

SYSTEMATICS AND EVOLUTION

A New Species of *Strumigenys* (Hymenoptera: Formicidae) from Korea

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Abstract *Strumigenys choii* sp. nov. is described and illustrated from the Is. Soheuksan-do, Korea. Although this species is similar to the congener *S. lewisi*, from which differs in having a glossy and smooth dorsal plate comprised of a pronotum and propodeum, and spatulate hairs on the head, antennal scapes, alitrunk, pedicel, legs and gaster.

Key words Myrmicinae, *Strumigenys choii*, New to science, Spatulate hairs

Introduction

To date, more than 470 species belonging to the genus *Strumigenys* have been described worldwide, making it the largest of the 9 genera that comprise the tribe Dacetini (Bolton, 2000).

Strumigenys workers are approximately 2-3 mm long and their nests are usually found in leaf litter, plant cavities, rotting wood, or under objects (Smith, 1979). *Strumigenys* are predators of small soil-inhabiting arthropods and are known to be specialized hunters of collembolans that dwell in leaf litter and rotten logs. They have long and linear mandibles with a few large teeth at the apex. While waiting for prey, the mandibles remain open at an angle of at least 170 degrees (60-90 in *Pyramica*) (Bolton, 1999). Twenty-three species in the genus *Strumigenys* have been identified in East Asia to date (Zhou and Xu, 2003). However, only one species, *S. lewisi* Cameron, has been identified in Korea (Lyu *et al.*, 2002).

In this study, the author describes a new species belonging to the genus *Strumigenys*. This novel species should be placed within the *S. godeffroyi* group because it shares the following characteristics with members

of this group: the anterior clypeal margin with a narrow U-shaped or V-shaped median notch; the apical antennal segment spindle-shaped, strongly constricted basally and very narrowly articulated with preapical antennomeres; the propodeal lamella narrow with a concave posterior margin, that in profile closely follows the shape of the declivity; the apical fork of the mandible usually with two intercalary denticles (Bolton, 2000).

Strumigenys choii, new species (Figs. 1A, 2A, 3A and 4A)

Materials examined. Holotype: worker, Is. Soheuksan-do, 25 April 1994 (BM Choi), housed at Sangji University, Wonju, South Korea (SJU), with a red, partially handwritten label that read, "*Strumigenys choii* Holotype". Paratypes: 28 w, same data as the holotype, distributed as follows: 21 at Sangji University, Wonju, South Korea (SJU); 3 at the Natural History Museum, London, UK (BMNH); 2 at the California Academy of Sciences, San Francisco, California, USA (CASC); 2 at the Museum of Comparative Zoology, Cambridge, Massachusetts, USA (MCZ). Each paratype worker had a yellow, partially handwritten label that read, "*Strumigenys choii* Paratype".

Diagnosis. *Strumigenys choii* are similar to *S. lewisi*, but can be separated based on the presence of spatulate hairs on the head, antennal scapes, alitrunk, pedicel, legs, and gaster, as opposed to the simple long hairs that occur in *S. lewisi*. Moreover, the area on the side of the pronotum in *S. choii* is smooth, while it is areolate in *S. lewisi* (Figs. 1B, 2B, 3B and 4B).

Measurements of workers. The mean values, based on measurements from 29 workers, are as follows: Total Length 3.30 (2.85-3.60); Head Length 0.62 (0.57-0.67); Head Width 0.49 (0.46-0.52); Cephalic Index 79.19 (73.42-85.55)%; Scape Length 0.45 (0.42-0.49); Scape Index 92.08 (85.77-98.74)%; Alitrunk Length 0.75 (0.71-0.80); Propodeum Width 0.20 (0.18-0.23); Petiole Length 0.39 (0.343-0.42); Petiole Height 0.20 (0.19-0.22); Petiole Width 0.18 (0.16-0.19); Post-

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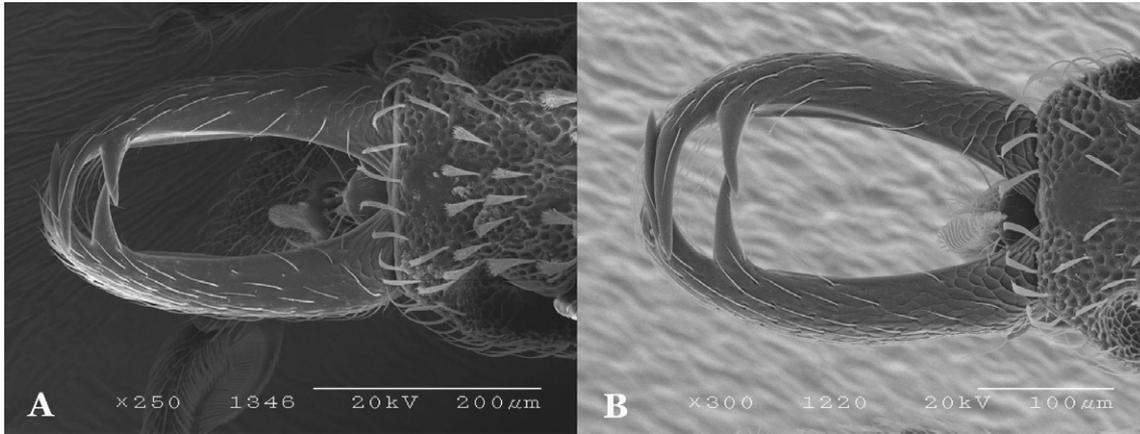


Fig. 1. Mandible, frontal view. A, *S. choii* sp. nov.; B, *S. lewisi*

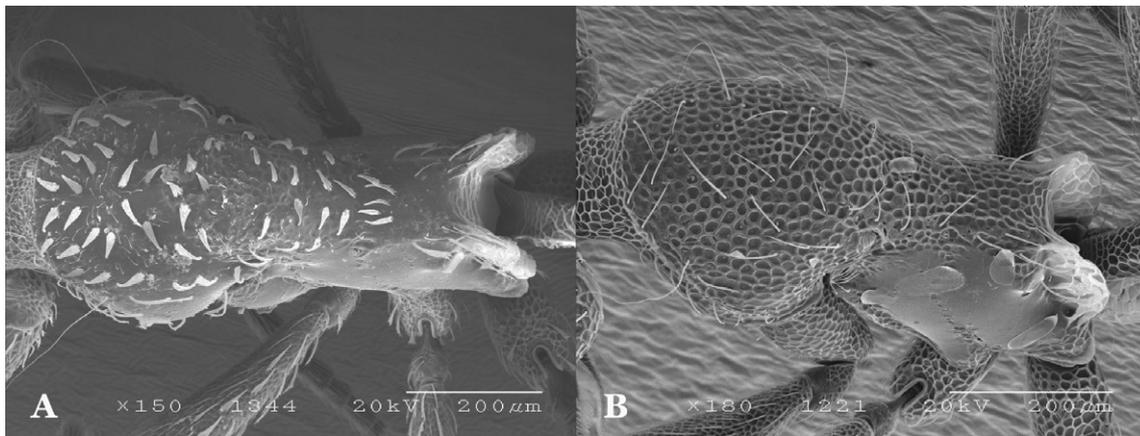


Fig. 2. Alitrunk, dorsal view. A, *S. choii* sp. nov.; B, *S. lewisi*

petiole Length 0.19 (0.17-0.22); Postpetiole Height 0.22 (0.21-0.24); Postpetiole Width 0.25 (0.23-0.26). The values in parenthesis represent the minimum and maximum measurements. All values are in mm unless otherwise noted.

Description. Antennae 6 segmented, with the funicular segment separated from a segmented apical club by two small segments. Antennal scape with spatulate hairs in 3 rows. Surface of head with aerolae. One apically forked mandible with no distinct intercalary teeth or denticles and one mandible with a smooth and shiny surface that contains 1 preapical tooth. Compound eyes with 12 ommatidia at the largest width. Antennal scape not reaching the occiput. Dorsum of the pronotum with spatulate hairs and a smooth, shiny surface. Dorsum of the mesonotum with spatulate hairs and a weakly aerolate surface. Propodeal spines of moderate length, with mostly smooth sides and dorsum. Propodeal declivity with lamella and weakly expressed propodeal spines. Smooth dorsum of the petiolar node with spatulate hairs. Smooth dorsum of the petiolar node with spatulate hairs. Small petiole

with a postlateral spongiform lobe that is rotundate in the lateral view and contains a weakly areolate stalk approximately 2/3 the length of the petiole. Smooth postpetiolar node dorsum and an anterior subpostpetiolar spongiform typical for *Strumigenys* workers. The posterior subpostpetiolar spongiform approximately 1/2 the height of the postpetiole. The costae of the gaster is coarse, however the remaining portions of the gaster are smooth and shiny.

Spatulate hairs present on head, scapes, alitrunk, legs, petiole, postpetiole, and gaster. Hairs on head erect to suberect. Hairs on venter of head suberect to appressed. Hairs on clypeus erect to suberect. Setae on mandible suberect to decumbent. Hairs on scape decumbent. Hairs on funiculus appressed. Hairs on alitrunk decumbent to suberect. Hairs on legs mostly suberect to appressed. Each flagellate hair on side of the pronotum long. Hairs on anterior surface of petiolar node stiff, straight, short and appressed, whereas hairs on dorsum of petiolar node spatulate, stiff and short and those on posterior surface and side of petiolar node decumbent to appressed. Hairs on

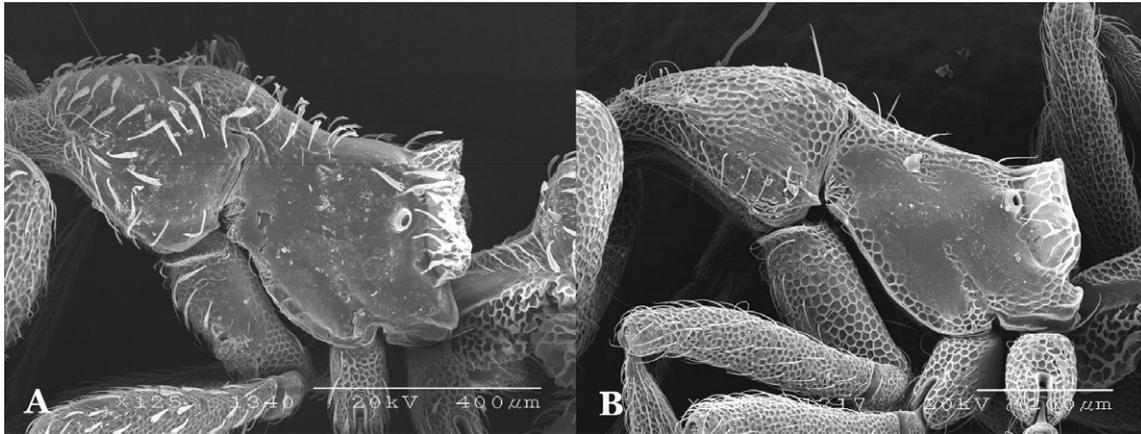


Fig. 3. Alitrunk, lateral view. A, *S. choii* sp. nov.; B, *S. lewisi*

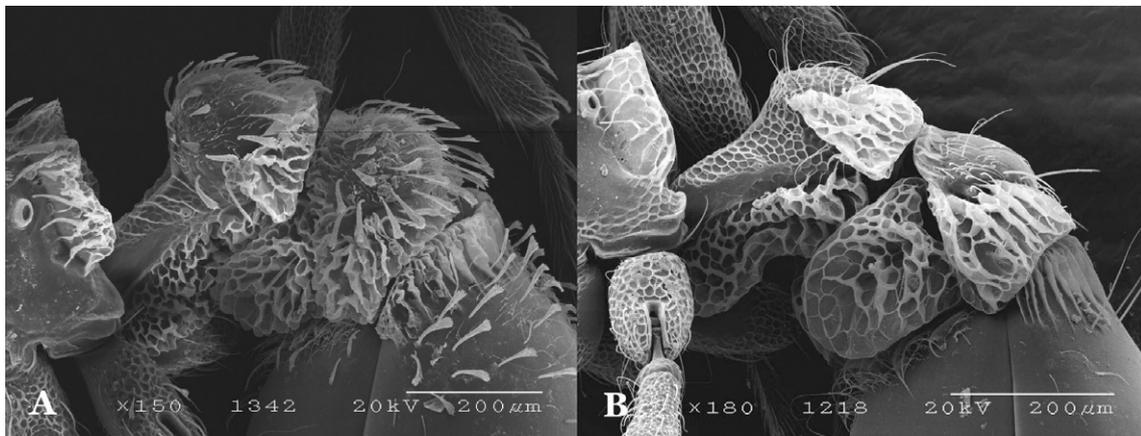


Fig. 4. Petiole, lateral view. A, *S. choii* sp. nov.; B, *S. lewisi*

venter of petiole decumbent. Hairs on postpetiole spatulate, stiff and decumbent to suberect on all surfaces, becoming more suberect on the anterior surface of node. Hairs on gaster spatulate, stiff, short and erect to suberect. Body predominantly brown except alitrunk and appendages as well as the of gaster dark brown. Compound eyes black and setae yellow.

Remarks

Strumigenys choii sp. nov. belongs to the *S. godeffroyi* group but can be distinguished from other species of this group based on the presence of spatulate hairs on body and a smooth region on pronotum and propodeum.

Etymology

The new species, *S. choii*, is named in honor of the Korean myrmecologist, Dr. Byoung Moon Choi, who has studied Korean ants for 20 years and collected the only known colony of this species.

Key to the species of *Strumigenys* in Korea, based on workers.

1. Dorsal plate of pronotum and propodeum glossy and smooth; hairs on head, antennal scape, alitrunk, pedicel, leg, and gaster spatulate. *choii*
- Dorsal plate of pronotum and propodeum areolate sculpture; hairs on head, antennal scape, alitrunk, pedicel, leg, and gaster long and simple. *lewisi*

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