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A new species of the genus *Monoblastus* Hartig (Hymenoptera: Ichneumonidae: Tryphoninae) with a key to species from South Korea

Jin-Kyung Choi*

Department of Science Education, Daegu National University of Education, Daegu 42411, Republic of Korea

**Correspondent: jkchoi624@dnue.ac.kr*

A new species, *Monoblastus forsythia* **sp. nov.** is described from South Korea. All specimens of this new species were collected on *Forsythia koreana* (Nakai). A taxonomic study of South Korean *Monoblastus* was initiated by Uchida in 1930, and until now four species have been recorded from South Korea. The genus *Monoblastus* is a Holarctic genus with 31 described species, 14 species are Nearctic, seven are Western Palaearctic region, and nine species occur in Eastern Palaearctic region. In the study, I provide description and photos of both sexes of this new species. Also, modified key to species of the South Korean *Monoblastus* is provided.

Keywords: *forsythia*, *Monoblastus forsythia* sp. nov., new species, parasitoids, taxonomy

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Introduction

This subfamily Tryphoninae Shuckard, 1840 comprises 57 genera with more than 1,293 species (Yu *et al*., 2016). This subfamily has been recognized as one of the traditional subfamilies of Ichneumonidae. Tryphoninae is monophyletic based on following apomorphies: the eggs have a chorionic stalk and passes externally down the ovipositor, and the clypeus has a fringe of closely spaced setae (except genus *Sphinctus*) (Gupta, 1988; Bennett, 2015; Broad *et al*., 2018). The genus *Monoblastus* is a predominantly Holarctic genus, which was first reported by Hartig in 1837. A taxonomic study of South Korean *Monoblastus* was initiated by Uchida (1930), and until now, four species have been recorded from South Korea (Kim, 1955; Lee and Cha, 1993; 1996; 2000; Kasparyan *et al*., 2018). According to Kasparyan *et al*. (2018), *M. nigriventus* Lee & Cha, 1993 may represent a geographical variant of *M. ermolenkoi* Kasparyan, 1987.

In the present study, a description and photos of *M. forsythia* **sp. nov.** and modified key of five Korean *Monoblastus* are provided.

Materials and Methods

The material used in this study was collected by sweeping and was deposited in the Insect Inquiry·Education Institute, Daegu National University of Education (DNUE-IIEI, Daegu, South Korea) and National Institute of Biological Resources (NIBR, Incheon, Korea). Morphological terminology follows Gauld (1991), and distributional data follows Yu *et al*. (2016). The specimens were examined using a Leica MC190 HD Camera attached to a Leica M125 Microscope (Leica Microsystems, Germany) with images, processed using LEICA LAS X software (Leica).

Systematic Accounts

Family Ichneumonidae Latreille, 1802 맵시벌과
Subfamily Tryphoninae Shuckard, 1840 뭉툭맵시벌아과

Genus *Monoblastus* Hartig, 1837 잎벌살이뭉툭맵시벌속

Coeloconus Förster, 1869: 135−221. Type species: *Ichneumon brachyacanthus* Förster, 1869

Xiphurus Kriechbaumer, 1896: 353−372. Type species: *Monoblastus* (*Xiphurus*) *lateralis* Kriechbaumer, 1896

Idothrichus Schmiedeknecht, 1907: 1−804. Type species: Phaestus sericeus Schmiedeknecht, 1907

Pseudopsilosage Gregor, 1929: 1−11. Type species: *Pseudopsilosage romani* Gregor, 1929

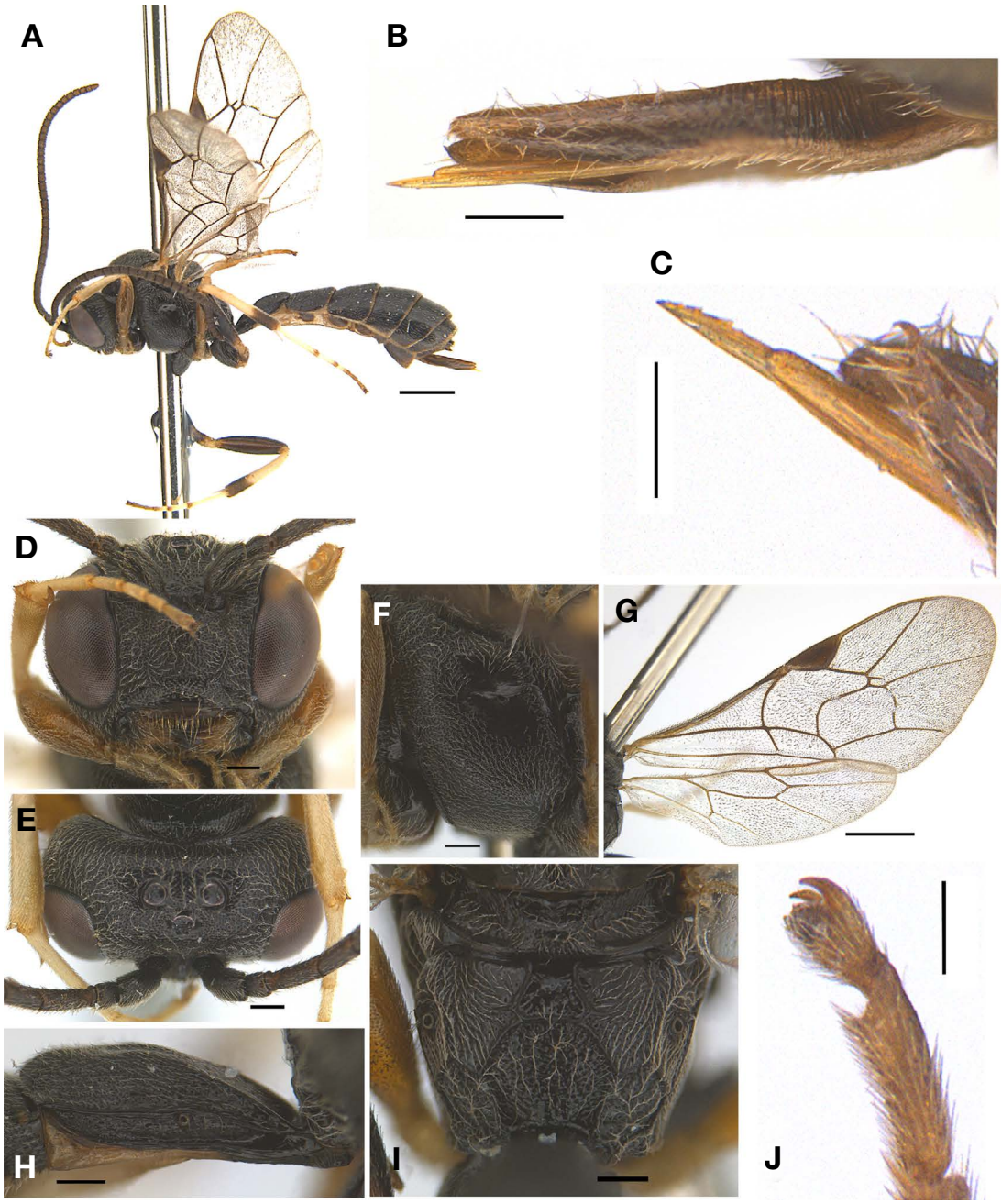

Fig. 1. *Monoblastus forsythia* **sp. nov.** (Holotype) A. Habitus in lateral view; B. Ovipositor and ovipositor sheath; C. Apical ovipositor and ovipositor sheath; D. Head in frontal view; E. Head in dorsal view; F. Mesopleuron; G. Wings; H. First metasomal tergite in lateral view; I. Propodeum; J. Hind fifth tarsus and tarsal claw. Scale bars: A, G, 1.0 mm; B, D, E, F, H, I, 0.2 mm; C, J, 0.1 mm.

Key to species of South Korean *Monoblastus* (modified Kasparyan *et al.*, 2018)

1. Hind tibia light yellow with blackish base and apex. Antenna with about 40 flagellomeres. Metasomal tergites black with hind margin narrowly reddish. Nervellus intercepted above or near the middle. Fore and mid coxae and all trochanters blackish brown. Metasoma black ..... *M. clauseni*

– Hind tibia colouration not as above; if yellow then darkened only at apex. Antenna with about 20–33 flagellomeres. Nervellus intercepted below the middle. Fore and mid femora reddish yellow, all trochanters and trochantelli and hind tibia (except for blackish apex) light yellow 2

2. Apical tergites of metasoma completely ochreus-red, tergites 1–3(4) black. Fore and mid femora posterior-

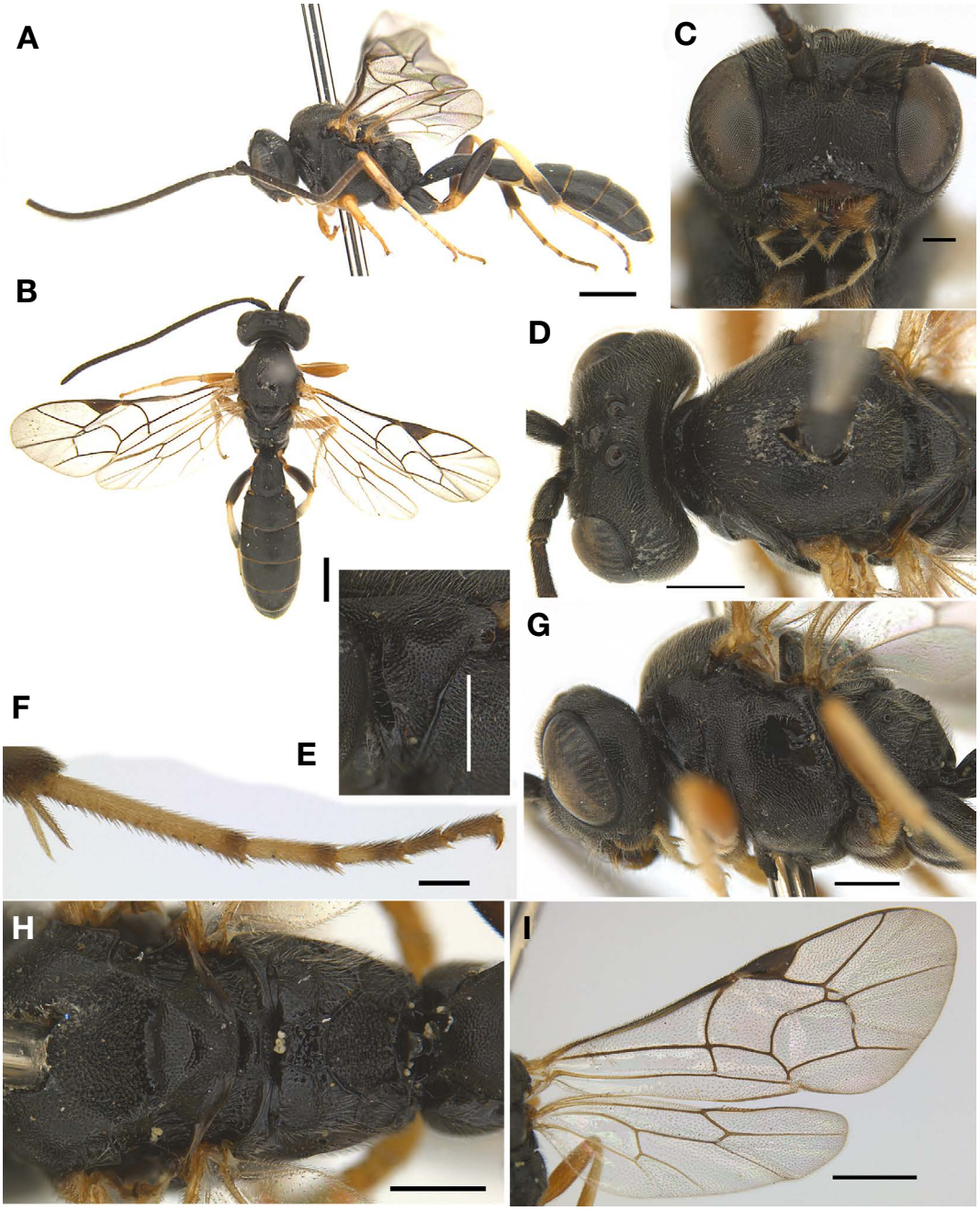

Fig. 2. *Monoblastus forsythia* **sp. nov.** (Paratype-male) A. Habitus in lateral view; B. Habitus in dorsal view; C. Head in frontal view; D. Head and mesoscutum in dorsal view; E. Pronotum; F. Hind tarsi; G. Head and mesosoma in lateral view; H. Propodeum; I. Wings. Scale bars: A, B, 1.0 mm; C, F, 0.2 mm; D, E, G, H, I, 0.5 mm.

ly with blackish markings. Oral carina high and short; occipital carina joining oral carina close to mandible ····· *M. erythrurus*

– Apical tergites of metasoma brown or black. Fore and mid femora completely yellowish, without posterior dark markings ····· 3

3. Tergites 2–3 predominantly reddish in female and predominantly blackish with reddish pattern at base and apex in male ····· *M. koreensis*

– All tergites black in both sexes ····· 4

4. Head with dense and coarse punctures. Dorsal area of antenna dark brown and ventral area yellow. Tarsal claws with 3–4 strong teeth. Fore leg completely yellow ····· *M. nigriventus*

– Head with dense and distinct but not coarse punctures. Dorsal area of antenna black and ventral area

dark brown. Tarsal claws simple, not pectinate (Fig. 1J). Fore leg yellow except coxa dark brown to black and femur yellowish brown ····· *M. forsythia* **sp. nov.**

***Monoblastus forsythia* Choi sp. nov. (Figs. 1 and 2)**

https://zoobank.org/urn:lsid:zoobank.org:act:08D18204-42A2-44D4-8E2A-CE357F68CED8

개나리뭉툭맵시벌 (신칭)

Description (female holotype)

Female. (Fig. 1). Fore wing 6.5 mm (5.5−6.5 mm), body 7.5 mm (6.2−7.5 mm).

Color. Head black; mandible yellow and apical part black. Tegular yellowish brown. All coxae black; fore and mid femora dark brown; fore and mid tibiae and tarsi yellow to yellowish brown; hind trochanter, femur dark brown. Hind trochantellus yellowish brown, hind tibia and tarsi yellow with apical dark brown bands. Metasomal tergite black and apical margin with dark brown lines. Ovipositor brown and ovipositor sheath dark brown.

Head: Face punctate with setae, convex; lower face (length of between antennal socket and apical clypeal margin) 0.73 times as long as wide; inner orbits of eyes subparallel; temple at the middle about as long as eye in lateral view. Frons without median longitudinal carina; clypeus separated from face by distinct deep groove. Mandible bidentate and acute, not rounded at apex; lower tooth slightly longer than upper tooth. Malar space short, 0.32 times as long as basal mandibular width. Antenna with 32 flagellomeres, first flagellomere 2.9 times as long as wide, apical flagellomere 1.2 times as long as wide.

Mesosoma: Pronotum slightly granulated. Scutellum moderately punctate, without lateral carinae. Mesoscutum with weak notauli. Speculum inpunctate and shiny. Propodeum with distinct areas, area basalis and area superomedia not separated and combined; costulae distinct only at basal. Fore tibia on apical margin dorsally with a small but distinct tooth; hind femur 3.5 times as long as wide; proportions of hind tarsomeres 15 : 7 : 5 : 3 : 4; tarsal claws simple, not pectinate. M&Rs (basal vein) basad to 1Cu-a (nervulus); 2m-cu (second recurrent vein) with two bullae; areolet incomplete, open. Hind wing with seven distal hamuli; nervellus inclivous, intercepted at lower 0.25.

Metasoma: Dorso-lateral carina of first metasomal tergite distinct and complete; latero-median carina of first metasomal tergite up to spiracle. Ovipositor sheath with striate at basal area, apical margin of ovipositor sheath with distinct tooth.

Male. (Fig. 2). Antenna with 27−30 flagellomeres. Body length 5.5−7.5 mm. Fore wing 4.0−6.0 mm.

Material examined. [South Korea] (Type depository: DNUE_IIEI): Holotype: ♀, Daegu-si, Nam-gu, Jungang-dae-ro 219, Daegu National University of Education, 26.iv. 2021, J.K. Choi. Paratypes: (Type depository: DNUE_IIEI and NIBR), 2♀♀, Daegu-si, Nam-gu, Jungangdae-ro 219, Daegu National University of Education, 26.iv.2021, J.K. Choi (NIBR); 2♂♂, ditto (NIBR); 1♂, ditto (DNUE_IIEI); 1♀, Gyeongsanbuk-do, Gyeongsan-si, Daehak-ro, Yeungnam University, 29.iv.2016, J.W. Lee (DNUE_IIEI); 9♂♂, ditto (DNUE_IIEI).

Distribution. South Korea.

Region. Eastern Palaearctic.

Etymology. Name originates from the species name of the collecting plant, *Forsythia koreana* (Nakai) T.B. Lee, 1926.

Remarks. It is similar to *M. nigriventus*, but differs by the tarsal claws simple, not pectinate (tarsal claws with 3−4 strong teeth in *M. nigriventus*); fore coxa dark brown and fore femur yellowish brown (fore leg completely yellow in *M. nigriventus*).

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