

Two Species of the Genus *Myrmica* (Hymenoptera: Formicidae: Myrmicinae) New to Korea

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개미과 빨개미속의 한국 미기록 2종 보고

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ABSTRACT: Two species of the genus *Myrmica* Latreille, 1804, *M. ademonia* Bolton, 1995 and *M. luteola* Kupyanskaya, 1990, were reported in Korea for the first time. Morphological characteristics for workers of these two species are described.

Key words: Formicidae, Myrmicinae, *Myrmica ademonia*, *Myrmica luteola*, Korea

초록: 한국산 개미과 빨개미속의 2미기록종인 *M. ademonia*과 *M. luteola*가 분포함을 보고한다. 미기록종의 일개미에 대한 형태학적 특성과 사진을 제공한다.

검색어: 개미과, 두마디개미아과, *Myrmica ademonia*, *Myrmica luteola*, 한국

Myrmica Latreille, 1804 is a worldwide genus that includes 210 species and subspecies. These ants have been mainly observed in botanical organs when flowing or producing the extrafloral nectaries. Their active regions are overland and forest soil litters, but most species are foraged moreover in the habitat of shrub layers. The masses of the genus *Myrmica* are observed in high mountainous areas, approximately 800 to 1,000 m above sea level. (Eguchi et al., 2011).

Genus *Myrmica* is one of the largest ant genera in Korea with 12 species distributed in the Southern region (Lyu, 2006). The *Myrmica* fauna of Korea is still poorly reported, and many more species certainly remain to be surveyed. In this paper, *Myrmica ademonia* Bolton and *Myrmica luteola* Kupyanskaya

are recorded in Korea for the first time. Morphological characteristics and photos of this species are provided.

MATERIALS AND METHODS

The specimens examined in this study were deposited at Sangji University, Republic of Korea. Specimens were photographed using a Leica DMS 1000 microscope and an S8AP0 microscope (Leica Microsystem, Germany). Images were captured using Leica Application Suite v. 4.9 (Leica Microsystems) and Deltabio MOT Leica software v. 4.0 to produce multi-focus images. The terminology used to describe worker individuals followed Bolton (2003).

The following abbreviations for insect castes and provinces in which specimens were collected and examined were used: Q, q (queen), m (male), w (worker), TL (type locality), GB

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(Gyeonsangbuk-do), and GN (Gyeonsangnam-do).

Systematics

Family Formicidae Latreille, 1809 개미과

Formicariae Latreille, 1809: 124. Type-genus: *Formica* Linnaeus, 1758: 579.

Subfamily Myrmicinae Lepeletier de Saint-Fargeau, 1835 두마디개미아과

Genus *Myrmica* Latreille, 1804 풀개미속

Myrmica Latreille, 1804: 179. Type species: *Formica rubra* Sifolinia Emery, 1907: 49. Type species: *Sifolinia laurae*

Sommimyrmica Menozzi, 1925: 25. Type species: *Sommimyrmica symbiotica*

Sybiomyrma Arnol'di, 1930: 267. Type species: *Sybiomyrma karavajevi*

Paramyrmica Cole, 1957: 37. Type species: *Paramyrmica colax*

Doddecamyrmica Arnol'di, 1968: 1803. Type species: *Myrmica arnoldii*

Diagnosis. Worker monomorphic; head in full-face view oval; preoccipital carina distinct dorsally and laterally; frontal carina and antennal scrobe absent; anteromedian margin of clypeus weakly convex, lacking an isolated median seta; posteromedian portion of clypeus broadly inserted between frontal lobes; antennae 12-segmented, without distinct club; eye medium sized, convex well laterad; palp formula 6:4; mandible triangular; masticatory margin with apical and 1-2 distinct preapical teeth followed by several smaller teeth or denticles; promesonotum in lateral view slightly raised; promesonotal suture absent or vestigial dorsally; metanotal groove more or less distinctly impressed dorsally; propodeal spine long and sharp; propodeal lobe well developed as a triangular or spinose projection; middle and hind tibiae usually each with a single pectinate spur; petiole pedunculate, with low node; subpetiolar process present as a small tooth anteroventrally; dorsal part of postpetiole in lateral view leaning

posterodorsad; gastral shoulder absent; sting well developed, without any apical appendage; head and mesosoma usually strongly reticulate or rugoso-reticulate.

Myrmica ademonia Bolton, 1995(Fig. 1) 도랑빨개미(신칭)

Myrmica aspersa Kupyanskaya, 1990: 105, TL: Russia. [Junior primary homonym of *Myrmica aspersa* Smith, F. 1865: 72.]

Myrmica ademonia Bolton, 1995: 277. Replacement name for *aspersa* Smith, F. 1865.

Worker. Head with convex lateral borders, posterolateral borders not forming a distinct angle in frontal view. Ground-pilosity of cephalic dorsum short curved spatulate hairs, posterior 1/3 with short erect or suberect hairs sparsely. Mandibles with an acute triangular basal lobe and 7 acute median teeth and 4 minute subapical denticles and an acute apical tooth. Clypeus wider than long, with convex anterior border, dorsum with short decumbent hairs coarsely. Antennal scape microreticulate, anterior border with a row of decumbent hairs. Eyes small, 0.05 mm in diameter, almost as long as the maximum width of antennal scape. Dorsum of promesonotum flat, smooth and shining and short erect hairs sparsely, dorsolateral margins of pronotum with a row of short curved hairs, pronotal humeri with a erect hair, lateral surfaces of pronotum microreticulate. Dorsolateral margins of mesonotum and pronotum with 3 pairs of relatively short erect hairs. Mesopleura smooth and shining in most part. Propodeum smooth and shining with acute short spines, lamellae weakly developed. Petiole long and low, dorsal border of node broadly rounded in lateral view, disc smooth, but slightly microreticulate, as long as wide in dorsal view, with suberect hairs. Postpetiolar disc smooth and shining, as wide as long, with suberect hairs. First gastral tergite with erect or suberect hairs. Body reddish brown.

Material examined: Korea: 1Q, 80w, Mt. Maebongsan, GW, 02.IX. 2017. (SW Yoon & DO Shin); 1Q, 40w, Hangyeryeong, GW, 03.IX. 2017. (SW Yoon & DO Shin); 1Q, 70w, Mt. Palgongsan, GB, 06.VI. 2016. (SW Yoon & DO Shin); 1Q, 70w, Mt. Jirisan, GN, 29.IX. 2017. (SW Yoon & DO Shin); 1Q, 50w, Mt. Namdeogyusan, GN, 22.VI. 2018. (SW Yoon & DO Shin); 1Q, 70w, Mt. Gayasan, GN, 06.IX. 2018. (SW Yoon & DO Shin).

Distribution: Korea (new record), Russia.

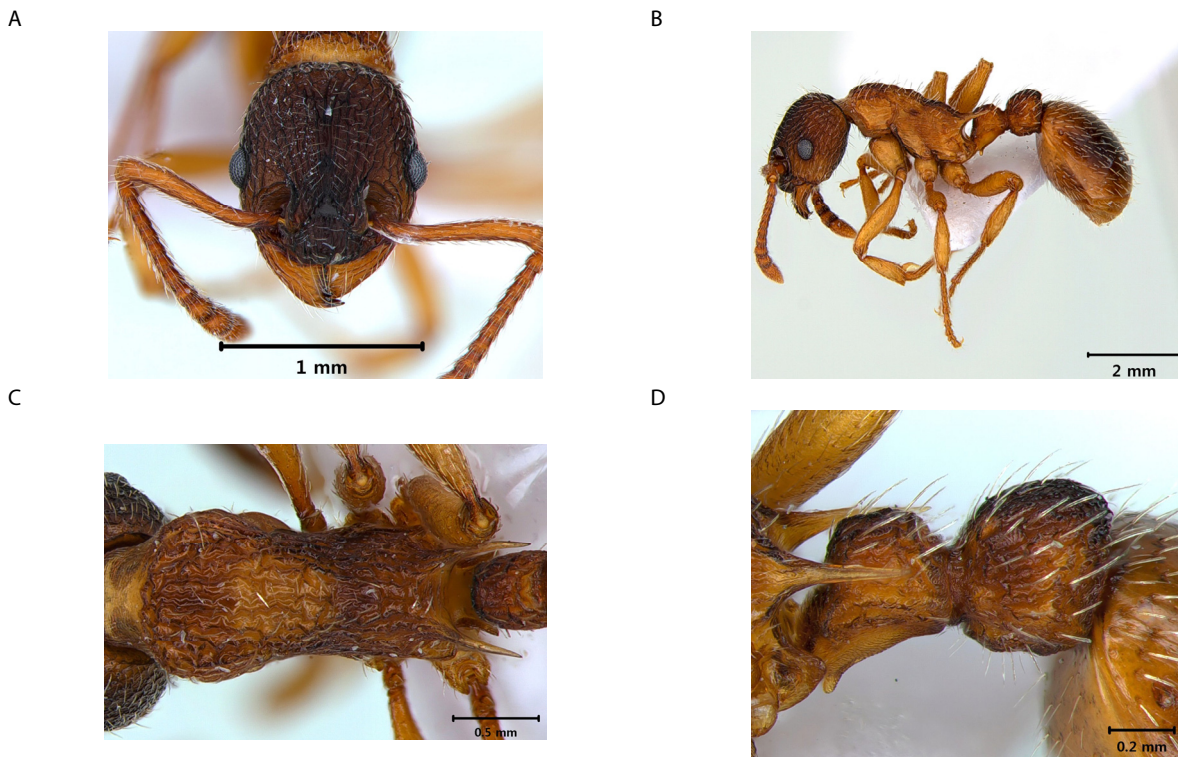


Fig. 1. *Myrmica ademonia* Bolton 1995. A: frontal view of the head; B: lateral view of the body; C: dorsal view of the thorax; D: lateral view of the petiole.

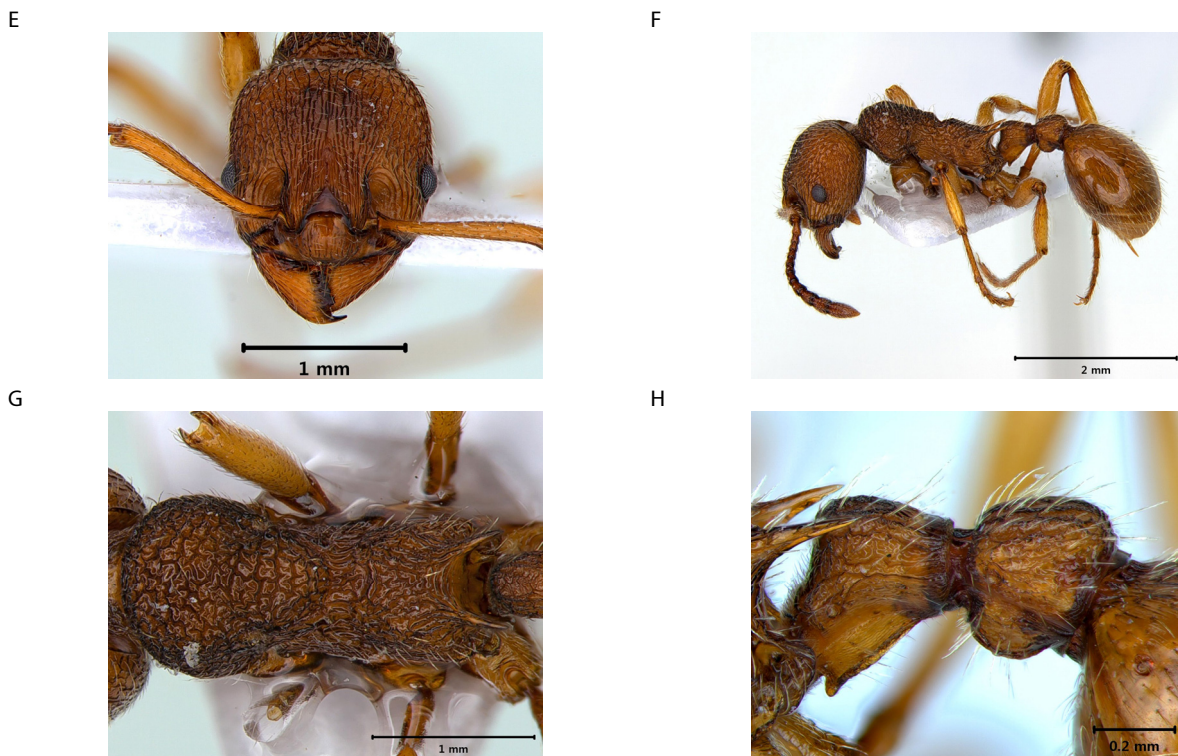


Fig. 2. *Myrmica luteola* Kupyanskaya 1990. E: frontal view of the head; F: lateral view of the body; G: dorsal view of the thorax; H: lateral view of the petiole.

Myrmica luteola Kupyanskaya, 1990(Fig. 2) 곰베벌개미(산칭)

Myrmica luteola Kupyanskaya, 1990: 103; Radchenko, 1994.

TL: China.

Myrmica zhengi Ma and Xu, 2011: 795. TL: China.

Worker. Body length 5.5-6.5 mm. Body brownish yellow, legs lighter. Mandible with 9 or 10 teeth. Anterior margin of clypeus straight or slightly concave in the middle. Antennal scape as long as head width, strongly curved near the base and a little thickened at the bend, but not angled and no trace of a lobe, pedicel 2.8 times as long as wide, apical 4 segments forming a club. Frons wide, frontal area with dense longitudinal rugae. Compound eye oval, 0.20-0.27 mm in length. Promesonotum reticulate. Propodeal spines moderately long and straight. Petiole with short anterior peduncle, anterior margin slightly concave, posterior margin straight in profile, lobe like subpetiolar process present. Post-petiole subcubical, with convex dorsal margin, ventral lobe developed. Gaster smooth and shiny. Legs with recumbent hairs. Tibial spurs of middle and hind legs short with reduced pectination.

Material examined: Korea: 1Q, 40w, Mt. Deogyusan, JB, 31.VIII. 2017. (SW Yoon & DO Shin); 1Q, 30w, Mt. Maebongsan, GW, 02.IX. 2017. (SW Yoon & DO Shin); 1Q, 20w, Hangyeryeong, GW, 03.IX. 2017. (SW Yoon & DO Shin); 25w, Mt. Hallasan, JJ, 20.VI. 2018. (SW Yoon & DO Shin).

Distribution: Korea (new record), China, Taiwan, Russia.

저자 직책 & 역할

류동표 : 상지대, 교수; 실험설계 현미경 분석 및 논문작성
신동오 : 푸른솔개미연구센터, 소장; 시료준비 및 자료분석
윤선우 : 푸른솔개미연구센터, 연구원; 시료준비 및 분석

모든 저자는 원고를 읽고 투고에 동의하였음.

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