

## A New Species of the Genus *Cavernocypris* Hartmann, 1964 (Crustacea, Ostracoda) from Gosu cave in Korea

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### ABSTRACT

*Cavernocypris gosuensis* n. sp. (Cyprididae, Cypridopsinae), a new subterranean ostracod species is described with figures of female valves, mouthparts, appendages and SEM photos from Gosu cave, Danyang-Gun, Chungcheongbuk-Do in Korea. The new stygobiont species is sixth of the genus *Cavernocypris* Hartmann, 1964 that characterized by both valves with a median concave part in ventral view and two groove lines in dorsal view, the reduction of the furca, which is flagellum like in female and the left valve ventrally overlaps the right valve when the carapace is closed and can be distinguished from its congeners by left valve with 6 muscle scars in innerpart, mandible palp with one claw and 3 setae on the terminal segment and without seta on the extero-distal border of segment III. The animals were collected within pH 7.31-8.74, temperature (°C) 13.0-14.6 and dissolved oxygen (mg/l) 6.75-14.84 from Aug. 2003 to Sep. 2004.

**Key words:** Ostracoda, *Cavernocypris gosuensis* n. sp., stygobiont species, Korea.

### INTRODUCTION

The subfamily Cypridopsinae of Cyprididae counts 17 living extant genera to be subdivided into two groups characterized by their ventral valve overlap with worldwide distribution (Karanovic, 1999; Klkylolu *et al.*, 2003). In the first group belonging to eight genera: *Zonocypris* Muller, 1868; *Cypridopsis* Brady, 1867; *Neozonocypridopsis* Klie, 1940; *Neozonocypris* Klie, 1944; *Cavernocypris* Hartmann, 1964; *Austrocypridopsis* McKenzie, 1982; *Tungocypridopsis* Victor, 1983; *Pseudocypridopsis* Karanovic, 1999, the left valve ventrally overlaps the right valve. The characteristic of opposite overlap is showed in the second group, nine genera: *Potamocypris* Brady, 1870; *Bryocypris* Roen, 1956; *Plesiocypridopsis* Rome, 1965; *Kapcypridopsis* McKenzie, 1977; *Sarcypridopsis* McKenzie, 1977; *Tanganyikacypridopsis* Martens, 1985; *Klieopsis* Martens *et al.*, 1991; *Martenscypridopsis* Karanovic & Pesce, 2000; *Thermopsis* Klkylolu *et al.*, 2003.

The non-marine Ostracoda fauna of Korea is poorly known and it has never been investigated

systematically in detail. The first data were given by Mckenzie (1972) when he described three new species: *Candona morimotoi* Mckenzie, 1972, *Cypridopsis coreana coreana* Mckenzie 1972, and *Cypridopsis coreana elongata* Mckenzie, 1972. In the description of the latter two species, he said considerable confusions that the Korean subspecies to be distinguished from only the number of whorls on Zenker organ of male (6-8 in *elongata* and 8-9 in *incoreana*) did not belong to the *Cypridopsis* sensu stricto and cannot them with confidence to any other described *cypridopsine* genera. After these problems, he transferred these two subspecies to genus *Caveroncypris* Hartmann, 1964 (Mckenzie, 1977).

In the present paper, we reevaluate the characteristics of the Korean cave Ostracod species based on a stygobiont new species, *Caveroncypris gosuensis* n.sp., collected from Gosu-cave, Danyang in South-eastern Korea.

## MATERIALS AND METHODS

The specimens examined were collected monthly from 7 August 2003 to 11 September 2004 in Gosu cave at Danyang-gun, Chungcheongbuk-do. Sampling was carried out by sweeping a handnet (12 by 26cm, mesh width 64 $\mu$ m) in approximately 10 min. Specimens were fixed and preserved with 70% ethanol.

Before dissection, the valves was drawn and carapace measurements made from whole specimens temporarily mounted in lactophenol. Specimens were dissected in lactophenol, the parts individually mounted in lactophenol under coverslips subsequently sealed with transparent nail varnish. Preparations were sealed with an Olympus BX51 microscope fitted with a drawing tube was used to study the details at 1000 x using an oil immersion lens, or if necessary, SEM photos were used for the analysis of detailed structures with several appendages.

The designation of the appendages, claws and setae follows the model proposed by Broodbackker & Danielopol (1982), as revised for the antenna by Martens (1987), and extended to be included the second and third thoracopods by Meisch (1996). The Chaetotaxy of the limb were used according to Meisch (2000). Species identification was based on the systematic key of Bronshtein (1947), Victor & Fernando (1979), and Meisch (2000). In addition, the index and bibliography of non-marine Ostracoda of Kempf (1980, 1991, 1997, 2002) was also used. All specimens are lodge in the Department of Life Science, Hanyang University, Seoul, Korea.

Abbreviations used in text and figures (Namiotko *et al.*, 2004): A, anterior; A1, antennule; A2, antenna; CR, caudal ramus; D, distal; d, seta on Pr of L2; d1, d2, dp, setae on Pr of L3; E, endopod; e, seta on EI of L2; EI-EIV, 1st to 4th podomeres of E; Ex, exterior; Exo, exopod; f, seta on EII of L2; g, setae on EIII of L2 and L3; Ga, anterior claw of CR; GM (Gm), major (minor) claw on EIV

of A2; Gp, posterior claw of CR; G1-3, anterior and internal claws (or setae) on EIII of A2; H, height; h1-3, setae (oe claws) on on EIV of L2 and L3; In, interior; L, length; l, large (relative L of setae or claws); L1, first leg (maxilliped, 5th limb); L2, second leg (walking leg, 6th limb); L3, third leg (cleaning leg, 7th limb); LV, left valves; m, medium (relative L of setae or claws); Md, mandible (3rd limb); Mdp, mandibular palp; Mxl, maxillule (1st maxilla, 4th limb); P, posterior; Pr, protopod; RV, right valve; s, small (relative L of setae or claws); sa (sp), anterior (posterior) seta of CR; S1-2, plumed setae on the 1st podomere of Mdp; W, width; Y, aesthetasc on EI of A2; y1-3, aesthetasc on EII, EIII and EIV of A2, respectively; ya, aesthetasc on the terminal podomere of A1; z1-3, external setae (or claws) on EIII of A2;  $\alpha$ ,  $\beta$ ,  $\gamma$ , special setae on the 1st, 2nd, and 3rd podomeres of Mdp, respectively.

## SYSTEMATIC DESCRIPTION

Order Podocopa Sars, 1866

Family Cyprididae Baird, 1845

Subfamily Cypridopsinae Kaufmann, 1900

*Cavernocypris gosuensis* n. sp.

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FIGURES AND LEGENDS

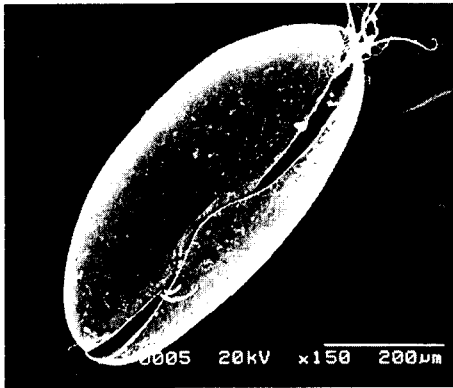


Figure 1. *Cavernocypris gosuensis* n. sp.  
SEM photos of both valves,  
ventral view

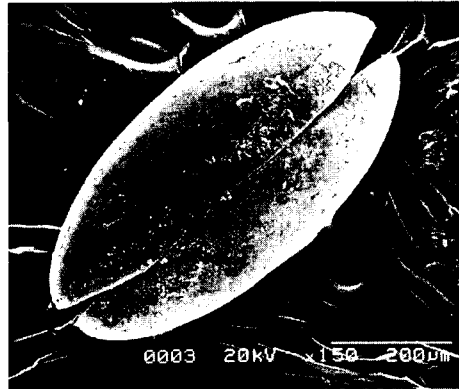


Figure 2. *Cavernocypris gosuensis* sp.  
SEM photos of both valves,  
dorsal view

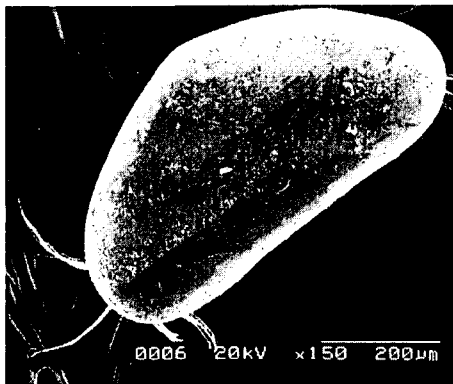


Figure 3. *Cavernocypris gosuensis* sp.  
SEM photos of right valve,  
lateral view

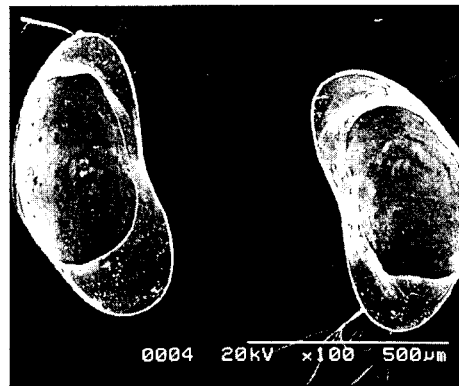


Figure 4. *Cavernocypris gosuensis* n. sp.  
SEM photos of both valves,  
inner view

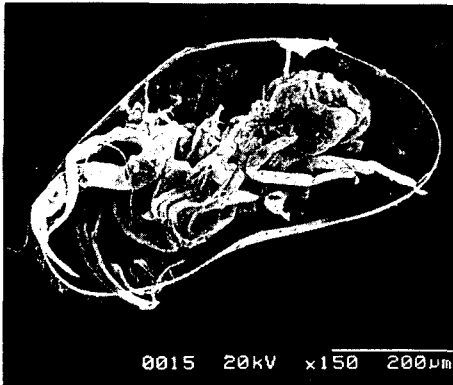


Figure 5. *Cavernocypris gosuensis*.  
sp. SEM photos of  
appendages, inner view



Figure 6. *Cavernocypris gosuensis*.  
sp. SEM photos of  
maxillae, inner view

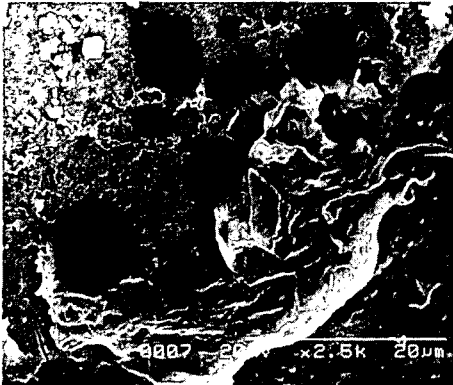


Figure 7. *Cavernocypris gosuensis*.  
sp. SEM photos of LR  
surface, lateral view

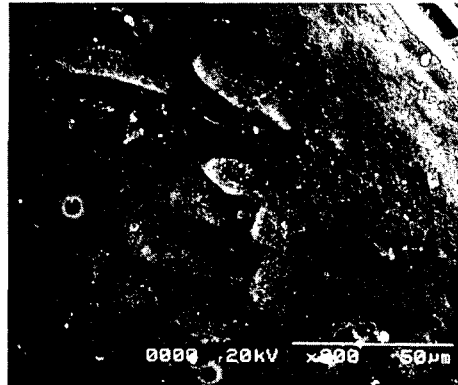


Figure 8. *Cavernocypris gosuensis*.  
sp. SEM photos of Muscle  
scars, inner view