

A new record of *Gustavia aominensis* Fujikawa, 2008 (Oribatida: Gustaviidae) and its related species in Korea

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A specimen of the oribatid mite, *Gustavia aominensis* Fujikawa, 2008, was isolated from litter and soil samples of *Sasa borealis* at Cheongok Mountain Natural Recreation Forest in Bonghwa, Gyeongbuk, Korea. This is the first record of this species in Korea. We provide detailed illustrations of the diagnostic features of this species relative to the original description as well as a key for Korean *Gustavia* species along with illustrations.

Keywords: Gustaviidae, Korea, Oribatida, *Sasa borealis*, Taxonomy

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INTRODUCTION

The oribatid mite (Acari: Oribatida) is one of the most numerically diverse groups of arthropods found in the organic horizons of soil (Behan-Pelletier, 1999). The family Gustaviidae (Acari: Oribatida) includes one genus, *Gustavia* Kramer, 1879 with 16 species. These species are distributed in the Holarctic and Paleotropical regions (Subías, 2004; 2012 of online ver.; Ermilov *et al.*, 2013). The diagnostic characteristics of the family are: body length maximum of 600 µm; rostrum narrow, lamellae broad; notogaster globular, without a border to the porodorsum; chelicera long and narrow, without mobile limb, with serrated tip; ventral plate no acute posteriorly, at most 6 pairs of genital setae (Weigman, 2006).

Previously, *Gustaiva microcephala* (Nicolet, 1855) was the only *Gustaiva* species recorded in Korea, and specimens were isolated from forest litter and soil (Kim *et al.*, 1987; Kwak, 1987; Park *et al.*, 1998).

We found new species to Korean inventory compared to the existed checklist of oribatid mite from NIBR (2013) or other list (Kim and Jung, 2012). In this work, we present a taxonomic diagnosis of *Gustavia* new species and morphological characteristics with detailed illustrations.

MATERIALS AND METHODS

The specimen was collected from litter and soil of *Sasa borealis* in Cheongok Mountain Natural Recreation Forest, Bonghwa, Korea. Oribatid mites were extracted using a modified Tullgren funnel for 72 h with 30-watt bulb (Kim and Jung, 2008; Jung *et al.*, 2010; Kim *et al.*, 2010; 2011). The extracted mites were mounted on slides using polyvinyl alcohol (PVA) mounting medium (Downs, 1943; BioQuip, Rancho Dominguez, CA, USA). Morphological measurements were made under an optical microscope with an ocular micrometer. The terminology and measurement were used following the standard methods described by Weigman (2006) and Fujikawa (2008).

RESULTS AND DISCUSSION

Family Gustaviidae Oudemans, 1900
Genus *Gustavia* Kramer, 1879
Neozetes Berlese, 1885
Serrarius Michael, 1883

***Gustavia aominensis* Fujikawa, 2008**
아오민실톱응애 (신칭) (Figs. 1-3)

Gustavia aominensis Fujikawa, 2008: 55, figs. 22-23.

Material examined. Two mites marked on the slide. Cheongok mountain natural recreation forest, Bonghwa, Korea, 8. IV. 2014.

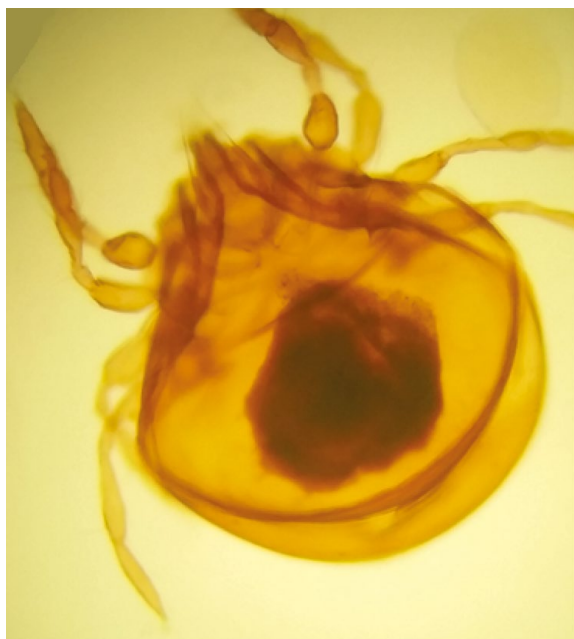


Fig. 1. Microscopic image of *Gustavia aominensis* Fujikawa, 2008.

Diagnosis. Body size: adult body length 482 μm and width 379 μm ; body color yellowish brown.

Dorsal side: dorsal surface granulated; insertions of rostral setae (*ro*) sparsely barbed, forming U-shaped; lamellar setae (*le*) originating raised cuspis and spinose; cuspis without dent. translamella absent; interlamellar seta (*in*) sparsely barbed; Sensillus (*ss*) elongate lanceolate form, barbed in distal head; notogaster present seven pairs of alveoli and three pairs of notogastral setae; opisthotal gland openings (*gla*) present.

Ventral side: genital and anal plates with large, being about one-half as long as the distance between genital and anal apertures; six pairs of genital, one pair of aggenital, two pairs of anal and three pairs of adanal setae present; all setae thin, smooth; setal formula of epimera 3-1-3-3, setae sparsely roughened.

Legs: all leg homotridactylous, median claw only slightly thicker than lateral claws.

Distribution. Korea (new record), Japan (as described in Subías, 2012).

Remarks. This species has lanceolate sensilla, protruding rostrum forming a U-shape, and lamellae without translamella.

Deposition. NIBRIV0000325963.

Identifiers. Jiwon Kim, Badamdorj Bayartogtokh and Chuleui Jung.

Key to adults of *Gustavia* species in Korea

1. Protruding rostrum forming U-shape 2

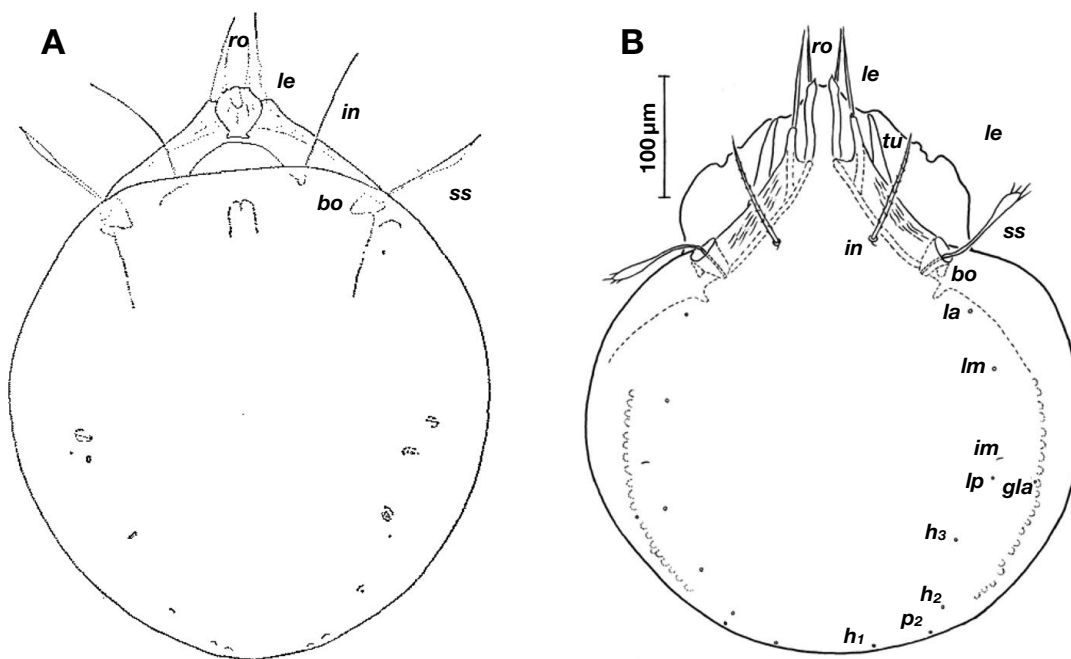


Fig. 2. Dorsal aspect of (A) *Gustavia microcephala* (Nicolet, 1855) (as described in Fujikawa, 1972) and (B) *Gustavia aominensis* Fujikawa, 2008: Rostral setae (*ro*), lamellar setae (*le*), interlamellar setae (*in*), tutorial (*tu*), gland (*gla*), lyrifissure (*im*); Notogastral seta: *la*, *lm*, *lp*, *h*₁, *h*₂, *h*₃, *p*₂.

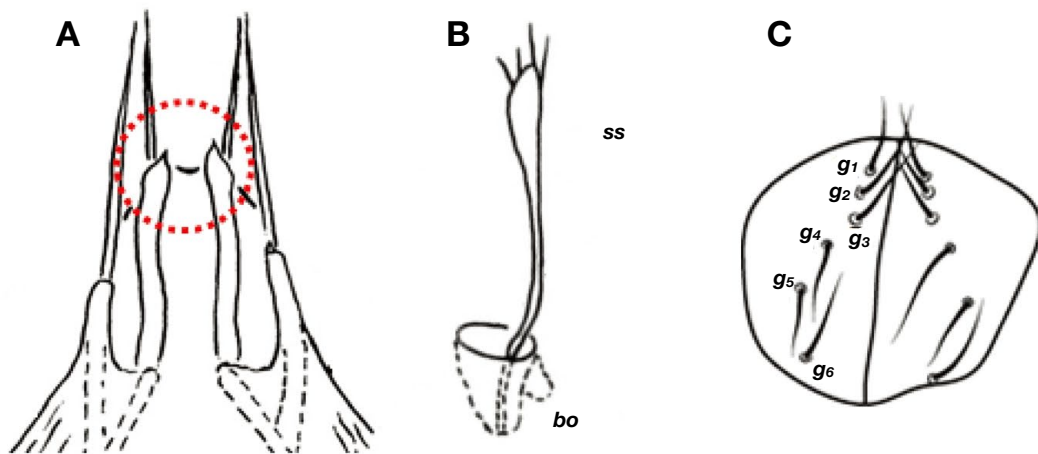


Fig. 3. *Gustavia aominensis* Fujikawa, 2008. (A) Rostrum forming U-shape, (B) Sensillus (ss) and bothridium (bo), (C) Genital plates with setae.

- Flat apex of rostrum; translamella complete in the form of a line; sensillus with spindle-like; body 470-560 μm , width 360-450 μm *G. microcephala* (Nicolet, 1855)
- 2. Translamella incomplete, indicated only on both sides; sensillus lanceolate form; body 482 μm , width 379 μm *G. aominensis* Fujikawa, 2008

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