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Ophiacantha linea, a New Brittlestar Species from Cheju Island, Korea (Echinodermata, Ophiuroidea)

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韓國産 거미불가사리류, *Ophiacantha*屬의 1新種

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摘　　要

1971년과 1978년에 濟州島의 西歸浦 앞, 水深 50—60m인 곳에서 採集된 거미불가사리류를 同定한 결과, 페사미 目, 침거미불가사리 科에 속하는 1新種으로 確認되어 *Ophiacantha linea,* 선침거미불가사리로 命名하며 記載한다. 本種은 腹腕板과 側腕板의 腹面에 줄무늬가 있는 것이 독특한 특징이다.

Key words: Systematics, Ophiacantha, Ophiuroidea, Cheju I., Korea

INTRODUCTION

On the Korean Ophiuroids, Duncan (1879) first reported 16 species from Korean Sea. But he described the precise collection site for only one species, *Ophiacantha dallasii,* as Lat. 38°19′ N., Long. 129°7′ E. (near Sokch'o, Korea). And then Clark (1911) recognized 31 species in the classification of genus *Ophiacantha.* Of them *Ophiacantha bidentata, O. pentagona* and *O. omoplata* were recorded as occurring also in east coast of Korea and Korea Strait. Since their study, no more descriptions on *Ophiacantha* species from Korea have been made.

Thus we performed the classification of *Ophiacantha* species as a series of systematic and distributional studies of Ophiuroidea in Korea. Among the identified species one species collected from Sŏgwip'o is turned out to be a new species, and hereby described along with the plates.

SYSTEMATIC ACCOUNT

Order Myophiurida Matsumoto, 1912 폐사미 목
Suborder Laemophiurida Matsumoto, 1915 후사미 아목
Family Ophiacanthidae (Perrier, 1891) 침거미불가사리 과
Genus *Ophiacantha* Müller et Troschel, 1842 침거미불가사리 속

Ophiacantha linea, n. sp. 선침거미불가사리 (Pl. 1, figs. 1-6; Pl, 2. figs. 1-6)

Etymology: The specific epithet is derived from the Latin word *linea,* "line" refering to the striation on both the ventral arm plates and the ventral part of lateral arm plates.

Material examined: Holotype (Coll. No. Oph. 1-1) and six paratypes (Oph. 1-2) collected 7 February 1971, 50 meters in depth, Sŏgwip'o by B. J. Rho; one paratype (Oph. 1-3) collected 24 December 1971, 60 meters in depth, Sŏgwip'o by B. J. Rho; six paratypes (Oph. 1-4) collected 30 November 1978, 60 meters in depth, Sŏgwip'o by B.J. Rho. All type specimens were collected with fish nets, off Sŏgwip'o, Cheju I. (Lat. 33°14′N., Long. 126°34′E.). The holotype and paratypes are deposited in the Department of Biology, College of Natural Sciences, Ewha Womans University.

Measurements: The sizes of holotype are 5.2 mm in disc diameter and 16.2 mm in length of the longest arm. The sizes of paratypes are 3.8 to 6.8 mm in disc diameter and 13.2 to 22.5 mm in length of the longest arm.

Description of holotype: Disc is pentagonal and covered by numerous hyaline stumps with crown termination of three or four forks (Pl. 1, figs. 1, 3). Radial shields are also concealed as the disc is, but in dry specimens their forms and positions are distinctly characterized by long, narrow and well separated ridges (Pl. 1, fig. 4). Both the interbrachial area and the first dorsal arm plate are covered with spinous stumps like disc armature (Pl. 1, fig. 4, Pl. 2, fig. 3). Genital slits are long and nearly reaching to the disc margin (Pl. 1, fig. 2). Oral sheild is rhombic shaped with convex outer margin and its width is about twice as long as its length (Pl. 2, fig. 1). Adoral plate is large, concave in adradial side and its width is about twice as long as its length. Two adoral plates are distinctly separated. Oral papillae are long, bluntly pointed and their numbers are three on a side. The distal oral papillae are larger, wider and more serrated than others (Pl. 2, fig. 2). Dorsal arm plates are small, more or less triangular shaped with very convex outer margin and separated each other. Lateral arm plates are large and meeting above and below (Pl. 1, figs. 5,6). Ventral arm plates are roughly rhomboidal, very convex in outer margin and nearly contact with each other. Their surfaces are distinctly striated. Also the ventral surface of lateral arm plates are clearly striated at the contact point of both plates (Pl. 2, figs. 4,5,6). Arm spines are nine to eleven in number at the base of arm and the longest one is about three times as long as the length of arm joint. But at the distal part of arm there are five or six arm spines and the longest one is about two times as long as the length of arm joint. Of the arm spines at each arm joint, two or four on the dorsal side are characteristically smooth but three to seven on the ventral side are looking very rough (Pl. 1, fig. 6, Pl. 2, fig. 5). Tentacle scale is single, large and has round but serrated end (Pl. 2, fig. 6). Color (dried from alcohol) is light brown, especially dark brown at the center of disc and dark brown bands are appeared at every four or five arm joints (Pl. 1, fig. 1, 2).

Table 1. Comparison of *Ophiacantha linea*,n. sp. and other related *Ophiacantha* species in Korea and Japan.

Species	Number of oral papillae	Disc armature	Oral papillae	Adoral plate	Arm spine	Number of arm spines near disc	Tentacle scale	Distribution
O. rhachophora	4-5	hyaline, serrated stump	same, serrated	distal part enlarge	upper smooth lower serrate		6 small, pointed, serrated	North Pacific; Sea of Japan, Pacific coast of Japan
O. pentagona	3	hyaline, serrated stump	distal one slightly larger than others	moderate	smooth	5-6	small, pointed	Indo-West Pacific; Korea (Korea Strait)
O. adiaphora	3	hyaline, serrated stump	same	moderate	smooth	6-7	moderate	North Pacific; Sea of Japan, Pacific coast of Japan
O. linea n. sp.	3	hyaline stump with three or four forks	distal one large, serrated	more or less wide	upper smooth lower serrate	9-11	large, round, serrated	Korea (Cheju I.)
O. omoplata	3	hyaline, serrated spine	distal one large, wide	wide	smooth	7	large, round	Korea (Sea of Japan)
O. vorax	3	serrated stump with five or six forks	same	slender	smooth	8	large, round	India, Philippines, Pacific coast of Japan
O. bidentata	3	granule	same	slender	smooth	7-8	large, round	Circumboreal; Korea (Sea of Japan)

Remarks: Speices which are belonging to *Ophiacantha* distributed in Korea and Japan and have one tentacle scale, three oral papillae and closely bearing disc armature are as follows: *O. gracilis* Studer, 1882; *O. pentagona* Koehler, 1897; *O. levispina* Lyman, 1878; *O. adiaphora* Clark, 1911; *O. diploa* Clark, 1911; *O. omoplata* Clark, 1911; *O. bidentata* Retzius, 1805; *O. acanthinotata* Clark, 1911; *O. vorax* Koehler, 1897 and *O. lochobrachia* Clark, 1911. Of these six species allied to *O. linea*, n. sp. are compared in each distinguishing characteristics and represented inTable 1. Except *O. bidentata* having granule disc armature, *O. pentagona, O. adiaphora, O. omoplata, O. vorax* and *O. rhachophora* have the serrated stumps in disc armature and so they are similar to *O. linea*, n. sp. The present new species is the intermediate position between *O. adiaphora* (See Clark, 1915; Matsumoto, 1917) and *O. omoplata* (See Matsumoto, 1917; D'yakonov, 1954; Downey, 1969) particularly in the distal oral papillae, adoral plate and tentacle scale but it can be clearly distinguishable from these two species in the characteristics of the unique shape and number of arm spines. The new species also is very

similar to *O. rhachophora* (Matsumoto, 1917; Murakami, 1963) in the disc armature and the shape of arm spines but obviously differs from that species which have four or five oral papillae, six arm spines and long distance between ventral arm plates.

The present new species is easily differentiated from all congeners of *Ophiacantha* in having the striations on both the ventral arm plates and the ventral part of lateral arm plates. This important characteristics are sufficient to distinguish it from other known species of *Ophiacantha* and to identify as another species.

ABSTRACT

A new brittlestar, *Ophiacantha linea,* n. sp., belonging to Ophiacanthidae, Myophiurida from Cheju I., Korea are described and illustrated. The new species is a small (up to 6.8 mm in disc diameter), spinous species collected with fish nets in 50 to 60m depth, off Sŏgwip'o, Cheju I. This new species differs from other *Ophiacantha* species in having the striations on both ventral arm plates and ventral parts of lateral arm plates.

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EXPLANATION OF PLATES

Plate 1

Figs. 1-6. *Ophiacantha linea*, n. sp.

1. Dorsal view, scale size 1 mm.
2. Ventral view, scale size 1 mm.
3. Disc with serrated stumps, scale size 0.1 mm.
4. Disc showing two radial shields and first dorsal plate, scale size 1 mm (SEM, X30).
5. Dorsal arm plates, dorsal part of lateral arm plates and smooth dorsal arm spines, scale size 0.1 mm (SEM, X60).
6. Dorsal arm plates, dorsal part of lateral arm plates and arm spines, scale size 1 mm (SEM, X30).

Plate 2

Figs. 1-6. *Ophiacantha linea*, n. sp.

1. A part of oral structure, scale size 0.1 mm (SEM, X48).
2. Oral structure, scale size 1 mm (SEM, X30).
3. Interbrachial area with serrated stumps and serrated, ventral arm spines, scale size 0.1 mm (SEM, X60).
4, 5. Ventral arm plates and ventral part of lateral arm plates showing the distinct striations, large tentacle scales and arm spines, scale size 1 mm (SEM, X30).
6. Ventral arm plates and ventral part of lateral arm plates showing the characteristic striations and round tentacle scales with serrated end, scale size 1 mm (SEM, X60).

PLATE 1

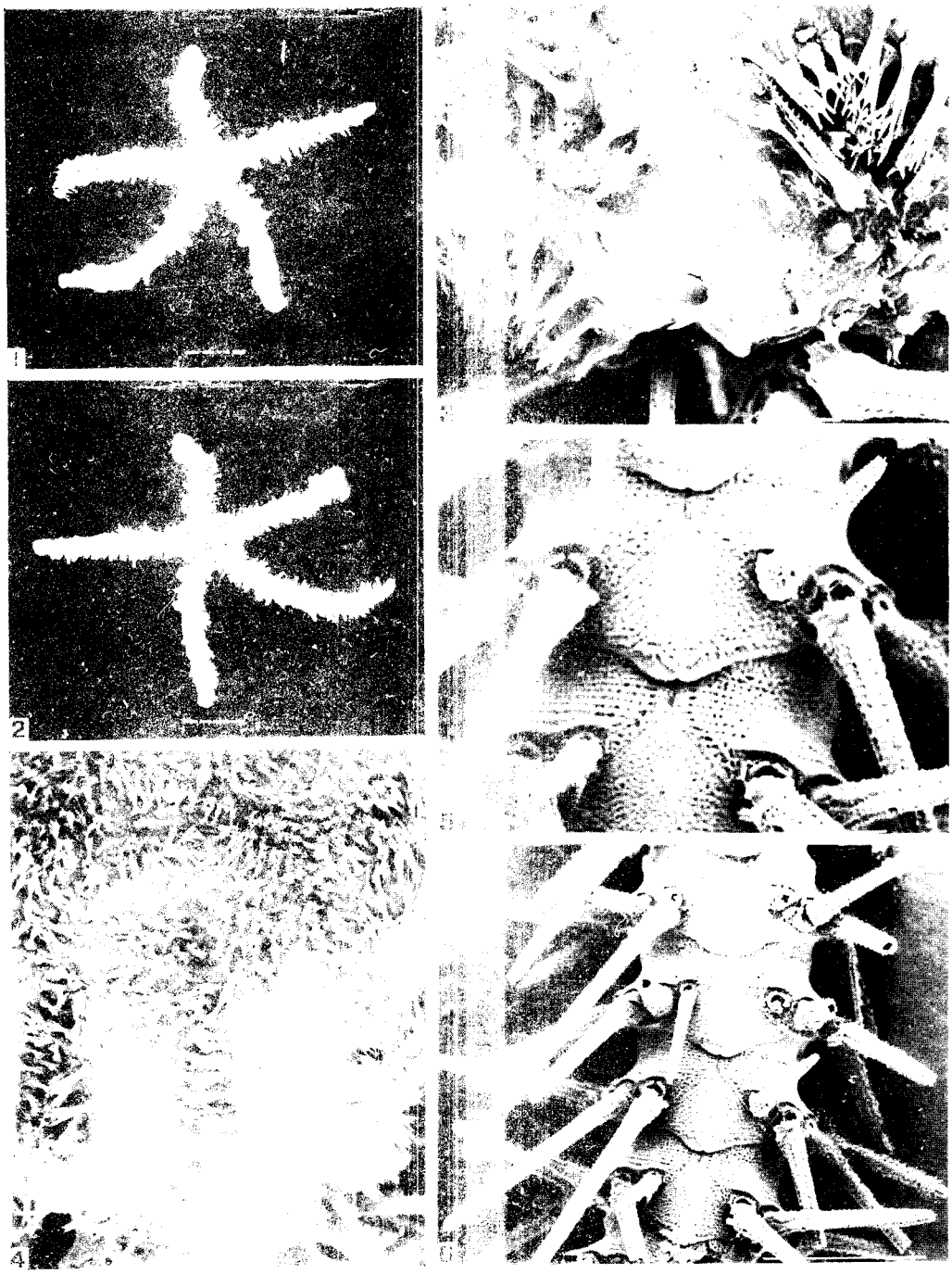

PLATE 2