

A New Species of *Echiniscus* (Tardigrada: Echiniscidae) from Korea

Moon, Seung Yeo and Kim, Won

(Department of Zoology, College of Natural Sciences, Seoul National University,
Seoul 151-742, Republic of Korea)

한국산 *Echiniscus*속 (Tardigrada : Echiniscidae) 1신종

文升汝·金元
(서울대학교 자연과학대학 동물학과)

적 요

1985년 8월부터 1987년 9월까지 한국의 8개 지역에서 채집된 완보류 1종이 genus *Echiniscus*에 속하는 신종임이 확인되어 *Echiniscus hoonsooi*라고 명명하고 기재한다.

Key words: Tardigrada, *Echiniscus hoonsooi* n.sp., Korea

Investigation of Korean terrestrial Tardigrada collected in lichens from 8 localities in Korea from August 1985 to September 1987 brought to a new species of genus *Echiniscus*. The cuticula pattern of this new species is similar to that of *E. trisetosus*, but the features of cirri on cuticle are quite different.

Sixty specimens were examined, and the variations of the cirri on cuticle and the facets on terminal plate among the specimens were remarked.

Including the 23 species recorded in the previous reports (Kim and Moon, 1988; Moon and Kim, 1988; Moon and Kim, 1989), total 24 species of Tardigrada are now known to South Korea by recording this new species of genus *Echiniscus*.

Echiniscus hoonsooi n. sp.

(Fig. 1)

Material examined: Holotype- adult female (SYM870726-1), T'ongdosa, Yangsan-gun, 26 Jul. 1987;

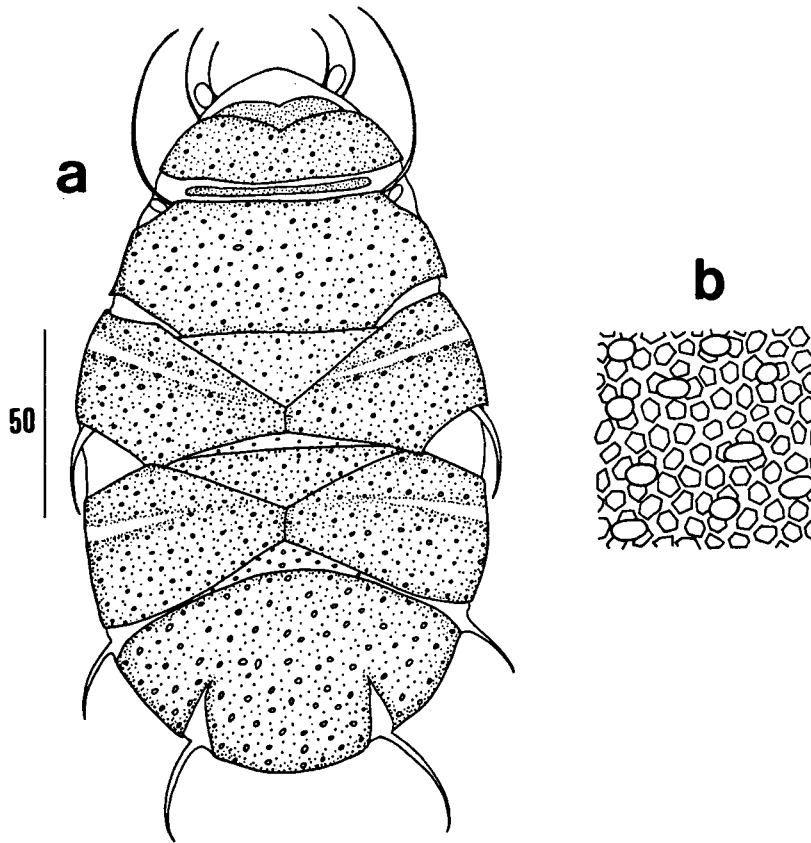


Fig. 1. *Echiniscus hoonsooi* n. sp., holotype: a, dorsal view; b, surface pattern of cuticle (Scales in micrometer).

10 paratypes (SYM870726-2)- Tongdosa, Yangsan-gun, 26 Jul. 1987; other materials- 9 inds., Hallasan, Chejudo, 14 Aug. 1985; 6 inds., Shinösan, Kimhae, 31 Mar. 1987; 6 inds., Odaesan, 14 May 1987; 4 inds., Kongju, 5 Jul. 1987; 1 inds., P'algongsan, 19 Aug. 1987; 2 inds., Tongdosa, Yangsan-gun, 26 Jul. 1987; 16 inds., Ponghwa, 1 Sep. 1987; 5 inds., Chirisan, 25 Sep. 1987. The specimens described above were collected by S.Y. Moon from lichens and deposited in the department of Zoology, Seoul National University.

Description: Holotype female. Length excluding legs IV, 171 μ m. Body colored light yellow. Cuticle of double sculpturing consisting of irregularly shaped, spaced pores and small polygonal pattern forming honey comb appearance. Pores at plates except those at terminal plate, mostly about 0.5-1.2 μ m. Terminal plate with larger pores of mostly about 0.8-1.6 μ m. Each polygons, about 0.5 μ m. Head with internal buccal cirri of 19 μ m; external buccal cirri, 23 μ m; buccal papilla prominent, 7.2 μ m long by 4.4 μ m wide, larger than clava. Cephalic plate separated from scapular plate by zone consisting of clear portion and median stripe with small granular pattern. Paired plates with clear unornamented transverse stripe separating smaller anterior part from posterior part of plate. Median plates 1 and 2 with pattern similar to other plates. Presence of median plate 3 obscure, but pores present on this area between paired plates and terminal plate; polygonal pattern scarcely perceptible. Terminal plate with two pronounced lateral incisions. Delineation of plates

distinct. Pores and polygonal pattern extending onto legs. Cirrus A ($47\mu\text{m}$) longer and thinner than any other cirri on cuticle; cirrus C ($21\mu\text{m}$) a little longer than cirrus D ($17\mu\text{m}$); cirrus E, $31\mu\text{m}$. Cirrus B and dorsal filaments or spines on cuticle absent. Spine on leg I a short thorn; papilla on leg IV $3.2\mu\text{m}$ long by $2.8\mu\text{m}$ wide. Dentate fringe on leg IV with 8-12 not well-defined sharp teeth of irregular size. Spurs at base of internal claws of all legs. Internal claws $12\mu\text{m}$ high which slightly longer than external claws by $0.8\mu\text{m}$ in all legs; external claws, $11.2\mu\text{m}$ high.

Remarks: Features of the cuticle, claws, lateral or dorsal filaments and spines are important characteristics to identify species of the genus *Echiniscus*. Especially, the presence and size of lateral or dorsal filaments and spines are accepted as diagnostic characteristics of species of this genus (Grigarick *et al.*, 1975) although the length of them may be somewhat variable. The new species described in this paper consistently does not have cirrus B and any dorsal filaments or spines, but has lateral cirrus A, C, D and E (Fig. 1a). Although there are species of *Echiniscus* having lateral cirrus A, C, D, E but without cirrus B, the relative length ratios among these cirri are very different from those of this new species, and the dorsal filaments or spines in those species are present which are consistently absent in *E. hoonsooi*. In the feature of cuticle, *E. hoonsooi* is similar to *E. trisetosus*. However, the features of cirri are quite different from those of *E. trisetosus*. Considering these characters, it can be said that *E. hoonsooi* has a mosaic of characters found in other species of this genus, and simultaneously, these mosaic characters distinguish it from other species of genus *Echiniscus*.

Some variations were found among the specimens. The length of cirri was somewhat variable in individuals of similar size. In some specimens, they were asymmetrically present, particularly in cirrus C and D: right shorter than left, and vice versa, or very short spine, otherwise lost on either side of body. All cirri, in general, are subject to get somewhat longer as the size of body increases. Other variation was shown in the facetting of terminal plates. Of the specimens examined, 2 individuals had the terminal facetting. Therefore, it is hazardous to rely only on this character because some individuals of the species of this genus *Echiniscus* can be deviated, at least in some species as reported by Lattes (1975) and Kim and Moon (1988), although the presence or absence of facets on the terminal plate is accepted as a valuable character. Eye pigment might be lost during fixation with ethanol. This new species was found together with *Echiniscus baius*, *E. elegans*, *E. montanus*, *E. spinulosus*, *E. reticulatus*, *Pseudechiniscus facettalis*, *P. suillus*, and/or *Milnesium tardigradum*.

Etymology: It is our pleasure to dedicate this species to Dr. Hoon Soo Kim, who encouraged the first author to study Tardigrada five years ago.

ABSTRACT

Echiniscus hoonsooi, new species from Korea is fully described and illustrated.

REFERENCES

- Grigarick, A. A., R.O. Schuster and E. C. Toftner, 1975. Morphogenesis of two species of *Echiniscus*. *Mem. Ist. Ital. Idrobiol.*, 32 Suppl.: 133-151.

- Kim, H. S. and S. Y. Moon, 1988. Terrestrial Heterotardigrada (Tardigrada) from Korea. Kor. J. Syst. Zool., 4,1: 47-56.
- Moon, S. Y. and H. S. Kim, 1988. Eutardigrada (Tardigrada) from Korea. Kor. J. Syst. Zool., Special Issue No. 2: 87-96.
- Moon, S. Y. and W. Kim, 1989. Freshwater Tardigrades from Korea. Kor. J. Syst. Zool., 5,2: 159-171.
- Lattes, A., 1975. Differences in the sculpture between adult and juveniles of *Echiniscus quadrispinosus*. Mem. Ist. Ital. Idrobiol., 32 Suppl.: 171-176.

RECEIVED: 10 OCTOBER 1990
ACCEPTED: 26 OCTOBER 1990