

A Taxonomic Study of the Tribe Poemeniini (Hymenoptera: Ichneumonidae: Poemeniinae) from Korea

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ABSTRACT

Three ichneumonid wasp species of the tribe Poemeniini (Ichneumonidae: Poemeniinae) are redescribed from Korea: *Cnastis assimilis* (Uchida) (new Korean record), *Deuteroxorides orientalis* (Uchida) and *Eugalta ablimarginalis* (Uchida) (new Korean record). A key to the Korean species of Poemeniini, photographs of diagnostic characters, distributional data and host records are provided.

Key words: *Cnastis*, *Deuteroxorides*, *Eugalta*, Poemeniinae, Ichneumonidae, Korea

INTRODUCTION

The Subfamily Poemeniinae is moderately large to very large insects having the fore wing length about 7-29 mm with a dorsoventrally depressed metasoma, ample wings and a conspicuously exerted ovipositor.

Most species of this taxon had been included in the subfamily Pimplinae as tribe Poemeniini for a long time because the group has been characterized by a complete absence of the epicnemial carina, a unidentate, chisel-like mandible and the scabrous or rugose upper part of the gena (Townes, 1969; Fitton et al., 1988). However, Gauld (1991) treated the tribe as an independent subfamily based on the following apomorphic features; 1) the lower part of the epomia is sharp and on a raised ridge that is close to and more or less parallel with the anterior pronotal margin, 2) the elongate last visible tergite, 3) the slender legs with short stout spines on the tibiae, 4) a well developed postgenal bridge, 5) the hind wing with the distal abscissa of CU1 basally close to M, 6) simple claws and a shallow epicnemi-um, 7) if a transverse carina is discernible on the propodeum, it is far back and enclosed a narrow transverse petiolar area. Then, Wahl and Gauld (1998a,b) included Pseudorhyssini and Rodrigamini to the subfamily because they also possess all of the characters. Therefore, Poemeniinae comprises ten genera belonging to the three tribes in the world.

Members of Poemeniinae are usually found in the broad leafed deciduous forests, and attack the immature stages of wood boring beetles of the families Cerambycidae, Bu-

prestidae, and less commonly Curculionidae in both conifers and broad leafed trees (Townes and Townes, 1960; Carlson, 1979; Gauld, 1991).

In this reviewing study about the Korean Poemeniinae, we report three species, *Cnastis assimilis* (Uchida), *Deuteroxorides orientalis* (Uchida) and *Eugalta ablimarginalis* (Uchida), belonging to the Tribe Poemeniini. Among them, *C. assimilis* and *E. ablimarginalis* are newly included in Korean fauna. We also provide a key to the Korean species of Poemeniini, photographs of diagnostic characters, distributional data and host records.

MATERIALS AND METHODS

Morphological terminology used in this study follows Gauld's (1991). Specimens are examined by the stereo microscope (Zeiss Stemi SV 11 Apo) and diagnostic characters are given by photographs produced with Zeiss AxioCam MRc5 digital camera system and optimized with an i-delta imaging system (Image & Microscope Technology). Examined specimens are deposited in the Department of Biology, Yeungnam University in Korea. All voucher specimens used in this study are loaned from the Systematic Entomology, Hokkaido University, Japan.

Abbreviations used for the locality data are as followed: CB, Chungcheongbuk-do; GB, Gyeongsangbuk-do; GW, Gangwon-do; JB, Jeollabuk-do; JN, Jeollanam-do.

TAXONOMIC ACCOUNTS

Family Ichneumonidae Latreille, 1802

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Subfamily Poemeniinae Smith and Shenefelt, 1955
 Tribe Poemeniini Smith and Shenefelt, 1955

Key to the species of Poemeniini from Korea

- 1. Dorsal half of temple finely and weakly scabrous. Clypeus about 1.8 times as wide as long. Tergite I with a distinct lateral longitudinal carina *Deuteroxorides orientalis* (Uchida)
- Dorsal half of temple coarsely and strongly scabrous. Clypeus about 1.5 times as wide as long. Tergite I without a distinct lateral longitudinal carina 2
- 2. Front claw of hind tarsus not bent at a sharp angle and not more sharply curved than inner claw. Apical bristle on front claw of hind tarsus not enlarged *Cnastis assimilis* (Uchida)
- Front claw of hind tarsus bent at a sharp angle, the inner-claw more weakly curved. Apical bristle on front claw of hind tarsus enlarged and spatulate *Eugalta ablimarginalis* (Uchida)

Genus *Cnastis* Townes, 1957

Cnastis assimilis (Uchida), 1928 (Figs. 1A-G)

Xorides assimilis Uchida, 1928, p. 26.

Materials examined. Total 3 specimens. [CB] 1 ♀, Danyang-gun, Cheondong-ri, Mt. Sobaek, Bukbusa, Korea, vi.8-vii.6. 2005, J.-W. Lee; [GW] 1 ♀, Donghae-si, Samhwa-dong, Mureung Valley, Korea, v.21-v.30. 2005, J.-W. Lee; [SEOUL] 1 ♀, Eunpyong-gu, Yongam-dong, Mt. Backryeon, Korea, v.10. 2001, N.-Y. Kim.

Redescription. Female: Head 1.08 times as wide as high; eye with inner margins ventrally convergent, and its narrowest 0.64 times as broad as high from supraclypeal suture to level of insertion of antenna; ocelli small, posterior ocellus separated from eye by 1.7 times its own maximum diameter, inter posterior ocellar distance 0.5 times as wide as maximum diameter of posterior ocellus; frons concave, paracocular area appearing swollen and forming a low ridge; lower face weakly convexed with fine sparse punctures; clypeus small, quadrate, about 1.5 times as wide as long and the apical margin concaved; malar space 0.12 times as long as basal mandibular width; mandible short and stout with a single chisel-shaped apical tooth; head in dorsal view with vertex wide and flattened; gena in profile about 0.67 times as wide as eye and its upper half coarsely denticulate; antenna with 33 segments, as long as the abdomen length, first segment 0.75 times as long as the second, second

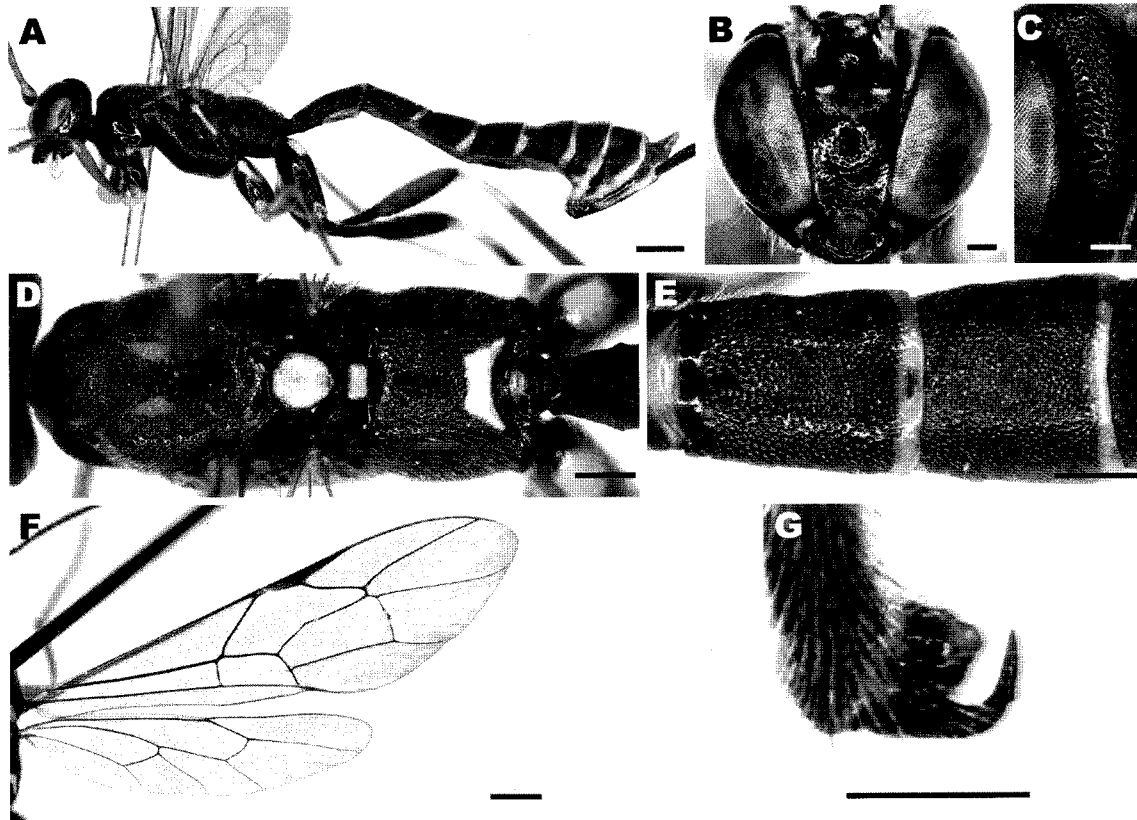


Fig. 1. Female of *Cnastis assimilis*. (A) Body in lateral view. (B) Head in frontal view. (C) Temple. (D) Thorax in dorsal view. (E) Second and third tergites. (F) Wing. (G) Hind anterior tarsal claw. Scale bars=0.2 mm (B, C, G), 0.5 mm (D, E), 1 mm (A, F).

segment as long as the fifth, apex of scape oblique. Pronotum broadly concaved at the center; epomia absent; mesoscutum strongly trilobed, 0.68 times as wide as the length in dorsal view and sparsely punctuate with very fine transverse striates; notauli strongly convergent and almost meeting on disc of mesoscutum; mesopleuron polished and finely sparsely punctate; prepectal carina absent; metapleuron not swollen; scutellum slightly punctuate and widely convex; propodeum with posterior transverse carina, spiracles oval. Fore wing length 9.5 mm; areolet absent; intercubitus about 0.2 as long as second abscissa of cubitus; *Icu-a* proximal to base of *IM* by 0.3 times its own length. Hind wing with the distal abscissa of *Cul* basally 3.0 times close to *M*; *Cul* complete and 9 hamuli on costal margin proximally. Fore legs femur 0.1 times as wide as length; hind legs very long and slender; hind tibia 1.9 times as long as basitarsus and 13.6 times as long as broad; hind tarsal claws not strongly curved and without a spatulate bristle. Metasoma roughly punctuate; first tergite 2.2 times, second tergite 0.92 times and third tergite 0.68 times as long as each posterior broad; ninth tergite elongated far beyond apex of circus, and dorsally flattened.

Color. Body entirely black except followings; clypeus, antennal scape, middle tarsus and hind femur blackish brown; fore leg, middle femur and tibia yellowish brown; both lateral sides of frons, ventral rim of pronotum, apical rim of mesopleuron, scutellum and center of post scutellum, dorso central spot of hind femur pale yellow.

Distribution. Palearctic (Japan, Korea).

Host records. Unknown.

Genus *Deuteroxorides* Viereck, 1914

***Deuteroxorides orientalis* (Uchida), 1928 (Figs. 2A-H)**

Xorides orientalis Uchida, 1928, p. 24; Uchida, 1936: 50;

Kim, 1955, p. 463; Kim, 1970, p. 62.

Materials examined. Total 4 specimens. [CB] 1 ♀, Mt. Sobaek, Chondonggyegok, Korea, v.22.1997, C.-Y. Bae; 1 ♀, Danyang-gun, Chondong-ri, Mt. Sobaek, Bukbusa, Korea, x.14.-xi.24. 2005, J.-W. Lee; [GB] 1 ♀, Bonghwagun, Mt. Mirim, Korea, v. 4.1997, J.-W. Lee; [GW]; 1 ♀, Donghaesi, Samhwadong, Mureung Valley (MT.), Korea, x. 8.-x.16. 2005, J.-W. Lee.

Redescription. Female: Head 1.08 times as wide as high; eye with inner margins ventrally weakly convergent, and its narrowest 0.88 times as broad as high from supraclypeal suture to level of insertion of antenna; ocelli moderate sized, posterior ocellus separated from eye by 1.1 times its own maximum diameter, inter posterior ocellar distance 0.6 times as wide as maximum diameter of posterior ocellus; frons weakly and broadly concaved; lower face broadly con-

vexed with fine sparse punctures; clypeus rather small, apically impressed, convex basally and the apical margin subtruncate, about 1.8 as wide as long with sparse long hairs along the supraclypeal suture; malar space 0.54 times as long as basal mandibular width; mandible moderate length with a single chisel-shaped apical tooth; head in dorsal view with vertex narrow and weakly convexed; gena in profile about 0.45 times as wide as eye and its dorsal half finely and weakly rugose; antenna with 31 segments, 1.09 times as long as the abdomen length, first segment 1.18 times as long as the second, second segment 0.91 times as long as the fifth, apex of scape oblique. Epomia sharply raised, close to and more or less parallel with anterior margin; mesoscutum strongly trilobed, 0.86 times as wide as the length in dorsal view with fine transverse striates at the center; notauli strongly convergent and almost meeting on disc of mesoscutum; mesopleuron with fine sparse punctures; prepectal carina absent; metapleuron not convexed; scutellum finely punctuate and widely convex; propodeum weakly rugose, with weak and discontinuous posterior transverse and lateromedian longitudinal carinae. Fore wing length 9.9 mm; intercubitus about 0.5 as long as second abscissa of cubitus; *Icu-a* proximal to base of *IM* by 0.2 times its own length. Hind wing with the distal abscissa of *Cul* basally 2.5 times close to *M*; *Cul* complete and 8 hamuli on costal margin proximally. Fore legs femur 0.1 times as apical wide as length; hind legs very long; hind tibia 2.4 times as long as basitarsus and 12.8 times as long as the maximum wide; fore and middle tarsal claws with an apically truncate tooth; hind tarsal claws simple and not sharply curved. Metasoma with rather close punctuate; first tergite 1.8 times, second tergite 0.96 times and third tergite 0.71 times as long as each posterior broad; ninth tergite elongated but not dorsally flattened.

Color. Body entirely black except followings; eye brown; clypeus, fore and middle legs yellowish brown; both lateral sides of frons, antennal band from 10th to 14th segments, apical median rim of 4th to 8th tergites pale yellow.

Distribution. Palearctic (Japan, Korea, Russia)

Host records. *Pissodes nitidus* Roelofs (Coleoptera; Curculionidae)

Genus *Euglata* Cameron, 1899

***Euglata albimarginalis* (Uchida), 1928 (Figs. 3A-H)**

Xorides albimarginalis Uchida, 1928, p. 25; Matsumura, 1931, p. 71; Yasumatsu, 1934, p. 67; Uchida, 1953, p. 129; Iwata, 1958, p. 73.

Euglata albimarginalis: Townes, 1957, p. 18; Ohmori, 1959, p. 32; Iwata, 1960, p. 150.

Materials examined. Total 18 specimens. [CB] 1 ♀, Boeun-

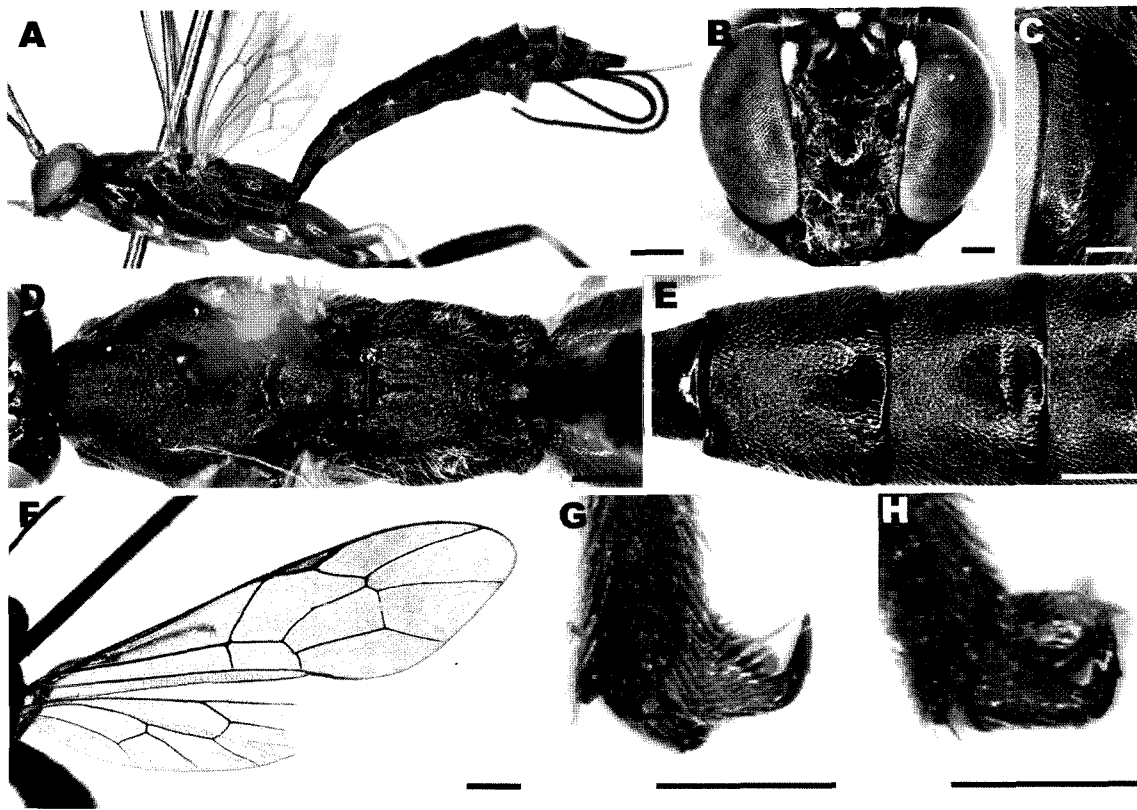


Fig. 2. Female of *Deuteroxorides orientalis*. (A) Body in lateral view. (B) Head in frontal view. (C) Temple. (D) Thorax in dorsal view. (E) Second and third tergites. (F) Wing. (G) Hind posterior tarsal claw. (H) Hind anterior tarsal claw. Scale bars=0.2 mm (B, C, G, H), 0.5 mm (D, E), 1 mm (A, F).

gun, Mt.Sokri, Beopju-sa, Korea, N36°32'06'', E127°49'40'', vi.12.-vi.21. 2007, J.-W. Lee; 1 ♀, Mt. Wolag, N36°52'07'', E128°05'12'', Korea, vi.19.-vi.22. 2001, S. Cho, D.-P. Lyu, S. Nam; [DAEJEON], 1 ♀, Mt. Sikkang, Korea, viii. 25.1996, M.-H. Shim, 1 ♂, Mt. Sobaek, Danyang-gun, Youngchun-myeon, Namcheon-ri, Namcheon valley, Korea, vii.12. 1999, J.-W. Lee; ; [GB] 1 ♂, Mt. Baekam, Korea, v. 14.-vi.19.1999, J.-W. Lee.; [GW], 1 ♀, Donghaesi, Samhwadong, Mureung Valley (MT.), N37°29', E129°01', Korea, v. 31.-vi.15.; 1 ♂, vii.4.-vii.15. 2005, J.-W. Lee; 1 ♀, Wonju-si, Maeji-ri, Yeonsei Univ. Campus, Korea, v. 28. 1998, H.-J. Kim; 1 ♂, Wonju-si, Maeji-ri, Musumak, on Mercury and Black light, Korea, vii. 30. 1997, H.-Y. Han and H.-W. Byun and D.-S.Choi; [JB] 1 ♀, 2 ♂, Jeongeup-si, Ssangamdong, Dapgok-ri, Mt. Naejang, Korea, N35°30', E126°54', v.19. 2004, J.-W. Lee; 1 ♀, Jeongeup-si, Naejang-dong, Geumseong, Mt. Naejang, Korea, vi.20. 2005, D.-K. Chung; 1 ♂, Jeongeup-si, Naejang-dong, Ansam, Mt. Naejang, Korea, v.19. 2004, M.-K. Yun; 1 ♂, Jeongeup-si, Ssangamdong, Dapgok-ri, Mt. Naejang, Korea, v.19. 2004, J.-W. Lee; [JN] 1 ♀, Jeongeup-si, Jangseong-gun, Bukha-myeon, Sajabong, Mt. Naejang, Korea, vii.20. 2005, J.-W. Lee; 1 ♂,

Jeongeup-si, Ibam-myeon, Deungcheon-ri, Wetland, Mt. Naejang, Korea, v.19. 2005, K.-B. Kim; [SEOUL] 1 ♀, Shinrim-dong, Mt. Gwanak, Korea, viii.27. 1996, H.-S. Noh.
Redescription. Female: Head 1.16 times as wide as high; eye with inner margins ventrally convergent, and its narrowest 0.83 times as broad as high from supraclypeal suture to level of insertion of antenna; ocelli very small, posterior ocellus separated from eye by 1.6 times its own maximum diameter, inter posterior ocellar distance 0.8 times as wide as maximum diameter of posterior ocellus; frons strongly concaved at the lower part with short groove between antennal sockets; face weakly convexed at the center with fine sparse punctures; clypeus convex basally, apically impressed and the apical margin subtruncate, about 1.25 times as wide as long; malar space 0.15 times as long as basal mandibular width; mandible moderate with a single chisel-shaped apical tooth; head in dorsal view with vertex wide, flattened with sparse punctures; gena in profile about 0.55 times as wide as eye and its upper half coarsely denticulate; antenna with 40 segments, 1.07 times as long as the abdomen length, first segment 0.94 times as long as the second, second segment as long as the fifth, apex of scape oblique.

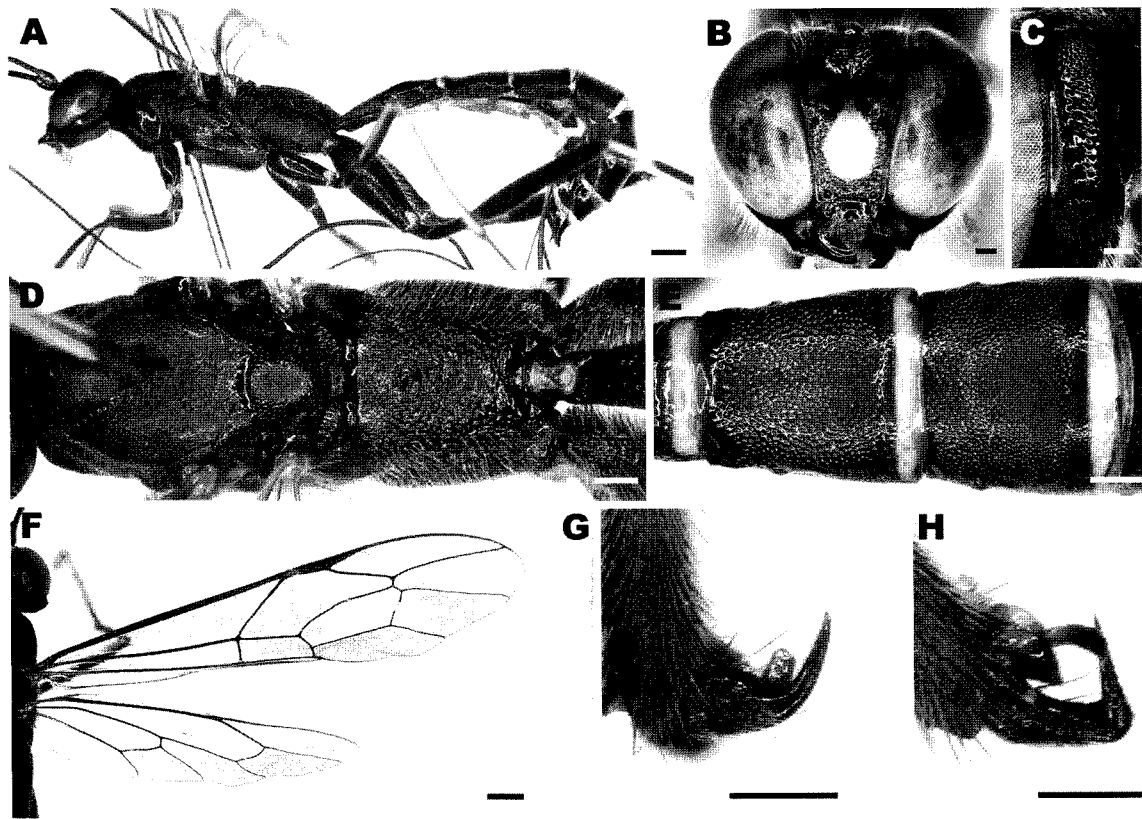


Fig. 3. Female of *Eugalta albimarginalis*. (A) Body in lateral view. (B) Head in frontal view. (C) Temple. (D) Thorax in dorsal view. (E) Second and third tergites. (F) Wing. (G) Hind posterior tarsal claw. (H) Hind anterior tarsal claw. Scale bars=0.2 mm (B, C, G, H), 0.5 mm (D, E), 1 mm (A, F).

Pronotum polished and broadly concaved at the center; epomia absent; mesoscutum strongly trilobed, 0.77 times as wide as the length in dorsal view and densely punctate with very fine striates at the center; notauli strongly convergent and almost meeting on disc of mesoscutum; mesopleuron densely punctate; prepectal carina absent; metapleuron convex; scutellum densely punctate and widely convex; propodeum dorsally finely transversely striate. Fore wing length 14.5 mm; areolet absent; intercubitus about 0.6 as long as second abscissa of cubitus; *Icu-a* opposite to base of *IM*. Hind wing with the distal abscissa of *Cu1* basally 2.6 times close to *M*; *Cu1* complete and 10 hamuli on costal margin proximally. Fore legs femur 0.05 times as apical wide as length; hind legs very long and slender; hind tibia 1.81 times as long as basitarsus and 16.0 times as long as apical broad; hind tarsal claws with a large truncate median tooth, anterior claw curved a little sharper than a right angle and posterior claw with spatulate bristle at the base. Metasoma roughly punctate except first tergite; first tergite polished, dorsally smooth, without a distinct lateral longitudinal carina and 2.3 times as long as the posterior broad; second

tergite 1.08 times and third tergite 0.71 times as long as the posterior broad; ninth tergite elongated far beyond apex of circus, and dorsally flattened.

Color. Body entirely black except followings; dorsal half of fore and middle legs blackish brown; central part of face, apical margin of clypeus, and proximal tip of hind femur yellowish brown; antennal band from 10th to 18th segments, ventral half of fore and middle legs, proximal tip of hind tibia and tarsus, apical margin of each tergites whitish yellow.

Male: similar to female in general appearance except followings; metasoma slender; fore wing length 9.2 mm; face bright yellow from supra clypeal suture to level of insertion of antenna; fore and middle leg whitish yellow except brown dorsal spot of femur.

Distribution. Palearctic (Japan, Korea)

Host records. Unknown.

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