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A New Record of Antedonid Crinoids (Comantulida, Macrophreata, Antedonidae) in Korea

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ABSTRACTS

Taxonomic study for some comatulid crinoids collected by a fishing net from about 170 m deep in front of Jukbyeon, East Sea in Korean water was conducted. A macrophreatan species, *Boleometra clio* (A. H. Clark, 1907) belonging to the subfamily Bathymetrinae and the family Antedonidae, was identified and turned out to be new to the Korean fauna. The family Antedonidae comprised five species in Korea.

Key words: taxonomy, Antedonidae, Crinoidea, Korea

INTRODUCTION

In Korean waters, 15 species of comantulid crinoids had been reported (Clark, 1909; Shin, 2001, 2002; Won and Rho, 2001; Shin and Won, 2002; Won and Shin, 2003; Shin, 2004) belong to six families such as Comasteridae, Zygometridae, Colobometridae, Calometridae, Thalassometridae and Antedonidae. Among them the family Antedonidae having closely and regularly spaced brachial syzygies, hemispherical or conical centrodorsal and fragile cirri belongs to the suborder Macrophreata which is distinguished by a large central cavity in the centrodosal part. The remaining five families belong to the suborder Oligophreata.

This study was carried out on the crinoids specimens collected from about 170 m deep in front of Jukbyeon, East Sea by a fishing net on July 8, 2002. The specimens were preserved in 70%

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methyl alcohol and deposited in the Department of Life Science, Sahmyook University. The materials were identified on the basis of the morphological characteristics. The present species, *Boleometra clio* (A. H. Clark, 1907), belonging to family Antedonidae of suborder Macrophreata in order Comantulida, was revealed to be new to the Korean fauna. The classification of Korean crinoids has not been extensively studied. Since the elucidation of the fauna of Korean crinoids is imminent and important, the redescription of a crinoid species was made despite the fact that only one species was collected. The brief diagnoses of suborder Macrophreata, family Antedonidae, subfamily Bathymetrinae, and genus *Boleometra* were prepared based on the key of each other. Therefore, the family Antedonidae comprised five species and 16 crinoid species of six families have been reported to be distributed in Korea.

SYSTEMATIC ACCOUNTS

Phylum Echinodermata Klein, 1734

Class Crinoidea Müller, 1821

Order Comatulida A. H. Clark, 1908

[1*]**Suborder Macrophreata A. H. Clark, 1911**

Large central cavity in centrodorsal containing chambered structures. Rosette not sunken below dorsal surface of radial pentagon. Brachials from second syzygy onward usally triangular or obliquely wedge-shaped.

Family Antedonidae Norman, 1865

Mostly 5 arms except for one genus with 10. Basals transformed into a rosette. Second post-radial ossicle always axillary. Gonads developed wholly with pinnules.

[2*]**Subfamily Bathymetrinae A. H. Clark, 1909**

Cirrus sockets arranged in alternating transverse rows or closely and irregularly crowded on a conical to hemispherical or even discoidal centrodorsal. Cirri never very long or stout, with rarely more than 45 segments. Distal segments usually bearing dorsal spines. P_1 always stiffened; P_2 shorter than P_1, resembles P_3 and succeeding pinnules and often bears a more or less developed gonad

[3*]**Genus *Boleometra* (A. H. Clark, 1907)**

P_1 about 30 segments. Cirrus segments not more than 30, with distal ones not longer than broad. Brachials and pinnule segments with smooth distal edges. No marsupium on the genital pinnules.

Type species: *Antedon clio* A. H. Clark, 1907

[1*]관중강아목 (신칭), [2*]깊은갯고사리아과 (신칭), [3*]채찍갯고사리속 (신칭)

***Boleometra clio* (A. H. Clark, 1907) (Fig. 1)**

Antedon clio A. H. Clark, 1907a, p. 79.

Heliometra clio: A. H. Clark, 1907b, p. 351.

Cyclometra clio: A. H. Clark, 1918, p. 244.

Boleometra clio: Clark A. H. and A. M. Clark, 1967, p. 666, fig. 38; Utinomi and Kogo, 1968, p. 52; Kogo, 1998, p. 134, fig, 110.

Material Examined. Jukbyeon, 1 individual, 8 Jul. 2002 (S. Shin), 170 m depth, by a fishing net.

Diagnosis. Centrodorsal rounded conical. Cirri fragile, about LII, 25-28, up to 13.0 mm long, fourth to eighth segments much longer than broad. Arms 10 in number. P_1 long, slender; P_2 much shorter; P_5 shortest; $P_1 > P_2 > P_3 > P_4 > P_5 < P_m \leqq P_d$.

Description. Centrodorsal rounded conical, 2.5 mm in diameter, 1.5 mm high. Polar area with minute tubercles. Cirrus sockets crowded, tend to be arranged in vertical columns and so compactly arranged in 4, partly 3 rows.

Cirri fragile, about LII, 25-28, up to 13.0 mm long. Proximal two segments broader than length, following segments increase in length: fourth to eighth segments much longer than broad; the longest just over twice as long as broad; following segments gradually reducing in length and becoming about as long as broad, with dorsal crests; distal segments broader than long, without dorsal spine. Opposing spine prominent, but small. Terminal claw prominent.

Division series closely in lateral contact. Ossicles with greatly rounded tubercles at synarthries. Radials band-like; their distal angles slightly separated; IBr series 2, IBr_1 oblong, 4 times as broad as long as broad, widely separated laterally, standing out at right angles to dorso-ventral axis to meet large proximal angle of rhombic axillaries.

Arms 10 in number, more than 60 mm long (broken), 1.2 mm wide at first syzygy. Brachials of lower arm smooth, without ornamentation; First brachial short and erected to meet proximal angle of succeeding ossicle, with much short interior edges; Second one irregularly quadrate. Syzygial pairs occurring at 3+4, 9+10, 14+15, 18+19, 27+28... or 3+4, 9+10, 16+17, 20+21, 24+25, 28+29..., and at intervals of 3-5, usually 4, muscular articulation in distal arm.

Pinnules fragile, greatly elongated. Pinnule segments four times as long as broad in distal portion, and everted distally, somewhat knobby in appearance. P_1 long, slender, arising at Br_2, about 23, 7.0-8.0 mm; P_2 much shorter, sometimes with gonad, 14-15, 5.0-5.5 mm; P_3 12-15, 4.0-5.0 mm, always with gonads; P_4 9-11, 4.0-4.5 mm; P_5 6-8, 2.5-3.5 mm; P_m 14-15, 6.0-7.5 mm; P_d 19. up to 9.0 mm; $P_1 > P_2 > P_3 > P_4 > P_5 < P_m \leqq P_d$.

Distribution. Korea (East Sea); Japan (southwest of Goto Islands); East China Sea

Remarks. In general the description of this specimen is similar to Kogo's (1998) and Clark and Clark's (1967) ones. Compared with Kogo's specimen the centrodorsal height of our specimen is low. In Kogo's specimen P_2 is almost equal to P_3 whereas in our specimen P_3 is short relative to P_2. According to Clark and Clark's report, the polar area of the centrodorsal is bare but has minute tubercles in our specimen like Kogo's specimen.

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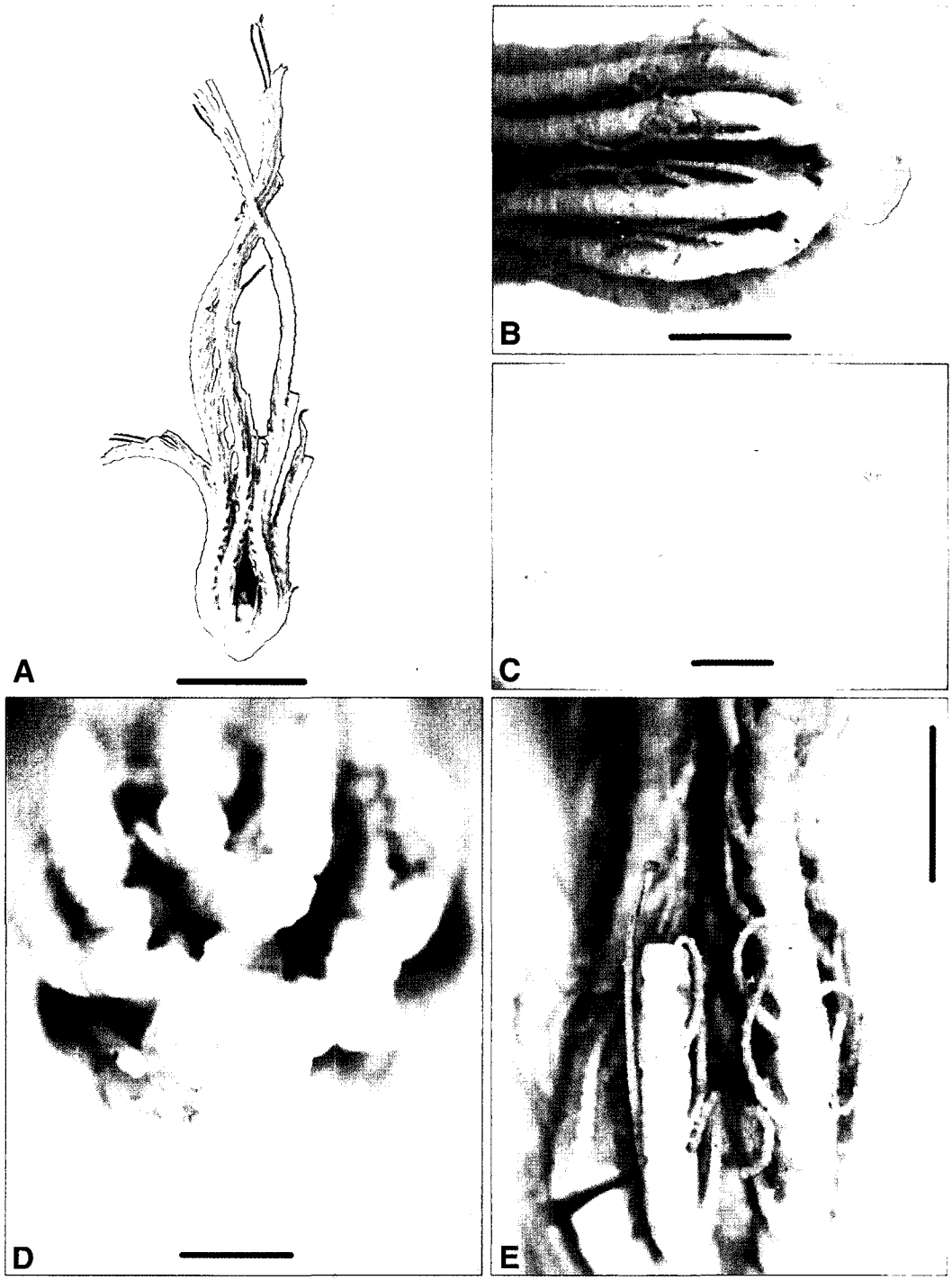

Fig. 1. *Boleometra clio*. A, lateral view of external feature; B, centrodorsal, arm bases and pinnules; C, cirrus; D, centrodorsal and brachials; E, brachials with proximal pinnules. Scale bars = 1 cm (A), 3 mm (B, C), 2 mm (D, E).

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한국미기록 예쁜갯고사리과(바다나리강, 바다나리목, 관중강아목)의 1종

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요 약

동해안의 죽변 근해의 수심 170 m에서 저인망으로 채집된 바다나리류를 동정·분류한 결과 예쁜갯고사리과(Antedonidae)에 속하는 1종의 한국미기록종, 요정채찍갯고사리, *Boleometra clio* (A. H. Clak, 1907)가 밝혀져 재기재하여 보고한다. 이로서 예쁜갯고사리과의 5종을 포함하여 16종의 한국산 바다나리류가 보고된다.