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A new record of *Peloribates barbatus* Aoki, 1977 (Oribatida: Haplozetidae) from Korea

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The genus *Peloribates* is comparatively species rich and distributed worldwide. More than 90 species have been assigned to this genus, but three species were reported in Korea. We recovered a new species, *Peloribates barbatus* Aoki, 1977 to Korean inventory in the family Haplozetidae (Acari: Oribatida) from the straw mat covering the cherry trees. This species was originally reported as inhabiting in lichens growing on tombstones in Japan. In this paper, we present a comparative account of morphological description of the species with other three congeneric species in Korea.

Keywords: biodiversity, diagnosis, mite, Oribatida, soil

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Introduction

According to the catalogue of Subías (2004, Online version 2012), Haplozetidae comprises 19 genera, 11 subgenera, 230 species. The genus *Haplozetes* was proposed by Willmann (1935) with *Peloribates vindobonensis* Willmann, 1935 as the type species. Subsequently, Grandjean (1936) redefined the type species, and ascertained generic status of *Haplozetes* and proposed the family Haplozetidae (Ermilov *et al*., 2013). This family is diagnosed by the movable pteromorphs; rostrum rounded; lamellae narrow, without translamella; 10-14 pairs of notogastral setae; four to five pairs of genital setae; mono- or tridactylous legs (Bayartogtokh, 2010). The genus *Peloribates* is one of the species rich genera of the family Haplozetidae, and distributed worldwide, about 90 species have been assigned to this genus. They were previously known from widely scattered areas of the most of biogeographical regions of the world. Several species have wide distribution and majorities have been described from Palaearctic, Nearctic and Oriental regions (Bayartogtokh, 2000; Bayartogtokh and Smelyansky, 2008). In Korea, the genus *Peloribates* is represented by three species, namely *Peloribates acutus* Aoki, 1961, *Peloribates longisetosus* Willmann, 1930 and *Peloribates rangiroaensis asiaticus* Aoki and Nakatamari, 1974 (NIBR, 2013).

We found a new species to Korean inventory compared to the present existing checklist of oirbatid mite from NIBR (2013). In this work, we present a taxonomic diagnosis of the genus and species, and morphological characteristics with detailed illustration.

Materials and Methods

The specimen was collected from the straw mat covering the cherry trees in Andong National University, Andong, Gyeongsangbuk-do in January, 2012. Oribatid mites were extracted by using a modified-Tullgren funnel for 72 hrs with 30-watt bulb (Kim and Jung, 2008; Jung *et al*., 2010; Kim *et al*., 2010; Kim *et al*., 2011). The extracted mites were mounted on the slides using polyvinyl alcohol (PVA) mounting medium (Downs, 1943; BioQuip, Rancho Dominiquez, CA, USA). The terminology and measurement were used following the standard methods described by Aoki (1977), Weigmann (2006), and Bayartogtokh (2010).

Results and Discussion

Genus *Peloribates* Berlese, 1908
Capillozetes Balogh, 1943
Parazetes Willmann, 1930
Euryparazetes Radford, 1950
Indobates Pandit and Bhattacharya, 1999

Type species. *Oribates peloptoides* Berlese, 1888: 215, fig. 3.

Diagnosis. Adults small to large in size (240-620 μm in length). Rostrum rounded. Notogaster with 14 pairs of setae. Four pairs of sacculli. Pteromorphae movable, fully hinged. Lamellae well developed. The true translamella is absent or lineated, never completely crossing space between lamellar setae. Five pairs of genital setae. One or three pairs of aggenital setae. Legs usually tridactylous, but rarely monodactylous (Bayartogtokh, 2000).

Distribution. Palaearctic, Nearctic, Oriental regions, Neotropical, Australian (as described in Bayartogtokh, 2000).

Remarks. There was three species recorded in Korea, such as *Peloribates acutus* Aoki, 1961, *P. longisetosus* Willmann, 1930, and *P. rangiroaensis asiaticus* Aoki and Nakatamari, 1974.

***Peloribates barbatus* Aoki, 1977**
수염소매응애 (신칭) (Figs. 1, 2)
Peloribates barbatus Aoki, 1977: 190, fig. 2.

Material examined. Two mites marked on the slide. Straw mat covering the cherry tree, Andong National Univ., Andong, Gyeongsangbuk-do, Korea, 8. I. 2012.

Diagnosis. Adult body length 360 μm and width 265 μm. Body color chestnut brown.

Prodorsum: tip of rostrum round; interlamellar seta (*in*) the longest among the prodorsal setae, lamellar setae (*le*) and rostral setae (*ro*) long; they all barbed throughout their length, sharply pointed at tip except for interlamellar setae. Sensillus (*ss*) club-shaped and short stalk, with a strongly swollen head. Prodorsal surface with distinct foveolae.

Notogaster: 14 pairs of notogastral setae very long, reaching to or extending beyond the insertions of next row setae, blunt at tip and strongly barbed; all the notogastral setae, even the longest and setae h_1, are shorter than their mutual distances; integument of notogaster and pteromorphae shows the foveolae, notogaster, pteromorpha finely striated transversely.

Ventral side: anal and genital plates with large, round

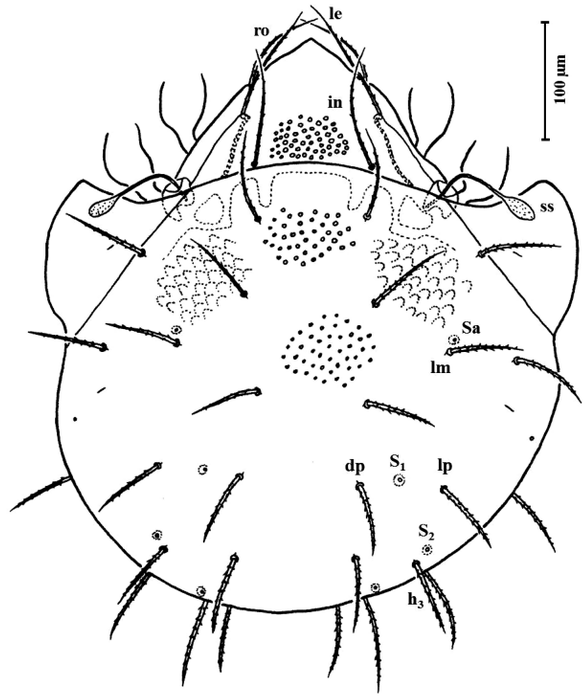

Fig. 1. Dorsal aspect of *Peloribates barbatus* Aoki, 1977.: Lamellar setae (*le*), rostral setae (*ro*), interlamellar seta (*in*), and Sensillus (*ss*); Notogastral seta: *lm*, *dp*, *lp*, h_3; Sacculus: *Sa*, S_1, S_2.

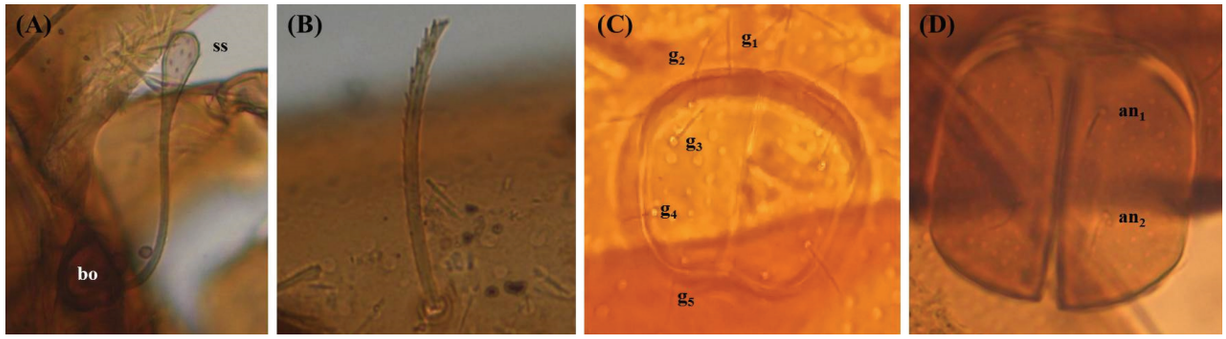

Fig. 2. *Peloribates barbatus* Aoki, 1977. (A) Sensillus (*ss*) and bothridium (*bo*). (B) Notogastral seta. (C) Genital plates with setae: g_1, g_2, g_3, g_4, g_5. (D) Anal plates with setae: an_1, an_2.

foveolae; genital plate with a few foveolae, relatively long setae; anal plate with two minutely barbed setae; integument of the plate shows larges large and small foveolae mixed. Three pairs of adanal setae weakly barbed. Aggenital setae weakly barbed, almost twice as long as adanal setae.

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

Remarks. This species is having distinctly foveolate body integument and notogastral setae stiff and blunt at tip. Notogastral setae of this species are longer than *P. rangiroaensis asiaticus*.

Deposition. NIBR No. NIBRIV0000325962.

Identifiers. Jiwon Kim, Badamdorj Bayartogtokh and Chuleui Jung.

Key to adults of *Peloribates* species in Korea

1. Sensillus short or medium long, with clavate or club-shaped head ····· 2
− Sensillus very long, with spindle-like, sharply pointed head; body length 557-563 μm, width 397-410 μm ····· ***P. acutus* Aoki, 1961**
2. Notogastral setae very long, reaching to or extending beyond the insertions of next row setae ····· 3
− Notogastral setae medium long, not reaching to the insertions of next row setae····· 4
3. Prodorsum, anal and genital plates with large, round foveolae; notogaster with minute foveolae; pteromorpha finely striated transversely; sensillus with short stalk; body length 330-415 μm, width 234-300 μm ····· ***P. barbatus* Aoki, 1977**
− Prodorsum, anal and genital plates smooth, without foveolae; notogaster with minute granules; pteromorpha smooth; sensillus with long stalk; body length 310-465 μm, width 260-330 μm ····· ····· ***P. longisetosus* Willmann, 1930**
4. Whole prodorsum with large foveolae, the size of which increasing towards tip of rostrum; notogastral sacculus S_1 located closer to notogastral seta *dp* than *lp*; sacculus *Sa* located posterolateral to seta *lm*; sacculus S_2 located anteromedial to seta h_3; body length 375 μm ····· ***P. rangiroaensis asiaticus* Aoki and Nakatamari, 1974**

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