

# A New Record of Bee *Halictus hedini hedini* (Hymenoptera: Halictidae) from South Korea

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## 한국산 미기록 벌 *Halictus hedini hedini* (벌목: 꼬마꽃벌과)에 대한 보고

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**ABSTRACT:** Halictidae is a large group with more than 3,500 species found worldwide. They are called sweat bees because they are attracted to people's sweat. In this study, *Halictus hedini hedini* Blüthgen, 1934, belonging to Halictidae, is reported for the first time in Korea. Description, distribution, and illustration of this species are provided.

**Key words:** Halictinae, Morphology, Taxonomy, Unrecorded species

**초록:** Halictidae 전 세계적으로 3,500종 이상 발견된 큰 그룹이며 사람들의 땀에 이끌리는 특성을 보여 Sweat bee라는 이름으로 불린다. 이번 연구에서는 꼬마꽃벌과에 속하는 *Halictus hedini hedini* Blüthgen, 1934을 한국에서 처음으로 보고한다. 본 종의 기재, 분포정보, 그리고 삽화를 제공한다.

**검색어:** 꼬마꽃벌아과, 형태학, 분류, 미기록종

The family Halictidae (Hymenoptera) is a large taxonomic group containing more than 3,500 species, and commonly found in all regions of the world (Danforth et al., 2008). Species of the Halictidae tend to be attracted to people's sweat, so they are commonly called sweat bees. Sweat bees generally eat nectar and pollen and create habitats in the ground, clay soil, or riverbanks (Eaton and Kaufman, 2007). The genus *Halictus* Latreille, 1804 has 206 species recorded worldwide and is characterized by social polyethism, so it plays a significantly

important role in the study of social behavior of insects (Murao and Gibbs, 2019; Soucy, 2002; Schwarz et al., 2007). In previous studies, two species (*Halictus rubicundus* Christ, 1791; *Halictus tsingtuensis* Strand, 1910) are recorded in South Korea. *Halictus hedini hedini* Blüthgen, 1934 is distributed in Japan, China, Russia, Serbia, and Kazakhstan (Pesenko, 2005), and was discovered in Korea for the first time in this study. This species has similar morphological characteristics with *Halictus rubicundus* (Murao and Gibbs, 2019). The description, diagnosis, distribution and illustrations are provided.

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## Materials and Methods

Materials of the halictid were collected by sweeping. The species studied are deposited in Kunsan National University (KSNU). For information related to species identification, we referred to the paper in Murao and Gibbs, 2019. The terminology used for morphological characters follows Pesenko (2005). For observation and photography, LEICA DMC2900 digital camera and LEICA M205 C microscope (Leica Geosystems AG, Germany) were used. Images were stacked by using Helicon software (Helicon Soft, Ukraine).

## Systematic Accounts

Family Halictidae Thomson, 1869

Subfamily Halictinae Thomson 1869

Genus *Halictus* Latreille, 1804

*Halictus* Latreille, 1804: 84(85): 238

*Lampralictus* Pesenko, 1984: 63(2)

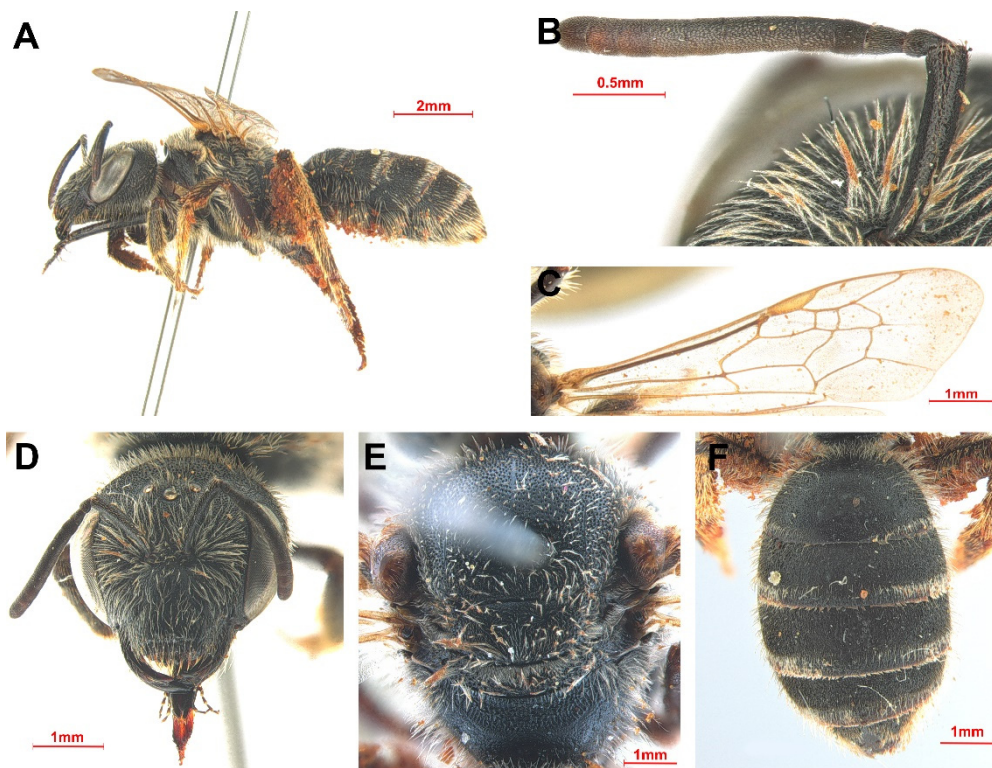
*Halictus hedini hedini* Blüthgen, 1934 (Fig. 1A-F) 주름꼬마 꽃벌(신칭)

*Halictus hedini hedini* Blüthgen, 1934 : 27 (13): 5-6

## Description

**Morphology. Female Body.** Length of body 11.95 mm, length of forewing 8.09 mm, antennae with 12 segments (Fig. 1A, C). **Male.** Antennae with 13 segments and long more than more than female.

**Head.** Antennae dark brown; antennae densely covered short setae; scape covered with yellowish setae and scape basal long setae present (Fig. 1B), length of head  $0.78\times$  width of head, frons and clypeus flat and rough, malar space narrow, mandible well-developed and with few setae, maxillary palp with 6 segments and  $0.32\times$  length of head, occipital carina absent. **Mesosoma.** Punctate with setae; parapsidal line present, tegula glossy with yellowish setae, axilla densely covered whitish setae, propodeal triangle faintly present, length of



**Fig. 1.** Habitus of *Halictus hedini hedini* Blüthgen, 1934: A, whole body in lateral view; B, antenna; C, forewing; D, head; E, mesosoma in dorsal view; F, metasoma in dorsal view.

mesosoma 0.68× length of metasoma (Fig. 1E). **Hind leg.** Dark black with yellowish setae; length of hind leg fumer 0.92× length of hind leg tibia, tibial spurs developed. **Wing.** Forewing; prestigma absent; length of stigma 0.18× length of forewing, radius hardened, marginal cell and submarginal cell completely present (Fig. 1C). **Metasoma.** Tergum segments end covered whitish setae; rough and punctures; length of tergum1 1.4× length of tergum1 (Fig. 1F).

**Diagnosis.** *Halictus hedini hedini* differs from *Halictus hedini hebeiensis* by the dark legs of the female. *Halictus hedini hedini* differs from the similar species *Halictus rubicundus* in that the first tergum is rough and has deep punctures (Pesenko and Yanru, 1997). *Halictus tsingtuensis* differs from Propodeum punctate on lateral and posterior surfaces in female and male genital area deeply concave; male second flagellomere approximately 2.4× first flagellomere (Murao and Gibbs, 2019).

**Distribution.** South Korea (new record), China, Mongolia, Japan, Russia, Siberia, Kazakhstan (Murao and Gibbs, 2019).

**Specimens examined.** South Korea, 1♂, Nohyeong-dong, Jeju-si, 18.VII.2001, Heungsik Lee; 1♂, Mt. Gariwang, Jeongsun-eup, Jeongsun-gun, Gangwon-do, 30.VII.2013, Heungsik Lee; 1♂, Mt. Baekam, Hongcheon-gun, Gangwon-do, 24.V.2002, Heungsik Lee; 1♀, Mt. Odae, Daegwallyeong-myeon, Pyeongchang-gun, Gangwon-do, 27.VII.2001, Heungsik Lee.

#### Key to Japanese Species of *Halictus* (Pesenko, 2005)

1. ♂ ♀: metapostnotum coarser rugose; metasomal terga coarser (puncture diameter on disc of T2, 12–20 μm) and sparser punctate, mesoscutum and metasomal terga denser punctate, shagreened on interspaces, mat. ♂: genital area deeply concave, with a carina along outer margin of depression; flagellomeres convex on lower side, covered with dense short hairs forming distal and proximal bands divided by bare area about 1/2–1/3 length of segment; metasoma nearly cylindrical, hair band on T3 interrupted; dorsomedial hair tassel of gonostylus twice narrower and sparser. ♀: head rounded in frontal view, about as high as wide. ..... *H. (Monilapis) tsingtuensis*
- ♂ ♀: metapostnotum finer rugulose; metasomal terga finely and densely punctate. pubescence of head and mesosoma yellowish: yellowish white in male, yellowish

fuscous in female; propodeum about 0.7 times as long as scutellum. ♂: genital area convex, without carina; flagellomeres nearly cylindrical, covered with inconspicuous hair fringe (except for *H. hedini*, in which flagellum provided with a fringe of short hairs); metasoma flattened. T5 without posterior band; lower gonostylus short, pointed, spinelike, hairless ♀: relative height of head variable. .... 2

2. ♂ ♀: T1 at least twice finer punctate, punctures superficial and indistinct; body length 9.5–11.0 mm. ♂: pubescence of flagellum inconspicuous. ♀: T5 around longitudinal bar area with grayish fuscous or dark fuscous pubescence ..... *H. (Protohalictus) rubicundus*
- ♂ ♀: T1 coarsely punctate, punctures deep; body length 11.5–13.0 mm. ♂: flagellum provided with a fringe of short eyelash-like hairs 0.3–0.5 times as long as flagellomeres diameter. ♀: T5 around longitudinal bar area with rusty-brown pubescence. legs dark (black or dark fuscous) entirely or hind tibia and tarsus dark brownish orange ....  
..... *H. (Protohalictus) hedini hedini*

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#### Statements for Authorship Position & Contribution

- Yu, Y.: Kunsan National University, Student in Ph.D; Designed the research, wrote the manuscript  
 Kim, H.: Kunsan National University, Professor, Designed the research  
 Lee, H.: Animal and Plant Quarantine Agency, Ph.D; Collected and designed the research

All authors read and approved the manuscript.

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