

First Record of the Subfamily Methochinae (Hymenoptera: Tiphidae) from Korea

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ABSTRACT

First discovery of *Methocha articulata* (Latreille) in Korea is reported. This species is transpalaeartic in distribution, and in the Far East only known from the Russian Far East so far. Diagnostic characters and digital images of this species are provided.

Keywords: Methochinae, *Methocha articulata*, Korea

INTRODUCTION

Methochinae is one of seven tiphid subfamilies (Brothers and Finner, 1993). It comprises 63 extant species with worldwide distribution except for Australian region (Agnoli, 2010). Members of this subfamily are known for their extreme sexual dimorphism, and characterized by the combination of following features: male fore wing with two submarginal cells (Fig. 1A); anal lobe of hind wing shorter than submedian cell; antennae arising beneath small frontal tubercles (Fig. 1C); clypeus with a median process near base (Fig. 1B); tegula not covering axillary sclerites of forewing; dorsal surface of propodeum without enclosed median areola, rounding gradually into posterior surface (Fig. 1J); eighth sternum protruding as a stout reflexed aculeus; female wingless, antlike in general habitus; tibial spur formula 1-1-1; mesosternum truncate posteriorly and with a tooth or rounded angle in front of mid coxa; inner angle of mid coxa not overlaid by a triangular lamella; pygidial area glossy and relatively impunctate (Kromvein, 1982).

The subfamily Tiphinae is the only tiphid wasps so far known in Korea (Han and Kim, 2009). Recently we found several Korean male specimens of Methochinae identified as *Methocha articulata* (Latreille). In the present study, we firstly list this species as new record of the Korean tiphid fauna, with diagnostic description complemented by digital images. Female diagnostic characteristics for the genus (*Methocha*) quoting from Kromvein (1982) are also given.

Terminology primarily follows Kromvein (1982). All measurements are taken at the maximal portion of the structure

being measured. Body length means the length from the anterior margin of head to posterior margin of metasomal tergum VIII. We use three comparative terms to explain puncture distribution: sparse (punctures spaced distantly, usually separating one another by two or three times as long as puncture diameter), moderate (punctures spaced by the puncture diameter), and dense (punctures spaced closely, usually punctures touching one another).

Abbreviations are used instead of administrative provincial division in full as follows: [CN] Chungcheongnam-do, [GB] Gyeongsangbuk-do, [GN] Gyeongsangnam-do.

All the voucher specimens used herein are housed at Insect Diversity Lab. in Hanseo University (HUIDL), Seosan-si, Korea.

SYSTEMATIC ACCOUNTS

¹*Family Tiphidae

²*Subfamily Methochinae

³*Genus *Methocha* Latreille

Methocha Latreille, 1804: 269. Type species: *Mutilla articulata* Latreille, 1792, designated by Agnoli, 2005: 36.

Diagnosis. Hind tibia with posterior apical spur distinctly S-shaped in both sexes. Male body long and slender (Fig 1A); tegula short, its end not reaching transcutellar suture; metasoma with long upwardly hooked sting; metasomal sternum VI shorter than sternum V, and not reaching the apex of pygidium; sternum VII partly exposed. Female apterous; prothorax, mesothorax, and metathorax-propodeum forming distinct, similar, and almost equal regions separated by marked constrictions; metathorax-propodeum almost globose; legs

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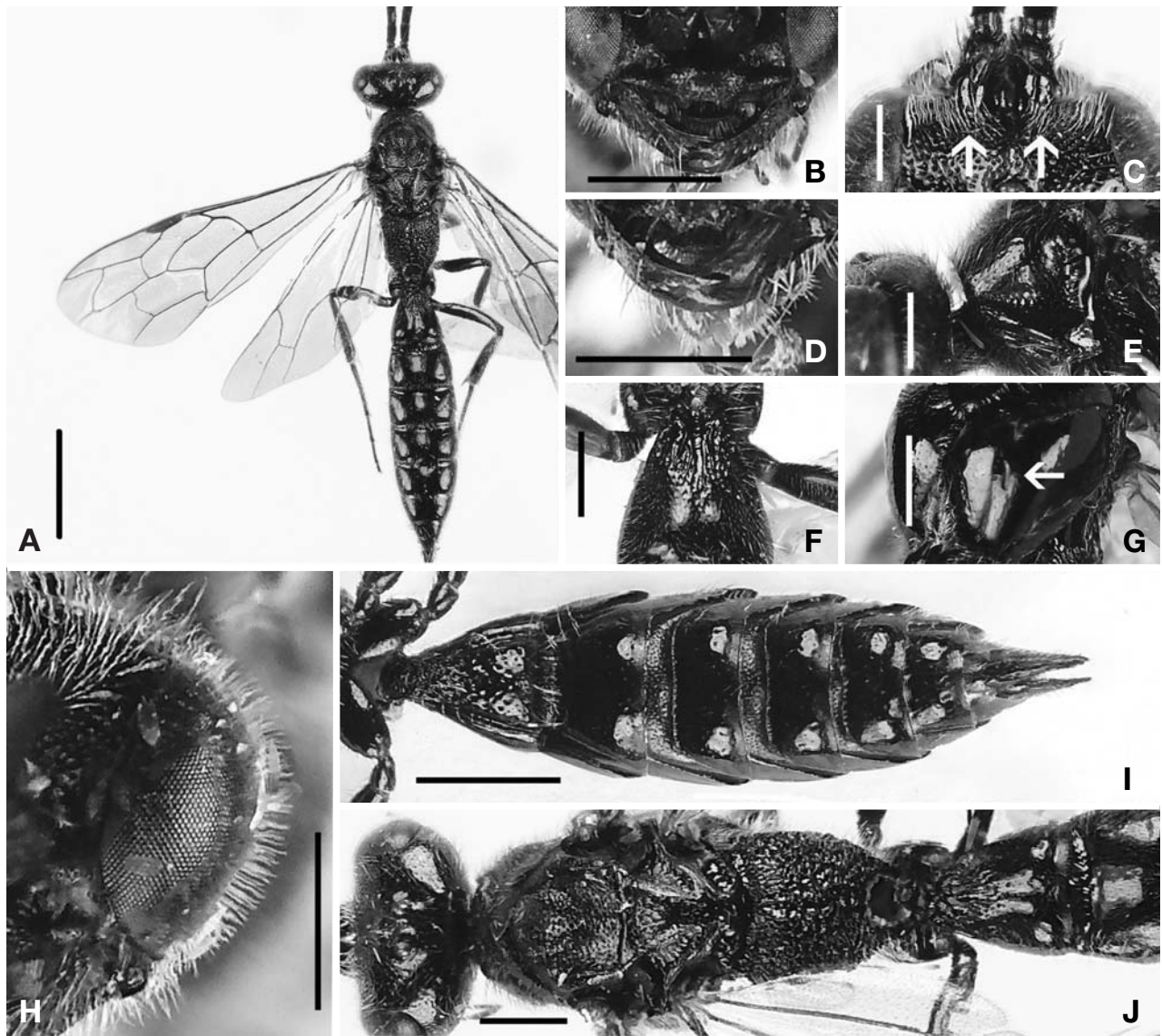


Fig. 1. *Methocha articulata* (Latreille), ♂. A, general habitus; B, clypeus; C, Frontal tubercles (arrows); D, mandible; E, lateral face of pronotum; F, anterior carina of metasomal tergum I; G, ventrolateral part of mesopleuron with fovea (arrow); H, eye covered with long bristles; I, metasomal sterna; J, mesosoma, dorsal view. Scale bars=1 mm (A), 0.5 mm (B-J).

elongated.

Biology. All species of *Methocha* parasitize the larvae of cicindelid beetles dwelling in perpendicular burrows in the ground (Iwata, 1936; Kromvein, 1982; Agnoli, 2005).

¹**Methocha articulata* (Latreille)

Mutilla articulata Latreille, 1792: 100.

Methocha articulata (Latreille): Latreille, 1804: 269; Agnoli, 2005: 37[confirmed the valid name of *articulata* against accepted name of *ichneumonides*, and provide detailed

synonymic lists].

Diagnostic description. Male. Body length 7.0-7.4 mm (Fig. 1A). Body long and slender; seen from above, head wider than mesosoma and metasoma. Interantennal area medially with small process. Frontal tubercle (Fig. 1C, arrow) truncated apically, and forming horizontal face equipped with dense (touching one another) large punctures. Antennal flagellum 1 shortest, about 2/3 of flagellum 2; flagella 2-13 subequal in length; each flagellum somewhat bent, but last five flagella

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more distinctly bent. Apicomedian production of clypeus trapezium in shape, and its apical margin emarginated (Fig. 1B). Mandible bitoothed including apical one (Fig. 1D). Pronotal carina absent; posterior margin of pronotum widely arcuated; lower part of lateral face of pronotum widely depressed, and its bottom costate (Fig. 1E). Median part of basal 2/3 of mesoscutum weakly swollen, forming shield-like structure. Parasidal lines and posterior groove of mesoscutum connected. Ventral part of mesopleuron with a pair of roundish linear foveae (Fig. 1G, arrow). Epicnemial carina strongly developed (highly raised), and complete without interruption. Transsautellar groove wide (almost same in length throughout the groove), and deeply excavated. Basomedian part of metasomal tergum I with four carina: inner two ones parallel and outer two ones slightly divergent (Fig. 1F).

Vertex polished, with very sparse punctures irregularly set. Upper frons, except for smooth and polished interantennal socket and just above areas, densely punctate. Basal half of pronotal dorsum, except for median part, densely punctate, and remaining part smooth and polished. Mesoscutum coarse, with both short transverse carinae and punctures. Scutellum with sparse punctures irregularly set, and interspaces polished. Larger part of propodeal dorsum reticulate, and larger part of posterior propodeal face carinate (Fig. 1J). Metasomal terga I-VII smooth (almost impunctate, at most with tiny sparse punctures) and polished. Sternum I moderately to densely punctate. Sternum II polished and almost impunctate. Sterna III-VI with very densely punctate in their basal 1/3 (pre-circus area), and remaining parts polished and almost impunctate (Fig. 1I).

Eye covered with conspicuous long bristles (Fig. 1H). Body covered with only whitish bristles and hairs.

Body black, but legs and tegula light brown.

Female unavailable in this study.

Specimens examined. [CN] 1♂, Daejeon-si, Yuseong-gu, Jang-dong, 17 Jun.-23 Jun. 1996, Pierre Tripotin (Malaise trap); 1♂, Buyeo-gun, Gyuam-myeon, Sumok-ri, 1 Apr.-15 Apr. 2005, J.W. Lee (Malaise trap) [GB] 1♂, Gyeongsan-si, Dae-dong, 5 Sep. 1989, J.W. Lee [GN] 2♂♂, Jinju-si, Dae-pyeong-myeon, 28 Aug. 1992, collector not written; 1♂, Nae-hae-gun, Sandong-myeon, Bonghanri Jayeonhyuyamrim, 20 Jun. 2000, JS Choi.

Distribution. Transpalaeartic: Europe (Agnoli, 2005) to

Eastern Russia (Gorbatovskij, 1995) and Korea (new record).

ACKNOWLEDGEMENTS

Some specimens used here were provided by Professor JW Lee (Yeungnam Univ.) and emeritus Professor JS Park (Gyongsang Univ.). This work was supported by the Survey of Indigenous Biological Resources of Korea Project, NIBR.

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Received February 10, 2010

Accepted March 11, 2010