

A Newly Recorded Sea Star (Asteroidea: Valvatida) from Jeju Island, Korea

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ABSTRACT

Some asteroid specimens were collected from the subtidal zone near Gapado, Jeju Island with fishing net on June 2010. Among them, *Anseropoda petaloides* (Goto, 1914) which belongs to the family Asterinidae of the order Valvatida turned out to be a new record from Korea. Morphological characters of this species collected at 130 m deep are redescribed with photographs. This species is characterized by its very thin body composed of plates imbricated into each other like scales. Twenty four asteroids are currently known from Jeju Island, Korea.

Keywords: taxonomy, Valvatida, Asterinidae, *Anseropoda*, Jeju Island, Korea

INTRODUCTION

Sea stars are marine benthos, and the most diverse and familiar group of living echinoderms. They are abundantly distributed in regions of the North Pacific Ocean, and approximately, 1,800 species are known worldwide (Mah, 2009). Sladen (1879) was the first to record asteroids from the Korea Strait. Afterwards, 51 species were reported from South Korea by previous works (Rho and Kim, 1966; Rho and Shin, 1980; Shin, 1992, 1995, 2000, 2007; Lee and Shin, 2009a, b). Twenty three species of Korean species were recorded from Jeju Island, of which 11 being found at the coast of Jeju Island only (Shin and Rho, 1996; Shin, 2000, 2007; Lee and Shin 2009b).

The asteroid specimens used in this work were collected at 130 m deep with fishing net near Gapado, and preserved in about 70% methyl alcohol. *Anseropoda petaloides* (Goto, 1914) belonging to the family Asterinidae, order Valvatida, which is one of the seven major orders composing the class Asteroidea is newly recorded from Korea, and its important morphological features are redescribed and photographed using stereo- and light-microscopes.

SYSTEMATIC ACCOUNTS

Order Valvatida Perrier, 1884
Family Asterinidae Gray, 1840

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¹*Genus *Anseropoda* Nardo, 1834

Type species: *Asterias placenta* Pennant, 1777.

Number of species: 16 worldwide (one in Korea)

²**Anseropoda petaloides* (Goto, 1914) (Fig. 1A-M)

Palmipes petaloides Goto, 1914, p. 659, pl. 19, fig. 284.

Anseropoda petaloides Hayashi, 1973, p. 73; Imaoka et al., 1990, p. 55; A.M. Clark, 1993, p. 206; O'Loughlin and Waters, 2004, p. 7.

Material examined. 1 individual, Gapado, Jeju Island, 28 June 2010 (S. Shin), with fishing net from 130 m in depth.

Description. R=28 mm, r=15.5 mm, R=1.8 r. Body very thin and perfectly flattened except for mouth region and parts of ambulacral grooves. Arms five in number, short, very broad, and interradial part of body very shallow. Central pentagonal area on dorsal side of disk quite distinct, with ten comparatively large papulae along its border. Twenty two papulae arranged in two irregular longitudinal series along raised carinal skeleton of each arm almost reach tip of arm. Each papula surrounded by four to six small plates standing conspicuously up and differing from other dorsal plates. Anus located in center of disk and covered with many spinules. Madrepore with few furrows, almost circular, situated near anus. Skeletal plates shaped like paddles with long or short stalks look like scales, dividing into two kinds depending on size and shape. Large plates with long stalks usually being located either in dorsal pentagon area of disk, or on carinal skeleton of arm and adambulacral part of ventral side. Small plates with comparatively short stalks always located on body margin. Each plate with spinules, which

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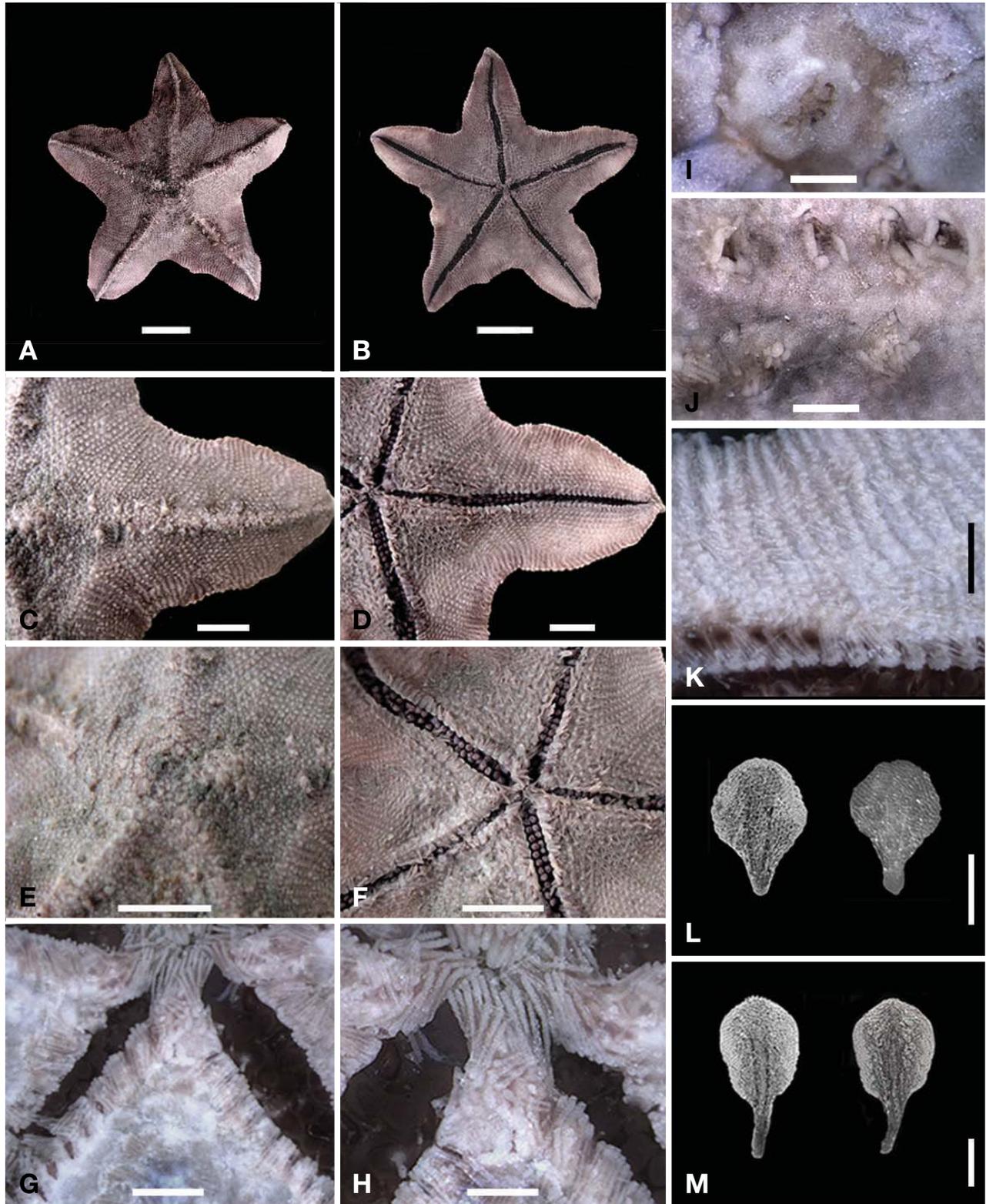


Fig. 1. *Anseropoda petalooides*. A, dorsal side; B, ventral side; C, dorsal side of arm; D, ventral side of arm; E, dorsal side of disk; F, ventral side of disk; G, H, oral, ventrolateral and adambulacral plates; I, madreporite; J, papulae surrounded by standing plates on dorsal side of arm; K, adambulacral spines and ventrolateral plates of arm; L, small plates of body; M, large plates of body. Scale bars=1 cm (A, B), 0.5 cm (C-F), 2 mm (G, K), 1 mm (H-J), 100 μ m (L, M).

vary in number from eight on larger plate to four on smaller one. Dorsal plates around anus and papular areas much smaller than plates inside pentagon area. Plates immediately outside central pentagon not only slightly smaller than those inside pentagon, but also regularly decreasing in size towards body margin. Dorsal plates very regularly arranged in rows parallel to rows of carinal plates and also marked off from each other by distinct grooves. Ventrolateral plates regularly arranged in rows very similar to those of dorsal plates outside central pentagon. Each plate with three to eight spines arranged in a light curve towards center of body. Adambulacral plate with two groups of relatively long and slender spines. On furrow side of plate six long spines being arranged in a row of curved palmate form, of which middle ones being longer than others. On ventral side of plate four to six spines being arranged roughly in a straight line, but sometimes very irregular, and unequal in length. Oral plate relatively large, with two groups of spines. On furrow margin of plate seven to ten spines comparatively longer than furrow spines of adambulacral plates, and on ventral surface of plate a group of ten smaller spines being similar to those of ventrolateral plates. A distinct gap present between these two groups of spines of oral plate.

Distribution. Korea (Jeju Island), Japan (Sagami Bay, Tosa Bay).

Remarks. This species is characterized by its very thin body which is composed of many plates regularly imbricating into each other like scales. Because of this tenuity, the body is easily destroyed. The portion near the anus and the radial portion appear as an opaque ash-coloured white while the remainder of the body is relatively transparent in alcohol. This species is similar to *A. tenuis* (Goto, 1914) which distributes in Japan in terms of the formation of the very thin body, but it is distinguished from the latter by the deep depression of interradial body margin (Fig. 1C, D) and the popular area surrounded by small standing plates (Fig. 1J)

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