

## A New Record of Sea Cucumber (Holothuroidea: Aspirochirotida) from Jeju Island, Korea

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### ABSTRACT

*Holothuria pericax* Selenka, 1867 belonging to the family Holothuriidae in the order Aspirochirotida of the subclass Aspidochirotea is new to Korean fauna. This species was redescribed with figures based on the specimen collected at 16 m deep in north-west Munseom, Seogwipo. A key to the genus was presented. Fifteen species of holothuroids have so far been reported in Jeju Island of Korea.

**Key words:** taxonomy, Holothuroidea, Aspirochirotida, Korea

### INTRODUCTION

Holothuroids are armless, mostly unattached echinoderms, with a tough leathery body wall containing strongly developed circular and longitudinal muscles, lacking an articulated test. They play an important role in marine ecosystem as benthos and are mainly distributed in the neritic ocean and particularly abundant in Indo-West Pacific Ocean and North Pacific Ocean. The order Aspirochirotida is one of the major orders composing class Holothuroidea and includes the largest holothurians and many of the most strikingly colored. All forms that are of the commercial importance belong here. More than 1,100 species have been reported from the all over the world up to the present time. Since the first report by Ostergren (1898) on holothurids, 35 species have so far been reported in South Korea.

Jeju Island is the most abundant area which shows the highest diversity of holothuroids in Korea and the same trend also appears in the Korean echinoid fauna (Shin et al., 2006). Fourteen species, *Sclerodactyla multipes*, *Afro-cucumis africana*, *Amphicyclus japonicus*, *Pentacta doliolum*, *Thyone bicornis*, *T. micra* belonging to subclass Dendrochirotea, *Holothuria monacaria*, *H. pardalis*, *Stichopus japonicus* belonging to subclass Aspidochirotea, *Leptosynapta inhaerens*, *L. ooplax*, *Protankyra bidentata*, *Polycheira rufescens* and *Molpadia changi* belonging to subclass Apodacea, have been reported in Jeju Island. Seven of these 14 species such as *A. africana*, *A. japonicus*, *T. bicorins*, *H. pardalis*, *L. ooplax*, *P. rufescens* and *M. changi* were found only in the area of Jeju Island (Rho

and Shin, 1986; Shin and Rho, 1996; Won and Rho, 1998).

The holothuroid specimens were collected by SCUBA diving at a depth of 16 m in north-western coast of Munseom, Seogwipo and were preserved in about 70% methyl alcohol. Of which *Holothuria pericax* Selenka, 1867 is newly recorded from Korea. The important morphological characters of specimen were photographed using the stereomicroscope and microscope. A key to three species of the genus *Holothuria* from Korea was presented. Therefore 15 species of holothuroids have been recorded in Jeju Island of Korea.

### SYSTEMATIC ACCOUNTS

Phylum Echinodermata Klein, 1734

Class Holothuroidea de Blainville, 1834

Subclass Aspidochirotea Grube, 1840

Order Aspidochirotida Grube, 1840

Family Holothuriidae Ludwig, 1894

Genus *Holothuria* Linné 1791

Type-species: *Holothuria tubulosa* Linné, 1791, p. 3138.

#### Key to the species of genus *Holothuria* in Korea

1. Accessory particles small plates or rods; tables reduced, with simple annular disk ..... *H. pericax*
- Accessory particles perforated plates or buttons; tables well developed ..... 2
2. Papillae on dorsal side; pedicels on ventral side ..... *H. monacaria*
- No papillae; pedicels all over body ..... *H. pardalis*

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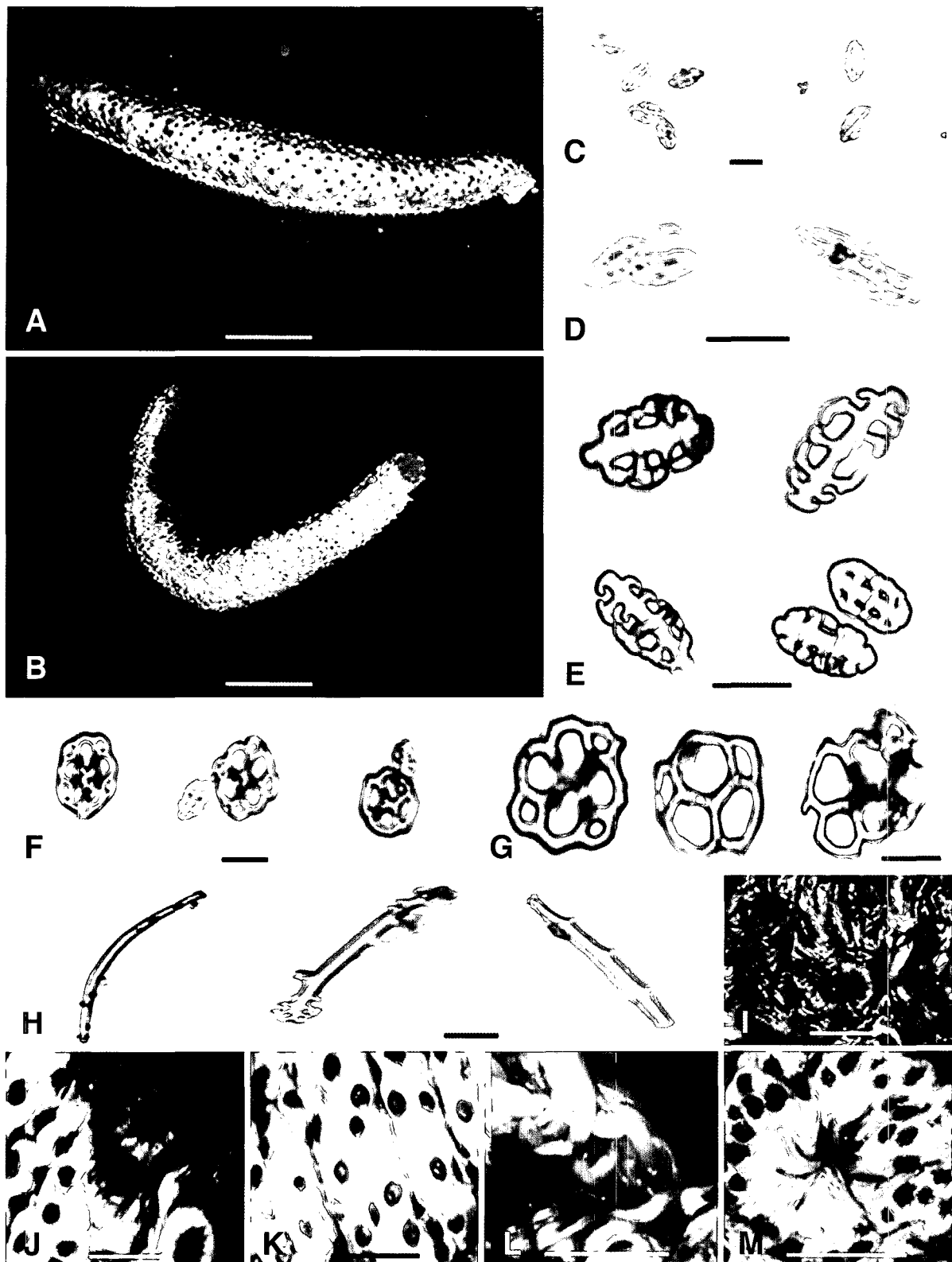
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<sup>1</sup>\**Holothuria pericax* Selenka, 1867 (Fig. 1A-M)

*Holothuria pericax* Selenka, 1867, p. 327; Theel, 1886, p.

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**Fig. 1.** *Holothuria pervicax*. A, body in dorsal view; B, body in ventral view; C-E, different shapes of rods; F, G, tables; H, supporting rods; I, pedicels of ventrum and papillae of dorsum in lateral view; J, pedicels of ventrum; K, everted respiratory tree and papillae of anal portion; L, papillae of oral portion; M, papillae of dorsum. Scale bars=5 cm (A, B), 0.3 mm (C-H), 0.5 mm (I-M).

213; Mitsukuri, 1912, p. 128; Clark, 1921, p. 181; Liao, 1975, p. 215.

*Mertensiothuria pervicax*: Deichmann, 1958, p. 297.

*Holothuria (Mertensiothuria) pervicax*: Rowe, 1969, p. 140.

*Material examined.* One specimen on rocky bottom at 16 m deep, North-western coast of Munseom, Seogwipo, 30 Aug. 2005 (S.J. Suh).

*Diagnosis.* The distinction between the dorsal surface and the ventral surface is so marked in the shape and color. The tables with simple annular disk are not very well developed and its spire is often more or less reduced and short, terminating in about four simple teeth. The small, more or less elongate rods are characterized by being uneven and warted, or deeply incised so as to form a row of loops or holes along each side.

*Description.* Body length 310 mm, body width 45 mm. Tentacles shield-shaped and 20 in number. Distinction between dorsal surface and ventral surface marked (Fig. 1A, B). Whole dorsum occupied by larger and smaller mammae-like elevations having each papilla on top, the largest of which nearly 5 mm in diameter (Fig. 1M). Ventrum crowded with numerous pedicels (Fig. 1J, L).

Calcareous deposits consist of tables and rods. Most tables in rudimentary condition. There stand on a disk, which varies very much in the degree of its development, standing 3 to 5 short teeth representing the rudiments of a spire (Fig. 1F). Its disks small, rounded, smooth or slightly uneven on margin. In some table, spire may be developed as far up as the cross-beams, which may however not unite all the four pillars (Fig. 1G). Rods much more numerous than tables, and irregular, often flattened, with perforations along side (Fig. 1C, D). In certain cases, rods seem to be form of small buttons and there existing sorts of intermediate forms. Buttons represented rods with a complete or incomplete series of holes along one or both sides (Fig. 1E). Supporting rods simply curved with, at least, short teeth-like projections at irregular intervals along the sides (Fig. 1H).

*Color:* Tentacles brownish yellow. Dorsum more or less light brown with darker brown spots marking position of contracted papillae (Fig. 1A). Ventrum ashen-white color except dark brown pedicels (Fig. 1B).

*Remarks.* Although only one specimen was collected, we classify it because of its peculiar calcareous deposits and morphological characteristics. This species has reduced tables and irregular, transformed rods which are very remarkable. And also its body is distinctly divided into the whitish colored ventrum and the brown colored dorsum. A uniformly light brown colored dorsum of our specimen differs from that of some Japanese specimens having sharply

marked longitudinal median band and several darker transverse bands but is same as the remarks made by Mitsukuri (1912).

*Distribution.* Korea (Jejudo Island), Japan (Pacific coasts), Liu-Kiu Is., China (Xisha Is.), Indo-Pacific Ocean (Red Sea and Zanzibar to Hawaii and Tahiti).

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