

New record of genus *Amphirhachis* Townes (Hymenoptera: Ichneumonidae: Banchinae) from South Korea

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One of the small genera of the tribe Atrophini (subfamily Banchinae), the genus *Amphirhachis*, has been reported seven species in the world. Among them, four species (*Amphirhachis fasciata*, *A. nigripalpis*, *A. rubriventris* and *A. tertia*) from Oriental region, and four species (*Amphirhachis fujiei*, *A. miyabi*, *A. nigra* and *A. tertia*) from Eastern Palaearctic region. Unfortunately, there are no records in South Korea yet. This genus is easily distinguished from other genera of Atrophini following: clypeus strongly convex near side; posterior transverse carina of propodeum represented by a weak or faint vertical ridge at apex on each side; ovipositor sheath shorter than metasoma. In this study, the genus *Amphirhachis* is recorded for the first time with a newly recorded species (*Amphirhachis tertia*) from South Korea. New data on the taxonomy and distribution of *Amphirhachis tertia* are given. We also provide diagnosis and digital images of a newly recorded genus and species.

Keywords: Atrophini, Eastern Palaearctic, taxonomy, unrecorded species

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INTRODUCTION

The genus *Amphirhachis* Townes, 1970 is one of the small genera of the tribe Atrophini, subfamily Banchinae, and comprises seven species worldwide (Watanabe, 2017). Among them, only four species (*Amphirhachis fujiei*, *A. miyabi*, *A. nigra* and *A. tertia*) inhabit the Eastern Palaearctic region, and there are no records in South Korea yet. This genus can be distinguished from other genera of the tribe Atrophini by the following characteristics: clypeus strongly convex near side, posterior transverse carina of propodeum represented by a weak or faint vertical ridge at apex on each side, and ovipositor sheath shorter than metasoma (Townes, 1970). Little is known about the biology of this genus, but Watanabe (2017) predicted that, like other genera of Atrophini, it might be a koinobiont entoparasitoid of lepidopteran larvae.

In this paper, we report the genus *Amphirhachis* for the first time from South Korea with an unrecorded species. Digital images and diagnosis of newly recorded species (*Amphirhachis tertia*) of *Amphirhachis* are provided.

MATERIALS AND METHODS

The wasps investigated in this study were collected by sweep net and Malaise trap, and deposited in the Georim Entomological Institute (GEI) (Daegu, South Korea). Distributional data follow Yu *et al.* (2016). The collection localities of provinces in South Korea are abbreviated as follows: CB, Chungcheongbuk-do; CN, Chungcheongnam-do; GB, Gyeongsangbuk-do; GN, Gyeongsangnam-do; JB, Jeollabuk-do. Other abbreviations used in the text are as follows: ZI, Zoological Institute, Academy of Sciences, Russia; MOMOI, Kobe University, Faculty of Agriculture, Entomological Laboratory, Kobe, Japan (S. Momoi collection); TD, Type depository; TL, Type locality; TS, Type species.

Specimens were examined using an AxioCam MRc5 camera attached to a stereo microscope (Zeiss SteREO Discovery. V20; Carl Zeiss, Göttingen, Germany), processed using the AxioVision SE64 software (Carl Zeiss), and optimized with a Delta imaging system (i-solution, IMT i-Solution Inc., Vancouver, Canada). Morphological terminology is applied according to the American Entomological Institute website (<http://www.amentinst.org/GIN/morphology.php>).

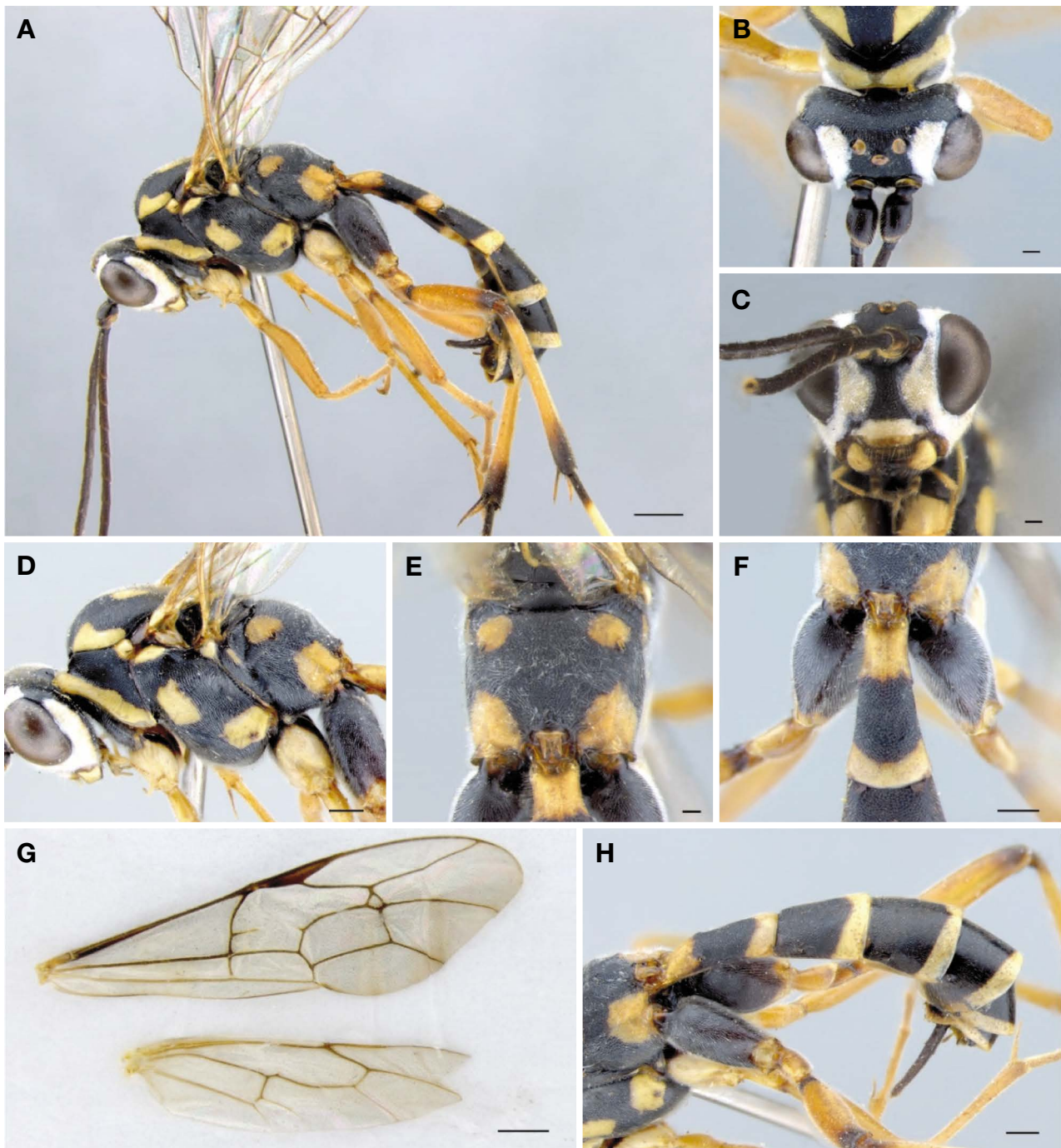


Fig. 1. *Amphirhachis tertia* (Momoi), A. Habitus in lateral view; B. Head in dorsal view; C. Head in frontal view; D. Mesosoma in lateral view; E. Propodeum in dorsal view; F. First tergite in dorsal view; G. Wings (left); H. Metasoma in dorsal view. Scale bars: A, G = 1.0 mm; B, C, and E = 0.2 mm; D, F, and H = 0.5 mm.

TAXONOMY

Order Hymenoptera
 Family Ichneumonidae
 Subfamily Banchinae Wesmael, 1845

Genus *Amphirhachis* Townes, 1970
 점박이자루몽톡맵시벌속 (신칭)
Amphirhachis Townes, 1970: 33. TS: *Amphirhachis nigra* Townes.
Fintona Cameron, 1909: 726. TS: *Fintona nigripalpis*

Cameron (= *Amphirhachis nigripalpis* (Cameron)).

Diagnosis. Body of moderate proportions. Apical margin of clypeus truncate, median half weakly convex, strongly convex near sides. Malar space approximately 0.5–0.8 times as long as basal width of mandible. Occipital carina meeting hypostomal carina some distance above base of mandible. Posterior transverse carina of propodeum represented by a weak or faint vertical ridge at apex on each side. Areolet moderately large, triangular, receiving second recurrent vein near apex. Second recurrent vein with a single bulla. Ovipositor sheath shorter than metasoma.

***Amphirhachis tertia* (Momoi, 1970)**

점박이자루몽톡맵시벌 (신칭)

Fintona tertia Momoi, 1970: 357. Type: female, TL: Japan-Amamioshima; TD: MOMOI.

Amphirhachis quadripunctata Kuslitzky, 1995: 674. Type: female, TL: Kazakhstan; TD: ZI.

Diagnosis. Clypeus strongly swelling (Fig. 1C), with long and thin hairs. Mandible strongly stout, upper tooth slightly longer than lower tooth. Malar space approximately 0.8 times as long as basal mandibular width. Antenna with 50 flagellomeres; first flagellomere 1.8 times as long as second flagellomere. Mesoscutum strongly convex anteriorly and entirely flat, densely regularly punctured. Propodeum in dorsal view rather stout; closely punctured tending to rugose partly with long and dense hairs; only posterior transverse carina weakly present only medially (Fig. 1E). Fore and mid tarsal claws pectinated. Ratio of hind tarsomeres are 7.5 : 3.5 : 2.5 : 1.0 : 2.0. Fore wing with rhombic areolet elongately petiolate (Fig. 1G). Hind wing with 11 hamuli. Metasoma rather slender with coarse and dense punctures. First tergite 2.0 times as long as apical width, without lateral longitudinal carina (Fig. 1F). Second tergite coriaceous, as long as apical width (Fig. 1H). Ovipositor sheath 0.25 times as long as metasoma.

Color. Black with yellow spots (Fig. 1A). Paraocular area broadly yellow (Fig. 1B), especially yellow line of facial orbit extended to median part broadly (Fig. 1C). Clypeus yellow with brown apical margin. Mandible yellow with brown subapically and black mandibular teeth. Genal orbit and malar space entirely yellow. Antenna dark brown with median white band; scape with small yellow spot ventrally. Mesosoma black with yellow spots (Fig. 1D). Whole anterior edge of pronotum broadly yellow; upper posterior corner yellow. Mesopleuron black with yellow marks on upper margin longitudinally, medially, lower posteriorly. Upper top of mesepimeron yellow. Mesoscutum with large semi-triangular yellow spot in anterior of both sides, and with a big yellow spot medially.

Scutellum entirely yellow with black longitudinal mark. Propodeum in dorsal view, yellow spot in each anterior and posterior both side, posterior one larger than former one (Fig. 1E). Fore and mid legs entirely yellow; coxae bright yellow with brown spots dorsally. Hind coxa black; trochanter and femur brown with brown apically; tibia yellow with brown basally and apically; tarsus yellow with brown basally; tarsal claw brown. All tergites black with yellow apical margin (Fig. 1H). First tergite black with yellow basal half (Fig. 1F).

Specimens examined. 1♂, CB, Danyang-gun, Danyang-eup, Cheondong-ri, Sobaeksan, Bukbusa, 8vi–6.vii.2005; 1♀, CN, Cheonan-si, Mt. Gwangdeoksan, 16–18.vi.1994, JI Kim; 1♂, GB, Yeongju-si, Buseok-myeon, Ingok-ri, 6.viii–7.ix.2016, YJ Kim; 1♀, GN, Sancheong-gun, Yupyong, 10–14.vii.1978, BS Kim; 1♀, JB, Yupyong, 10–14.vii.1978, BS Kim; 1♂, Seoul, Nowon-gu, Mt. Suraksan, 31.v.1998, MK Lee.

Distribution. South Korea (new record), Japan, Russia (Primorsky Krai), Kazakhstan.

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