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A NEW SPECIES IN THE OPHIOCOMID GENUS *OPHIOCOMA* (ECHINODERMATA: OPHIUROIDEA) FROM THE WEST COAST OF THAILAND, ANDAMAN SEA.

by

Somchai Bussarawit and Francis W.E. Rowe

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By SOMCHAI BUSSARAWIT

Phuket Marine Biological Center, Phuket P.O. Box 60. Phuket 83000, THAILAND.

and

FRANCIS W.E. ROWE

Australian Museum, Sydney, AUSTRALIA.

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ABSTRACT

Two specimens of the ophiocomid from off Similan Islands in the Andaman Sea, Indian ocean, were described as *Ophiocoma similanensis* new species. It stands apart from all other species in the genus by virtue of its general lack of disc granulation and colour pattern. Ecological notes, description and figures are present.

I. INTRODUCTION

A number of previous taxonomic studies of echinoderms were carried out in the Gulf of Thailand and Andaman Sea (Mortensen, 1904; Klinasak, 1965; Sriyakorn, 1970; Satayamas, 1982; Wainiya, 1984). Class Ophiuroidea was also studied and reported by some authors. In the Gulf of Thailand only one species *Ophiocoma lineolata* Muller & Troschel of family Ophiocomidae was reported by Klinasak (1965) and only one species *Ophiocoma brevipes* Peters was reported by Sriyakorn (1970) from Andaman Sea. Three known species of the genus *Ophiocoma* were found from the west coast of Thailand (Bussarawit, in preparation), they are *Ophiocoma erinaceus* Muller & Troschel, *O. pica* Muller & Troschel and *O. scolopendrina* (Lamarck). A new species of this genus was also found in this area and this paper describes that new species.

II. MATERIALS AND METHODS

The specimens were obtained from the collections of coral cryptic fauna along the west coast of Thailand (Hylleberg et al, in manuscript). They used SCUBA for sampling corals and broke them with chisel and hammer on board. The specimens were preserved in 10% buffer formalin and transfered to 70% alcohol at laboratory. The description is comparatively based on Devaney (1970). Holotype and paratype are deposited in the Reference Collection of Phuket Marine Biological Center (PMBC), Phuket 83000, Thailand (Boonprakob & Hylleberg, 1983).

III. RESULTS

Family OPHIOCOMIDAE Ljungman

Ophiocoma similanensis n. sp.

(Fig. 1, 2)

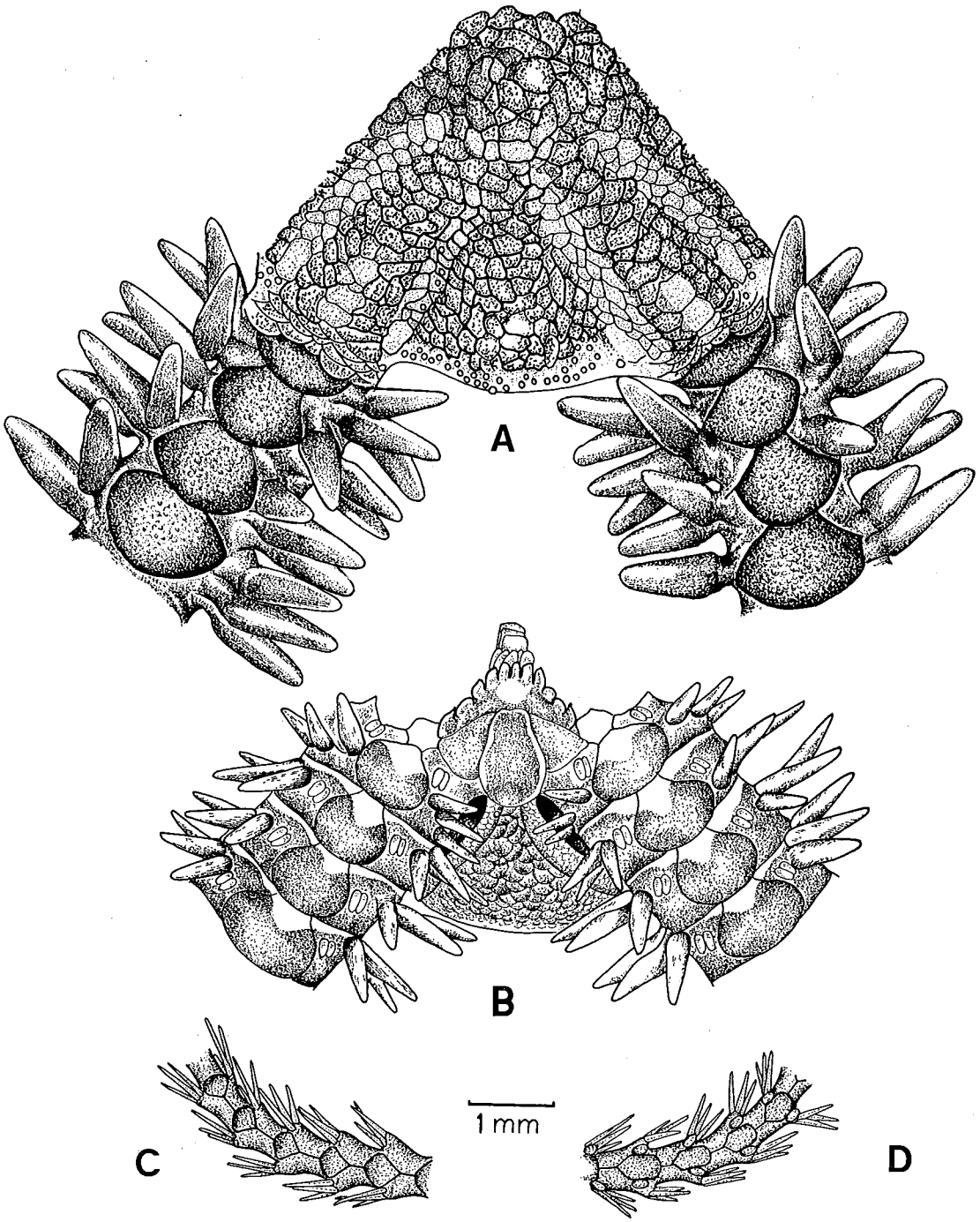

Fig. 1. *Ophiocoma similanensis* new species. A. Disc, aboral view. B. Disc, oral view. C. Arm tip, aboral view. D. Arm tip, oral view.

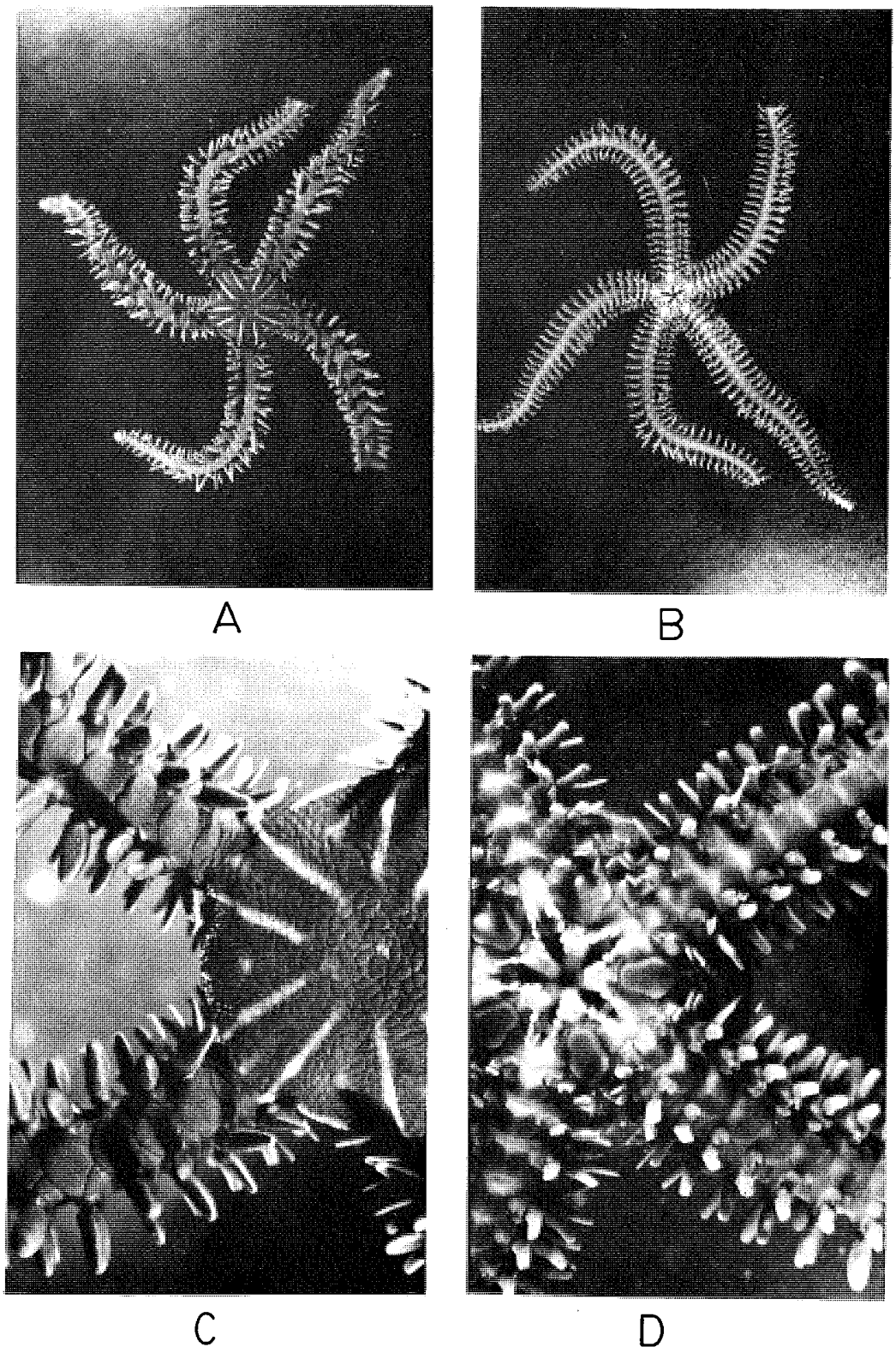

Fig. 2. *Ophiocoma similanensis* new species. A, B. Whole animal from aboral and oral view. C, D. Detail of disc and arm base from aboral and oral view.

HOLOTYPE: PMBC No. 3861, Ko Ban Gu, Similan Islands, associated with *Pocillopora* at 18.5 m, collected by Mr. Anuwat Nateewathana and Dr. Jorgen Hylleberg, Date 16.2.81; PARATYPE: PMBC No. 3862, Ko Similan, Similan Islands, on *Montipora* and dead coral at 5 m, collected by Mr.Anuwat Nateewathana and Dr.Jorgen Hylleberg, Date 15.2.81. The type specimens are deposited in the Reference Collection of Phuket Marine Biological Center, Thailand.

DESCRIPTION: The holotype has a disc diameter of 7 mm and arm length of 23 mm. The disc is circular in outline and slightly convex. The disc is covered by scales of irregular size and shape dorsally and ventrally. The primary scales are not distinct dorsally. An irregular, single and double row of small granules occurs at the margin of the disc between adjacent arms, and some 12 granules occur scattered on the disc. Otherwise no granules occur dorsally or ventrally on the disc. The radial shields are therefore exposed, are somewhat tear-shaped and twice as long as broad. The shields of each pair are well separated by disc scales. The genital slits extend, ventrally from the distal edge of the oral shield to near the margin of the disc. The oral shields are pear shaped. The adoral shields are triangular in shape and are separated either side of the oral shield. The oral plates appear triangular from above and slightly curved. There are 4 oral papillae on each side of the jaw with the penultimate papilla largest and scale-like. The dental plate bears 3-4 hyaline-tipped teeth and 7-8 dental papillae, the lowermost 3-4 papillae forming a small cluster at the apex of the jaw angle.

The arms are of moderate length, up to 23 mm, tapering gradually to the tip. The dorsal arm plates are fan-shaped, narrowly contiguous along the arm, except near the tip where they are separated from each other. The first ventral arm plate is small, squarish, the following plates larger, broader than long for about three quarters of the length of the arm, thereafter longer than broad to the arm tip. The distal margin of the plates is wider than the proximal margin and is convex. The plates are contiguous along the length of the arms.

There are 3 flattened arm spines on the first 3 lateral arm plates under the disc. The first 4 plates beyond the disc carry 4 arm spines, thereafter the arm spines alternate 3 and 4 either side of the same segment and along the arms to segment 16, beyond which there are 3 spines per segment. The uppermost two spines of 4 and uppermost spine of 3 are conspicuously thickened and cigar-shaped. There are two flat, blunt tentacle scales to each tentacle pore along the arm except near the tip where only one scale is present over each pore.

The colour pattern is distinctive. The disc and arms are chocolate brown above and below. However, the dorsal side of the disc is marked with 5 pairs of cream lines radiating from near the center of the disc and passing through the radial shield to the disc margin at the base of the arms. A small, light spot is located at the disc center and a larger spot in each of the interradii. A short, pale line occurs medially between each of the pairs of radial shields. The marginal row of scales, between adjacent arms, is cream. The first ventral arm plate is cream as is the proximal edge of the next 5-6 ventral arm plates and the oral and dental papillae. The periphery of the oral shield is pale. The arm spines are chocolate brown with edges of the spines paler along their length.

The paratype is smaller than the holotype and in poor condition. The disc diameter is 4.3 mm. One arm measures about 9 mm in length, the distal 4 mm being regenerated. Only the first 5 segments of the second arm are present. There are no disc granules at all. However, the colour pattern and other features are typical.

IV. DISCUSSION

The arrangement of the oral and dental papillae clearly place this species in the family Ophiocomidae. However, the paucity of the disc granulation makes placement of the species within a genus more difficult. Two genera lack dorsal

armament; *Ophiopsila*, which has a scaled disc and *Ophiarthrum*, with a skin covered disc, and in which very fine scales can be seen in dried specimens. The form of the tentacle scales and presence of albeit few granules excludes the new species from *Ophiopsila*, and the disc covering alone from *Ophiarthrum*. In *Ophiomastix* the disc armament comprises spines, which may or may not be in combination with granules, and the arm spines are slender often with the largest spines cloven or bifid at their tips. Despite the general lack of disc granulation however, the presence of granules at the margin of the disc and the form and arrangement of the arm spines convinces us that the new species should be referred to *Ophiocoma* rather than *Ophiomastix*

This species falls into the *scolopendrina* species group as described by Devaney (1970), since the arm spines alternate 3 and 4 on each side of the same arm segment as well as on adjacent segments beyond the disc.

The new species stands apart from all other species in the genus by virtue of its general lack of disc granulation and colour pattern, though within the species group it would appear closest to *Ophiocoma erinaceus*. We are convinced that the lack of granules on the disc is natural and does not represent loss through collection or handling, since the disc scales do not indicate any depressions or other sculpturing indicative of granule loss. The absence of granules may not be particularly significant from the generic point of view since similar instances of such variations in disc armament can be cited in other genera e.g. *Ophiomastix flaccida* and *Ophiomastix venosa* (Clark & Rowe, 1971; Devaney, 1978); *Ophiarachnella paucigranula* (Clark, 1938)

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REFERENCES

BOONPRAKOB, U. & HYLLEBERG, J., 1983. The inauguration of the Reference Collection building at the Phuket Marine Biological Center. *Phuket Mar. Biol. Center Special Publication*, **1** : 1-50.

BUSSARAWIT, S., in preparation. Taxonomic study of echinoderms (other than Holothuroidea) from Phuket Island and along the west coast of Thailand. *Phuket Mar. Biol. Center Res. Bull.*

CLARK, A.M. & ROWE, F.W.E., 1971. *Monograph of Shallow-Water Indo-West Pacific Echinoderms.* London. 238 pp.

CLARK, H.L., 1938. Echinoderms from Australia. *Mem. Mus. comp. Zool. Harv.* **55** : 351-352.

DEVANEY, D.M., 1970. Studies on ophiocomid brittle stars. I. A new genus *(Clarkcoma)* of Ophiocominae with a re-evaluation of the genus *Ophiocoma*. *Smithson. Contrib. Zool.* **51** : 1-41.

DEVANEY, D.M., 1978. A review of the genus *Ophiomastix* (Ophiuroidea : Ophiocomidae). *Micronesica* **14** (2) : 273-359.

HYLLEBERG, J., NATEEWATHANA, A., NIELSEN, C., BUSSARAWIT, S. & CHATANANTHAWEJ, B.,in manuscript. Coral cryptic fauna from the west coast of Thailand with emphasis on Bivalves and Sipunculans. *Phuket Mar. Biol. Center Res. Bull.*

KLINASAK, L., 1965. Some echinoderms collected in the Gulf of Thailand. Senior project, Chulalongkorn University, 68 pp. (in Thai)

MORTENSEN, Th., 1904. *The Danish Expedition to Siam, 1899-1900. II. Echinoidea.* Kobenhavn: Bianaco Lunos Bogtrykkeri, 124 pp.

SATAYAMAS, K., 1982. Study on echinoderms in Songkla province. Senior project, Prince of Songkla University, 34 pp. (in Thai)

SRIYAKORN, S., 1970. A taxonomic study on the echinoderms collected during the Fifth Thai-Danish Expedition along the west coast of peninsular Thailand. M.Sc. Thesis, Chulalongkorn University, 144 pp. (in Thai)

WAINIYA, W., 1984. Study on Asteroidea from Pattaya Bay and Chang Island. *Mar. Fish. Lab. Tech. paper*, 2 : 1-16. (in Thai)

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