

First Record of *Discothyrea sauteri* Forel (Hymenoptera: Formicidae: Proceratiinae) from Korea

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한국미기록종 *Discothyrea sauteri* Forel(벌목: 개미과: 배굽은침개미아과)의 보고

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ABSTRACT: The species, *Discothyrea sauteri* Forel, 1912 (Hymenoptera: Formicidae: Proceratiinae), was documented for the first time in Korea. In this study, the morphological characteristics, representative images of this species, and a taxonomic key of the genera of the Korean Proceratiinae are provided.

Key words: Formicidae, Proceratiinae, *Discothyrea sauteri*, Taxonomic key, Korea

초록: 한국산 개미과 배굽은침개미아과의 미기록종인 *Discothyrea sauteri* Forel을 보고한다. 종에 대한 형질과 사진, 한국산 배굽은침개미아과 속 검색표를 제공한다.

검색어: 개미과, 배굽은침개미아과, *Discothyrea sauteri*, 분류키, 한국

The members of the genus *Discothyrea* are relatively cryptic ants, which form small colonies (10-20 workers), and are mainly found in rotten wood, leaf litter, and under the stones (Brown, 1958). Brown (1958) first reported that they could be specialized predators of arthropod eggs, since their closely related genus *Proceratium* exhibits such a trophic specialization, and was further able to provide evidence for his theory on the basis of the research conducted by him on an Australian *Discothyrea* species (Brown, 1958). These ants were shown to prefer spider eggs, although one species was also located in the nests of other ants (Brown, 1980). Queens of one African

species formed their nests within the spider egg sacks, which was shown to provide both food and lodging for the first generation of workers (Dejean and Dejean, 1998). In this paper, the genus *Discothyrea* Roger and *Discothyrea sauteri* Forel are recorded for the first time. In this study, the morphological characteristics of these species, and a taxonomic key of the genera of the Korean Proceratiinae are provided.

Materials and Methods

The specimens examined in this study were deposited at Sangji University, South Korea. The images of these specimens were captured using the Leica DMS 1000 microscope and the S8AP0 microscope (Leica Microsystem, Germany). Images

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were further enhanced and analyzed using the Leica Application Suite v. 4.9 (Leica Microsystems) and Deltabio MOT Leica software v. 4.0 to obtain multi-focus images. The terminology used to describe the worker individuals was followed as described by Bolton (2003).

The following abbreviations for insect castes and provinces in which specimens were collected and examined were used: q (queen); w (worker); TL (type locality); and JJ (Jeju-do).

Results

Systematic accounts

Family Formicidae Latreille, 1809 개미과

Subfamily Proceratiinae Emery, 1895 배굽은침개미아과

Key to the Genera of Korean Proceratiinae

1. Apical segment of antenna extremely large and bulbous; antennal sockets on shelf protruding over mandibles *Discothyrea*

- Apical segment of antenna moderately enlarged, but not bulbous; antennal sockets not protruding over mandibles *Proceratium*

Genus *Discothyrea* Roger, 1863

Discothyrea: Roger, J., 1863: 176. Type-species: *Discothyrea testacea* Roger.

Prodiscothyrea Wheeler, W.M., 1916: 33. Type-species: *Prodiscothyrea velutina* Wheeler.

Pseudosysphincta Arnold, 1916: 161. Type-species: *Pseudosysphincta poweri* Arnold.

Diagnosis. Small strong ants are the ones with notable excessive expansion of their apical antennal segment. The antennal segments are segmented at least 6–12 times. Mandibles are without teeth and are overhanging with the help of a projecting clypeus. Thorax is short and sutureless dorsally (Brown, 1958; Bolton, 1994)

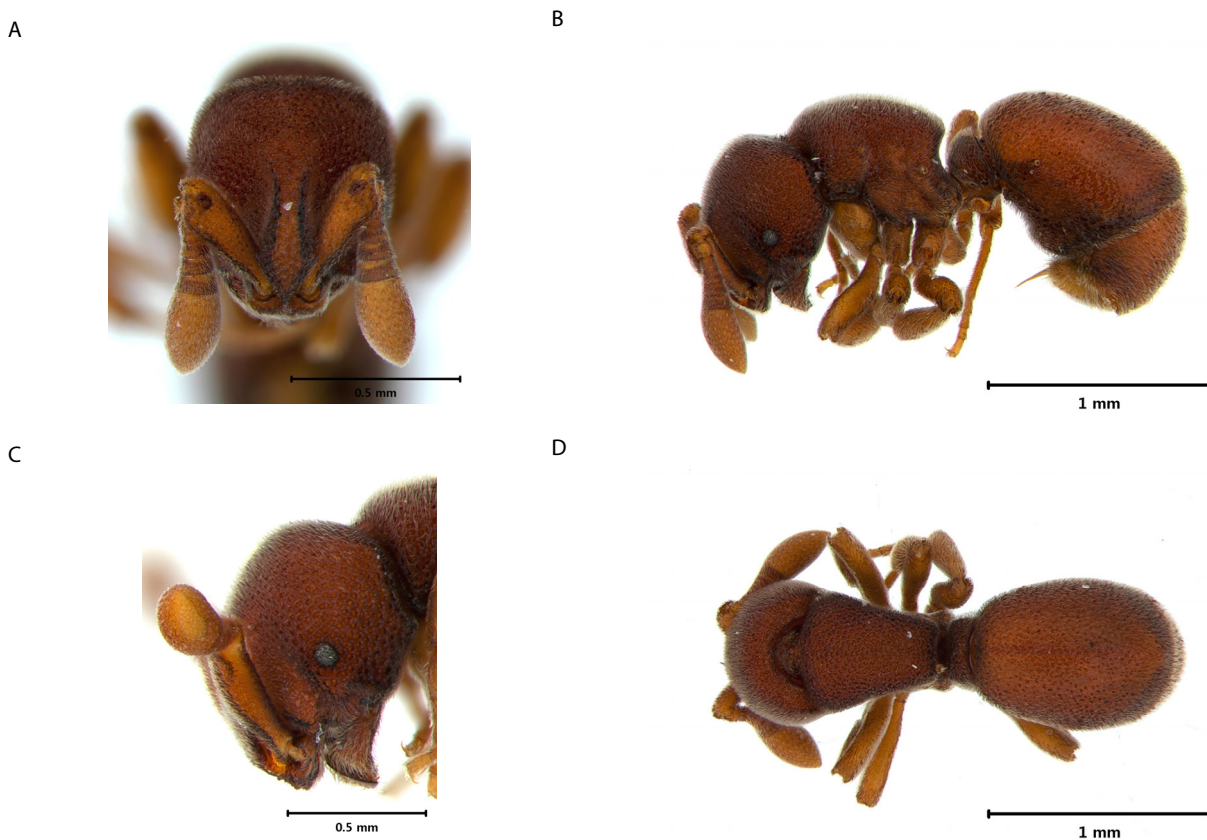


Fig. 1. *Discothyrea sauteri* Forel. A: frontal view of the head; B: lateral view of the body; C: lateral view of the head; D: Dorsal view of the body.

***Discothyrea sauteri* Forel, 1912 달마배굽은침개미(신칭)**

Discothyrea globus var. *sauteri* Forel, 1912: 47 (w.q.). TL: Taiwan.

Discothyrea sauteri- Brown, 1958: 253 (Raised to species).

Description: Worker ants. (fig. 1A and C): Head shape is subglobose; occipital carina is low but distinct, which is extended up to the ventral surface. Mandibles are small and subtriangular. Masticatory margin is edentate, in which the inner surface is with a series of minute peg-. Palp formula is usually 4; 4 or 4; 3 (Brown, 1958). Clypeus is fused to the frontal region medially, forming a subrectangular projection anteriorly, which partly covers the mandibles. Frontal carinae are fused together to form a median longitudinal platform, with distinct antennal scrobes. Antennal insertion is almost exposed and is situated anteriorly. Antennal segments vary in number but are normally less than 10; they are scape short, clavate, and somewhat depressed dorsoventrally. Apical segments are large and bulbous, mostly equal to or longer than the total length of the funiculus. Compound eyes are small to minute and are situated anterior to the middle of the sides of the head.

Alitrunk is compact, which lacks any dorsal sutures, with short and flattened nodes. They are normally located at the posterior declivity of propodeum concave and are weakly marginate, with a pair of angulate corners or teeth situated dorsoposteriorly, whereas the ventral processes are absent. Legs are short and robust, and the tibial spurs of all the legs are pectinate. Petiole is small, compressed anteroposteriorly, and broadly attached to the gaster, whereas the subpetiolar processes are low and rounded. Anterior margins of the first gastric sternum are weakly developed. First and second gastric terga are large and swollen; gastric apex is directed forward, and the sting is well developed.

Material examined: Korea: 1w, Donneko, Seogwipo, JJ, 18. VI. 2019. (SW Yoon & DO Shin); 1w, Donneko, Seogwipo, 19. VI. 2019. (DP Lyu.)

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

저자 직책 & 역할

류동표 : 상지대, 교수; 실험설계 현미경 분석 및 논문작성
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