate paper.

The material studied is mainly in the Takeuchi collection deposited in the University of Osaka Prefecture; one species is described from the collection of the National Museum of Natural History, Washington D.C.

The genitalia were not dissected due to the historical value of the Takeuchi collection and the original storage of the specimens (possibly in alcohol) made them very rigid and difficult to soften.

For the identification of the species, the following papers were used: Abe & Togashi (1989); Beneš (1990); Konow (1895); Marlatt (1899); Matsumura (1912); Okamoto (1912); Okutani (1955, 1959, 1971); Shinohara et al. (2000); Smith (1988); Takeuchi (1921, 1922, 1933, 1952, 1956); Togashi (1963, 1964, 1965, 1966, 1972, 1977, 1980, 1985, 1989, 1990, 1991, 1997a+b, 1998a+b); Togashi et al. (1985); Zhelochovtsev (1988) and Zinovjev (1993a+b, 1998).

The following abbreviations are used: OPU – Entomological Laboratory, Osaka Prefecture University, Sakai, Japan; RMNH – National Museum of Natural History, Leiden, The Netherlands; and USNM – National Museum of Natural History, Smithsonian Institution, Washington, D.C., U.S.A.

New record for Japan

Pristiphora punctifrons (Thomson, 1871)
(fig. 3)

Material.— 1 ♀ (OPU): “**Japan**, Honshu, “Hyonozan Sajima, 27.v.1953, Takeuchi coll ”.

Description of new species

Pachynematus (Polynematus) hirowatarii spec. nov.
(figs 1, 12)

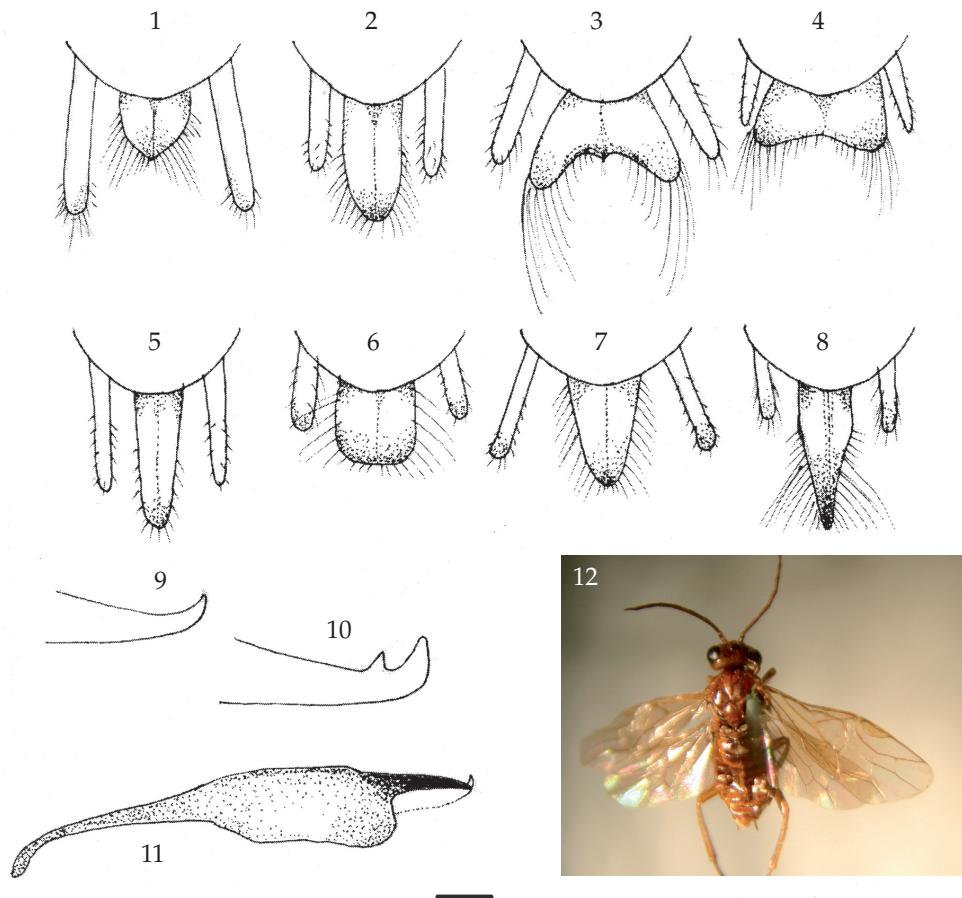
Material.— Holotype, ♀ (OPU): **North Korea**, “Mosanrei, 27.vii.1935, Takeuchi coll ”. Paratypes: 3 ♂♂ + 3 ♀♀, (OPU, RMNH), topotypic.

Female.— Entire body reddish ochraceous including legs, antenna, mouthparts and sawsheath (fig. 12). Head smooth and shiny. Dark blackish brown: area between cenchri, a small spot on the basal part of the mesoscutellar appendage, anterior margin and middle part of first abdominal tergite (propodeum) and apex of sawsheath above. Wing hyaline, stigma and costa yellow, venation ochraceous. Temple and vertex smooth and shiny. Mesonotum shiny, with minute, superficial dense puncture. Mesoscutellum shiny, with shallow, moderately dense puncture. Mesoscutellar appendage smooth and shiny. Metascutellum shiny, with hardly visible undefined surface sculpture. Mesopleuron smooth and shiny. Abdomen shiny. First abdominal tergite very finely granulated, other tergites with fine superficial coriaceous sculpture. OOL:POL:OCL = 13:13:18. Ratio of antennal segments: 11:6:27:22:22:19:17:17:18. Length of inner hind tibial spur subequal to apical width of hind tibia as 9:10. Length of inner hind tibial spur: length of hind basitarsus = 9:28. Fore wing with 4 cubital cell, although first cubital crossvein hardly visible. Second cubital crossvein and second recurrent vein nearly interstitial. Hind wing with closed middle and cubital cell. Anal cell of hind wing with long petiole, nervellus perpendicular to petiole. Postocellar furrow shallow but clearly visible, divergent and reaching hind, smooth margin of head. Clypeus roundly emarginated. Clypeal emargination nearly half median length of clypeus, as 3:7. Gena little longer than diameter of front ocellus, as 5:4. Frontal area pentagonal and raised above level of head. Claws with small inner tooth. Cerci long, longer than sawsheath (fig. 1). Length: 4.0-4.5 mm, length of fore wing: 3.7-4.7 mm.

Male.— Agrees with female. Length: 4.0 mm, length of fore wing: 3.7 mm.

Etymology.— The new species named in honour of Dr Toshiya Hirowatari, curator of the insect collection of the Osaka Prefecture University.

The new species is related in shape, size and surface sculpture to *Pachynematus annulatus* (Gimmerthal, 1834). However, *Pachynematus annulatus* is richly coloured with black: the mesosternum, at least a spot on the frontal area, more or less the abdominal tergites, and the three longitudinal lines on the mesonotum are always black (mesonotum sometimes is entirely black). The pale colour is yellowish, never reddish ochraceous. The temples and vertex are finely and densely punctured, moderately shiny. The new species is wholly reddish ochraceous without any black pattern and yellowish coloration. Temples and vertex are smooth and shiny.



Figs 1, 12, *Pachynematus hirowatarii* spec. nov.; figs 2, 11, 13, *P. hayachinensis* spec. nov.; fig. 3, *Pristiphora punctifrons* (Thomson, 1871); figs 4, 9, 14, *P. nigrocoreanus* spec. nov.; figs 5, 15, *P. issikii* spec. nov.; figs 6, 10, 16, *P. shinoharai* spec. nov.; figs 7, 17, *Pontania nipponica* spec. nov.; figs 8, 18, *Euura soboensis* spec. nov. Figs 1-8, sawsheath, dorsal aspect; figs 9-10, tarsal claw; fig. 11, penis valve; figs 12-18, habitus, 12-14, ♀ paratype; 15-18, ♀ holotype.

Pachynematus hirowatarii also resembles to *Pristiphora memoriakaszabi* Haris, 2001. However, *Pristiphora memoriakaszabi* has the costa widened next to the stigma, the clypeus is narrow, and the labrum is enlarged. *Pachynematus hirowatarii* has normally wide costa, normal sized clypeus and labrum.

Pachynematus (Pachynematus) hayachinensis spec. nov.
(figs. 2,11 & 13)

Material.— Holotype, ♂ (USNM): “Japan, Honshu, Iwate pref, Mt. Hayachine, 20.v.-21.vi.1989, M. J. Sharkey”. Paratypes: 2 ♂♂ (USNM): topotypic but one ♂ 20-27.vi.1989 and 1 ♀, (USNM), topotypic but collected in 5-11.vii.1989.

Fig. 13. *Pristiphora hayachinensis*Fig. 14. *Pristiphora nigrocoreana*Fig. 15. *Pristiphora isikii*Fig. 16. *Pristiphora shinoharai*Fig. 17. *Pontania nipponica*Fig. 18. *Euura soboensis*

Male.— Head black; clypeus, labrum, gena and infraocular area white, a longitudinal band of postocellar area behind eyes ochraceous. Antenna black. Palpi white. Thorax black, with pronotum, tegula and cenchri white. Abdominal tergites black, sternites white. Four basal sternites with narrow brown margins. Legs white, but basal spot on hind coxa, hind tarsus, apical part of hind tibia and a longitudinal band on remaining part of costa, subcosta and the venation brown. Stigma brown with light brown upper margin. Head densely and roughly punctured, moderately shiny. Mesonotal lobes shiny, moderately, densely and shallowly punctured. Mesoscutellum sporadically punctured, shiny. Mesoscutellar appendage moderately densely, moderately deeply punctured and moderately shiny. Metascutellum only with few puncture, shiny. Mesopleuron bluntly shiny, with moderately dense and moderately deep punctures. OOL:POL:OCL = 10:8:5. Ratio of antennal segments: 6:3:27:30:27:23:21:19:19. Clypeus roundly, widely and deeply emarginated. Clypeal emargination about $2/3 \times$ as deep as median length of clypeus. Length of gena subequal to diameter of front ocellus. Head moderately but clearly contracted behind eyes without postoccipital carina. Antenna nearly as long as the length of fore wing. Length of hind tibia:length of hind tarsus = 1.0:1.0. Length of inner hind tibial spur:length of basitarsus:maximal width of hind tibia = 13:27:8. Claws with small inner tooth. Penis valve in fig. 11. Length: 5.6–5.9 mm. Length of fore wing: 5.7–5.8 mm. In male, fore wing about as long as the body.

Female (fig. 13).— similar to male, however, abdominal sternites entirely white, only the apical 1/5th of hind tibia dark brown. On hind tarsus, only apical 3 segments and narrow apical ring of basitarsus and second tarsal segment brown. Apex of hind femur dark brown. Sawsheath rounded (fig. 2), white with black apex. Venation brown but apex of costa and apical third of subcosta light yellowish brown. Stigma bicolour, upper half light yellowish brown, lower half dark brown. Antenna somehow longer than costa and stigma together but much shorter than length of fore wing. Length: 5.6 mm. Length of fore wing: 6.2 mm. In female, fore wing significantly longer than the body. Otherwise like male.

Etymology.— The specific name refers to the place of capture (locus typicus).

The female of the new species is similar to *Pachynematus obductus* (Hartig, 1837). However, *P. obductus* has the clypeus black, its frontal margin sometimes white coloured, the corners of the pronotum white otherwise black, the head without a yellow strip on the outer orbit, the stigma dark brown, and the hind tarsus only two-thirds to three-quarters as long as the hind tibia. The sawsheath and penis valve as it figured in Zhelochovtsev (1988).

Pristiphora (Pristiphora) nigrocoreana spec. nov.
(figs 4, 9 & 14)

Material.— Holotype, ♀ (OPU): North Korea, “Hakugan, coll. Takeuchi. 24.vii.1935, Takeuchi”. Paratype: ♀ (OPU): topotypic.

Female.— Body black, including mouthparts and antenna (fig. 14). Trochanters, tibiae, tarsi, knees, apical third of fore femur and cenchri dirty white. Hind tarsus infuscate. Hind tibia with brown apical ring. Tegula brownish white. Wing slightly infuscate.

Stigma and venation light brown. Number of cubital cells: 3, the first cubital cross vein missing. OOL:POL:OCL = 9.0:6.0:7.0. Ratio of antennal segments: 5.3:19:15:13:10:10:10:11. Antenna about as long as head, thorax, and first 3 abdominal segment combined. Head densely, moderately deeply and uniformly punctured with shiny interspaces. Mesoscutellum, mesoscutellar appendage, metascutellum, mesopleuron and abdominal tergites smooth and shiny. Head smooth, without raised or outlined frontal area. Postocellar furrows puncture-like. Clypeus widely but slightly emarginated. Length of inner hind tibial spur:length of hind basitarsus = 1.0:2.0. Length of inner hind tibial spur:apical width of hind tibia = 4.0:3.0. Sawsheath slightly dilated apically and emarginated behind (fig. 4). Claws simple (fig. 9). Length: 3.7 mm, length of fore wing: 4.2 mm. Paratype and holotype same length.

Etymology.— nigro-black, coreana-Korean.

The new species is related to *Pristiphora appendiculata* (Hartig, 1837). However, *P. appendiculata* has white femora, and the first cubital crossvein present. The new Japanese species has the femora dominantly black (except apices), and the first cubital cross-vein missing.

Pristiphora (Pristiphora) issikii spec. nov.
(figs 5, 15)

Material.— Holotype, ♀ (OPU): **Japan**, Hokkaido, “Sapporo, 04.v.1919., S. Issiki”. Paratype: ♀ (OPU): topotypic, but 25. v. 1919.

Female.— Body black including mouthparts and antenna. Light brownish: tibiae, tarsi, trochanter and narrow apices of all femora. Labrum dark brown. Wing hyaline, stigma and venation brown. Number of cubital cells: 4. First cubital cross vein pale. Hind wing with closed cubital and middle cell. OOL:POL:OCL = 8.0:7.0:4.0. Ratio of antennal segments: 6.5:25:23:23:19:15:15:17. Head densely, not uniformly, moderately roughly punctured, hardly shiny. Pronotum granulated. Mesonotum densely, minutely, and shallowly punctured, moderately shiny. Mesoscutellum moderately densely, shallowly punctured and moderately shiny. Metascutellum smooth and shiny. Mesoscutellar appendage nearly smooth and shiny with few punctures. Mesopleuron moderately deeply and densely punctured, moderately shiny. All abdominal tergite (including propodeum) with fine coriaceous surface sculpture, moderately shiny. Frontal area nearly oval, outlined by shallow furrow. Postocellar furrows punctiform. Clypeus hardly emarginated, subtruncate. Length of inner hind tibial spur:length of hind basitarsus = 7.0:15.0. Width of hind tibia:length of inner hind tibial spur = 6.0:7.0. Sawsheath long and narrowed (fig. 5), in smaller magnification clearly acute. Claws with minute, hardly visible inner tooth. Length: 4.0 mm, length of fore wing: 4.5 mm.

Etymology.— the species is named in honour of the Japanese entomologist, Dr S. Issiki, who captured the holotype.

The new species is related to *Pristiphora tenuiserra* (Lindqvist, 1949). However, in *P. tenuiserra*, the second cubital cross-vein is missing, the labrum is brown, and the sawsheath very long, subparallel, hardly narrowed, apically rounded as it figured in Lindqvist, 1949 (p. 67, fig. 1). In the new species, the second cubital cross-vein is present, the labrum is black, and the sawsheath is short and clearly narrowed (fig. 5).

Pristiphora (Pristiphora) shinoharai spec. nov.
(figs 6, 10, 16)

Material.— Holotype, ♀ (OPU): **Japan**, Kyushu., “Sarayama, Jamba, 26.iv.1953. Takeuchi coll.”

Female.— Body entirely black (fig. 16), including antenna and most of mouthparts, only very edge of pronotum and tegula yellow and labrum brown. All coxa, femur, fore and middle trochanter and hind tarsus black. Hind trochanter, apex of hind coxa, tibiae except the black apical ring of middle tibia and black apical third of hind tibia yellowish. Fore and middle tarsi brown. Cencher brownish white. Wing hyaline, stigma blackish brown, venation dark brown. First cubital crossvein of fore wing missing, number of cubital cell: 3. Length of inner hind tibial spur:length of hind basitarsus:apical width of hind tibia = 12:23:9. Claw with small inner tooth, much smaller than apical (fig. 10). First abdominal tergite smooth and shiny, others with very fine coriaceous surface sculpture, moderately shiny. Head moderately roughly punctured and moderately shiny. Frontal area flat and pentagonal, sharply outlined with carina. Head contracted behind eyes. Malar space distinct, about 2 × as long as the diameter of the front ocellus. OOL:POL:OCL = 11:8:7. Ratio of antennal segments: 4:4:26:30:28:22:19:20:20. Antenna long (fig. 16), about as long as head, thorax and first 4 abdominal segment combined. Mesonotum densely, finely and shallowly punctured, shiny. Pronotum densely and moderately roughly granulated, hardly shining. Mesoscutellum and mesoscutellar appendage densely but more deeply punctured than mesonotal lobes, moderately shiny. Metascutellum smooth and shiny. Upper 2/3 of mesopleuron nearly smooth and shiny, only with shallow superficial surface sculpture, lower third of mesopleuron densely punctured with small but moderately deep puncture, moderately shiny. Sawsheath parallel sided, apically subtruncate (fig. 6). Cerci missing.

Length.— 6.8 mm. Length of fore wing: 6.7 mm.

Etymology.— the species is named in honour of the Japanese sawfly specialist, Dr A. Shinohara.

The new species resembles *Pristiphora lineogenata* Wei, 2002, however, *P. lineogenata* has the inner tooth of claws longer than outer, the legs and pronotum entirely yellow, and the malar space linear. The new species has the subapical tooth of claws shorter than apical, pronotum, coxae, femora, fore and middle trochanters, and hind tarsi black. The malar space distinct, about 2x as long as the diameter of the front ocellus.

In Zhelochovtsev's (1988) key, the new species runs to *Pristiphora micronematica* Malaise, 1931. The new species is relatively large: 6.7 mm, and *P. micronematica* is small: 4.5-5.5 mm. The last abdominal segment white in *P. micronematica* but black in the new species. The frontal pentagonal area is missing in *P. micronematica*, but clearly outlined in the new species.

Pontania (Eupontania) nipponica spec. nov.
(figs 7, 17)

Material.— Holotype, ♀ (OPU): **Japan**, Honshu, “Siga-Kogen, 1500 m, 1.v.1953, Takeuchi”.

Female.— Head, antenna, thorax, and abdomen black. Dark yellow: labrum, front margin of clypeus, gena, wide outer orbit up to vertex, posterior and lateral pronotal

margin (fig. 17). Cenchri whitish grey, cerci brownish hyaline. Legs black. Yellow: fore tibia (fore tarsus missing), apical 2/3 of fore femur, second joint of fore trochanter, apical half or quarter of fore femur (asymmetric in the holotype), middle tibia, middle basitarsus, (other tarsal segments darkened), hind tibia, narrow apex of hind coxa, most of second joint of hind trochanters. Wings hyaline, venation brown, costa yellow, stigma yellow with yellowish-brown margin. Head very finely, uniformly granulated, moderately shining. Pronotum and mesonotal lobes very finely, shallowly, densely punctured, moderately shiny. Mesoscutellum nearly smooth and shiny sporadically covered with shallow, irregular coriaceous surface sculpture. Mesoscutellar appendage smooth and shining. Metascutellum shiny, with very fine coriaceous surface sculpture. Mesopleuron shiny, with shallow, minute, sporadic punctures. Abdominal tergites with fine, dense coriaceous surface sculpture, moderately shiny. OOL:POL:OCL = 7:6:7. Ratio of antennal segments: 11:4:23:23:22:16:16:17. Head slightly contracted behind eyes. Head behind with uninterrupted postoccipital carina. Pentagonal frontal area slightly but clearly marked. Interantennal pit deep. Inner orbits with dense pubescence. Postocellar furrows short and deep. Clypeus slightly and widely emarginated. Clypeal emargination about 1/3 × as deep as clypeal median length. Gena about as long as the diameter of front ocellus. Hind tibial spurs short and subequal. Inner hind tibial spur: apical width of hind tibia = 4:5. Length of hind tarsus: length of hind tibia: 51:55. Claws with well-developed inner tooth, hardly shorter than apical. Length of sawsheath: length of hind tibia = 50:56. Sawsheath blunt subtriangular in dorsal view with straight and long hairs (fig. 7).

Etymology.— “nipponica” means Japanese (Nippon is the Japanese name of the country).

The new species is related to *Pontania collectanea* (Förster, 1854). *Pontania collectanea* has black orbits, yellow tegulae, cerci about as long as the sawsheath, hind femora reddish brown, inner orbits with sparse pubescence and hairs of sawsheath apically curved. The new species has a wide yellow hind orbits, the tegulae and hind femora black, the inner orbits with dense pubescence, the cerci much shorter than the sawsheath, and hairs of the sawsheath straight as in fig. 7.

Euura (Euura) soboensis spec. nov.
(figs 8, 18)

Material.— Holotype, ♀ (OPU): **Japan**, Kyushu, “Mt. Sobo, 26.v.1932, Takeuchi”

Female.— Body black, elongate (fig. 18). Brownish yellow: palpi, labrum, clypeus, supraclypeal triangular spot, gena, wide hind and narrow inner orbits, part of temples, antenna (except black scape, pedicel, and third antennal segment dominantly infuscate), wide posterior pronotal corner, tegula, last abdominal segment (tergite and sternite), and cerci. Eighth abdominal segment infuscate brownish yellow. Legs brownish yellow except dark brown bases of coxae. Wings hyaline, veins brown, stigma and venation yellow. Stigma with narrow brown lower margin. Head shiny, with fine coriaceous surface sculpture. Pronotum densely granulated and moderately shining. Mesonotal lobes finely, densely and moderately deeply punctured with small punctures. Mesoscutellum with few sporadic punctures, otherwise smooth and shiny.

Mesoscutellar appendage with coriaceous surface sculpture, moderately shiny. Metascutellum smooth and shiny. Mesopleuron shiny with sparse minute punctures. Abdominal tergites with very fine coriaceous surface sculpture, moderately shiny. OOL:POL:OCL = 7:8:5. Ratio of antennal segments: 5:3:13:15:13:12:11:11:10. Antenna longer than head and thorax combined. Length of antenna:length of the whole body = 51:73. Clypeus deeply and roundly emarginated, depth of clypeal emargination about half median length of clypeus. Gena (at their narrowest point) half as wide as diameter of front ocellus. Inner margins of eyes parallel. Head contracted behind eyes. Pentagonal area not indicated. Hind margin of vertex and temples smooth (without postocipital carina). Inner and outer spurs of hind tibiae subequal. Apical width of hind tibia:length of inner hind tibial spur:length of hind basitarsus = 5:4:17. Subapical tooth of claws well developed, hardly shorter than apical. Sawsheath and hind tibia subequal in length. Length of hind tibia:length of sawsheath = 45:46. Sawsheath acute at apex in dorsal view with long white hairs (fig. 8). Length: 3.7 mm, length of fore wing: 3.8 mm.

Etymology.—The specific name refers to the locus typicus: Mt. Sobo.

The new species related to *Euura testaceipes* (Zaddach, 1883). However, the sawsheath of the new species much longer than the cerci (unique in genus *Euura*), the sheath is very narrow in dorsal view, and the antennae are longer than head and thorax combined. In *Euura testaceipes*, the sawsheath is wide, the cerci are about as long as sawsheath and the antenna is as long as the head and thorax combined.

Acknowledgements

We express our grateful thanks to Dr Toshiya Hirowatari, curator of the entomological collection at Osaka Prefecture University and Dr Dave Smith, curator of the Hymenoptera collection of USNM for loaning the Japanese Nematinae species.

References

- Abe, M. & I. Togashi, 1989. Symphyta: 541-560. In Hirashima, Y. (ed.). A Check List of Japanese Insects II. Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka.
- Beneš, K., 1990. Two new east Palaearctic species of the genus *Croesus* (Hymenoptera, Tenthredinidae).—Acta Entomologica Bohemoslovaca 87: 385-399.
- Haris, A., 2001. Revisional list of the Hungarian Nematinae with the description of three new species (Hymenoptera: Tenthredinidae).—Folia Entomologica Hungarica 62: 95-114.
- Konow, F.W., 1895. Neue oder wenig bekannte Tenthrediniden und eine analytische Übersicht der Gattung *Holocneme* Knw.—Természetrajzi füzetek. 18: 50-57.
- Lindqvist, E., 1949. Neue nordische Blattwespen.—Notulae Entomologicae 28: 65-86.
- Marlatt, C.L., 1899. Japanese Hymenoptera of the family Tenthredinidae.—Proceedings of the United States National Museum 21 (1157): 493-506.
- Matsumura, S.M., 1912. Thousand Insects of Japan. Supplement 4: 1-247, plts XLII-XLV.—Tokyo.
- Okamoto, H., 1912. Sawfly feeding on poplar.—Hokkaido-no-kaiho 12(135) 119-121.
- Okutani, T., 1955. A new larch-sawfly from Japan (Studies on Symphyta III).—Akitu 4: 98-100.
- Okutani, T., 1959. Three new species of *Priophorus* from Japan (Hymenoptera: Tenthredinidae) (Studies on Symphyta XII).—Transactions of the Shikoku Entomological Society 6: 33-36
- Okutani, T., 1971. On Himekara-matsu-habachi (new Japanese name) feeding on Japanese larch.—Shinrin Boeki 20 (8): 2-3.

- Shinohara, A., V. Vikberg, A. Zinovjev & Y. Akira, 2000. *Fagineura crenativora*, a new genus and species of sawfly (Hymenoptera, Tenthredinidae, Nematinae) injurious to beech trees in Japan.— Bulletin of the National Science Museum Tokyo 26 (3): 113-124.
- Smith, D.R., 1988. A new species of *Anoplonyx* (Hymenoptera: Tenthredinidae) feeding on larch in northern Japan.— Kontyu 56: 569-572.
- Takeuchi, K., 1921. Life histories of some Japanese Chalastogastra, with descriptions of new species (1).— Insect World 25: 395-401.
- Takeuchi, K., 1922. Life histories of some Japanese Chalastogastra, with descriptions of new species (2).— Insect World 26: 73-80.
- Takeuchi, K., 1933. Undescribed sawflies from Japan.— Transactions of the Kansai Entomological Society 4: 17-34.
- Takeuchi, K., 1952. A generic classification of the Japanese Tenthredinidae (Hymenoptera: Symphyta).— Issued in Celebration of the Sixtieth Birthday of Kichizo Takeuchi by his Friends: 1-90.- Kyoto.
- Takeuchi, K., 1956. Sawflies of the Kurile Islands (II).— Insecta Matsumurana 19 (3-4): 9-22.
- Togashi, I., M. Taniko & M. Tsutomu, 1985. Flower visiting insects in Alpine Zone of Mt. Hakusan (1).— Ishikawa-ken Hasukan Nature Protection Center Research Report: 25-29.
- Togashi, I., 1963. New and unrecorded species of the subfamily Nematinae (Hym., Tenthredinidae) from Japan (I).— Kontyu 31: 146-148.
- Togashi, I., 1964. New and unrecorded species of the subfamily Nematinae (Hymenoptera, Symphyta) from Japan.— Kontyu 32 (4): 479-483.
- Togashi, I., 1965. New and Unrecorded Species of the Subfamily Nematinae (Hymenoptera, Symphyta) from Japan (3).— The Life Study (Fukui) 9 (1-2): 1-4.
- Togashi, I., 1966. New and unrecorded species of the subfamily Nematinae (Hymenoptera, Symphyta) from Japan (4).— The Life Study 10 (1-4): 4-5.
- Togashi, I., 1972. Sawflies of Mt. Hiko, Kyushu (Hymenoptera, Symphyta).— Mushi, Fukuoka 46(5): 53-64.
- Togashi, I., 1977. Description of a new sawfly, *Pristiphora ezomatsuvara* (Hymenoptera, Tenthredinidae) injurious to *Picea glahni* in Japan.— Applied Entomology and Zoology 12 (1): 1-3.
- Togashi, I., 1980. On the species of the genus *Euura* Newman (Hymenoptera, Tenthredinidae) from Japan.— Kontyu 48 (4): 521-525.
- Togashi, I., 1985. The sawfly genus *Trichiocampus* in Japan (Hymenoptera: Tenthredinidae).— Proceedings of the Entomological Society of Washington 87 (4): 884-888.
- Togashi, I., 1989: A new sawfly, *Pristiphora herai* (Hymenoptera: Tenthredinidae), collected from red spruce, *Picea gellmii* Masters, in Japan.— The Canadian Entomologist 121 (7): 619-622.
- Togashi, I., 1990. A new *Pristiphora* (Hymenoptera: Tenthredinidae) feeding on leaves of *Ribes fasciculatum* Sieb. et Zucc. (Spermatophyta, Saxifragaceae) from Japan.— Japanese Journal of Entomology 58 (4): 827-830.
- Togashi, I., 1991: Three new species of the *Nematinus acuminatus* group (Hymenoptera: Tenthredinidae) from Japan, with a key to species.— Proceedings of the entomological Society of Washington, Washington 93: 652-659.
- Togashi, I., 1997a. Three new species of the genus *Craesus* Leach from Japan (Hymenoptera, Tenthredinidae).— Japanese Journal of Systematic Entomology 3 (1): 67-73.
- Togashi, I., 1997b. Symphyta (Hymenoptera) collected by Dr. Y. Nishijima in Hokkaido, Japan.— Bulletin of the Biogeographical Society of Japan 52 (1): 1-6.
- Togashi, I., 1998a. A new sawfly, *Nematus (Pteronidea) ulmicola* (Hymenoptera, Tenthredinidae) injurious to *Ulmus japonica* Sargent in Japan.— Japanese Journal of Systematic Entomology 4 (1): 21-24.
- Togashi, I., 1998b. Symphyta (Hymenoptera) of Hokkaido, Japan.— Bulletin of the Biogeographical Society of Japan, Tokyo 53(1): 39-47.
- Zhelochovtsev, A.N., 1988. Symphyta. In: Medvedjev, G.S. (ed.). Opredelitel nasekomykh Evropeiskoi Chasti SSSR. III. Pereponchatokrylye 6: 7-2334.
- Zinovjev, A.G., 1993a. A new species of *Pikonema* Ross (Hymenoptera, Tenthredinidae) from Japan.— Bulletin of the national Science Museum Tokyo, Ser. A, 19: 21-25.

- Zinovjev, A.G., 1993b. Two new species of Nematinae (Hymenoptera Tenthredinidae) from the Eastern Palaearctic.— Russian Entomological Journal 2: 31-35.
- Zinovjev, A.G., 1998. A new species of the sawfly genus *Nematus* (Hymenoptera, Tenthredinidae) from Hokkaido, Japan.— Bulletin of the National Science Museum Tokyo 24 (1): 23-26.

Received: 13.iii.2006

Accepted: 13.vi.2006

Edited: C. van Achterberg