

# Preliminary List of Shallow-water Ophiuroids (Echinodermata) Collected from the Tioman Islands in the South China Sea, Malaysia

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**Abstract.** Ophiuroids were collected from intertidal and subtidal zone by skin and scuba diving in the Tioman Islands and its adjacent waters in Malaysia from 1998 to 2005. A total of 25 species (14 genera, 7 families) were found in these surveys. *Ophiothrix (Placophiothrix) spongicola*, *Ophioclastus hataii*, *Ophiolepis irregularis* are new to the South China Sea.

**Key words:** Ophiuroidea, echinoderms, taxonomy, coral reef.

## Introduction

The Tioman Islands are located in the South China Sea, off Mersing in the Peninsular Malaysia. The islands were designated as Fisheries Protected Area since 1985 and announced as Marine Park in 1994, and the coral reef and its associated flora and fauna have been protected. A Japan-Malaysian cooperative research project on the coral reef biodiversity began in 1998 at the islands to investigate the marine fauna as the basic information for the conservation of coral reef communities funded by the Japan Society for the Promotion of Science (see Kikuchi *et al.*, 2000; Fujita *et al.*, 2000, 2001; Iwasaki *et al.*, 2001, 2004; Zulfigar *et al.*, 2001). In this research project, echinoderms (Phylum Echinodermata) were one of the principally targeted taxa due to their ecological importance in coral reef communities, and they can have large effects on coral-reef community structure and function (see Birkeland, 1989). Under this JSPS project, ophiuroid specimens were collected from the Tioman Islands (Pahang, Malaysia) and its adjacent Johor Islands (Johor, Malaysia) from 1999 to 2004. In

2005, another survey was made for taxonomical work on ophiuroids in the project conducted by the National Museum of Nature and Science, Tokyo, “Natural History Researches of the Island Arcs in the Western Pacific”. In this paper, we show the preliminary results of taxonomical determination of the ophiuroid specimens collected in these project studies.

## Materials and Methods

Ophiuroids were collected by hand picking directly in the intertidal zone and using skin and scuba diving in the Tioman Islands and the Johor Islands from 1999 to 2005 (Table 1, Fig. 1). An additional specimen collected on the coast of Peninsular Malaysia was also included. The specimens were mostly anesthetized with isotonic magnesium chloride solution and fixed by 10% buffered seawater formalin or 99% ethanol. Later they were transferred to more than 75% ethanol for preservation. The specimens are deposited in the National Museum of Nature and Science, Tokyo, formerly the National Science Museum, Tokyo (NSMT).

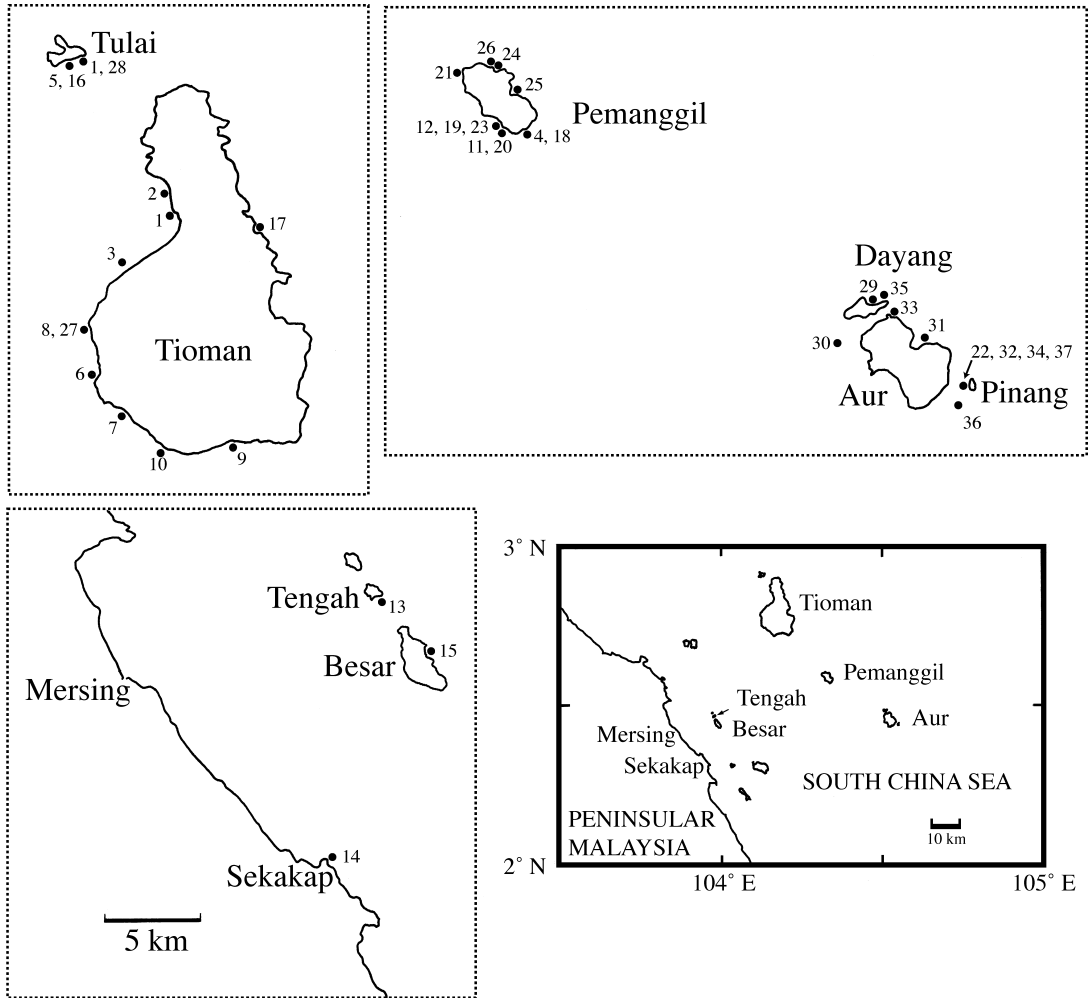


Fig. 1. Map showing sampling localities. Solid circles and numbers close to them denote sampling stations and its station numbers. See Table 1 for locality names and sampling dates.

### List of the Species

A total of over 800 ophiuroid specimens were examined and most of them belong to a species *Ophiothela danae* collected from cnidarian colonies. The specimens were determined tentatively to be 25 species of 14 genera of 7 families. This is the first inventory work of shallow-water ophiuroids around the Tioman Islands though our collection is not enough large to show the complete list of the species. Lane *et al.* (2000) summarized the echinoderm fauna of the South

China Sea mainly based on literatures, and reported 272 ophiuroid species from shallow and deep waters in the South China Sea. *Ophiothrix* (*Placophiothrix*) *spongicola*, *Ophioclastus hataii*, *Ophiolepis irregularis* are reported newly from the South China Sea.

Photographs and short comments on identification and distribution are given for each species. Sampling locality indicated by serial station number and water depth is shown, if recorded, for each specimen.

Table 1. Sampling stations. See Fig. 1 for their locality.

Station number	Locality	Date	Method
1	Jetty in Marine Park, Pulau Tioman	1999.8.3	Skin diving
2	ABC Beach, Pulau Tioman	1999.8.3	Skin diving
3	Pulau Rengis, Pulau Tioman	1999.8.3	Scuba diving
4	Batu Timbul, Pulau Pemanggil	1999.8.3	Scuba diving
5	Batu Malang, Pulau Tulai	1999.8.4	Scuba diving
6	Tanjung Galabir, Pulau Tioman	1999.8.5	Scuba diving
7	Nipah Rock, Pulau Tioman	1999.8.5	Scuba diving
8	Pulau Tomok, Pulau Tioman	1999.8.5	Scuba diving
9	Telok Mukut, Pulau Tioman	1999.11.25	Scuba diving
10	Tanjung Jungka, Pulau Tioman	1999.11.25	Scuba diving
11	Asam Jawa, Pulau Pemanggil	1999.11.26	Scuba diving
12	Telok Pa' Kaleh, Pulau Pemanggil	1999.11.26	Scuba diving (in night)
13	Pulau Tengah, Pulau Besar	1999.11.27	Scuba diving
14	Sekakap	1999.11.28	Direct hand picking
15	Telok Rapang, Pulau Besar	2000.8.3	Scuba diving
16	Batu Malang, Pulau Tulai	2000.8.5	Scuba diving
17	Telok Saing, Pulau Tioman	2000.8.6	Scuba diving
18	Telok Lanting, Pulau Pemanggil	2000.8.6	Scuba diving
19	Telok Pa' Kaleh, Pulau Pemanggil	2000.8.7	Direct hand picking
20	Asam Jawa, Pulau Pemanggil	2000.8.7	Scuba diving
21	Between Tanjung Batu Selat and Telok Pontianak, Pulau Pemanggil	2000.8.7	Scuba diving
22	Pulau Pinang, Pulau Aur	2000.8.8	Scuba diving
23	Telok Pa' Kaleh, Pulau Pemanggil	2000.8.9	Direct hand picking
24	Telok Lanchang, Pulau Pemanggil	2000.8.9	Scuba diving
25	Telok Kador, Pulau Pemanggil	2000.8.9	Scuba diving
26	Tanjung Lanchang, Pulau Pemanggil	2000.8.10	Scuba diving
27	Pulau Tomok, Pulau Tioman	2004.3.26	Scuba diving
28	Telok Genting, Pulau Tulai	2004.3.27	Scuba diving
29	Telok Jawa, Pulau Dayang	2005.9.7	Scuba diving
30	Pulau Lang, Pulau Aur	2005.9.7	Scuba diving
31	Pasir Teluran, Pulau Aur	2005.9.8	Scuba diving
32	Pulau Pinang, Pulau Aur	2005.9.9	Scuba diving
33	Telok Kador, Pulau Aur	2005.9.9	Scuba diving
34	Pulau Pinang, Pulau Aur	2005.9.10	Scuba diving
35	Rayner's Rock, Pulau Dayang	2005.9.11	Scuba diving
36	Pinnacles 1, Pulau Pinang	2005.9.12	Scuba diving
37	Pulau Pinang, Pulau Aur	2005.9.12	Scuba diving

## Family Ophiomyxidae

*Ophiomyxa australis* Lütken, 1869 (Fig. 3: A, B)  
Specimen examined. St. 5, 3–11 m (NSMT E-5493, 1 specimen).

Remarks. Genus *Ophiomyxa* has a row of marginal disc scales under thick skin in the inter-radial part. *Ophiomyxa australis* is widely distributed in the Indo-West Pacific Region including temperate waters of Japan (Clark & Rowe, 1971; Irimura, 1982).

## Family Ophiotrichidae

*Macrophiothrix demessa* (Lyman, 1861) (Fig. 3: C, D)

Specimen examined. St. 33, 11.0 m (NSMT E-5494, 1 specimen).

Remarks. The dorsal arm plates of *Macrophiothrix demessa* have small stumps. This species is distributed in the Indo-West Pacific Region (Clark & Rowe, 1971; Hoggett, 1991).

*Macrophiothrix longipeda* (Lamarck, 1816) (Fig. 3: E, F)

Specimens examined. St. 7, 2–8 m (NSMT E-5495, 1 specimen); St. 13, 1.6 m (NSMT E-5496, 1 specimen); St. 16 (NSMT E-5497, 1 specimen); St. 26, 11.2 m (NSMT E-5498, 1 specimen), 10.8 m (NSMT E-5499, 1 specimen); St. 37, 12.6 m (NSMT E-5500, 1 specimen).

Remarks. *Macrophiothrix longipeda* is one of the most common *Macrophiothrix* species widely distributed in tropical Indo-West Pacific Region (Clark & Rowe, 1971; Hoggett, 1991).

***Macrophiothrix variabilis*** (Duncan, 1887) (Fig. 3: G)

Specimen examined. St. 13, 1 m (NSMT E-5501, 1 specimen).

Remarks. Hoggett (1991) described aboral disc and radial shield armatures and reported the difference between them as a conspicuous and constant feature for *Macrophiothrix variabilis*. This species has been recorded from southern India, Mergui Archipelago, Singapore, Philippines and Australia (Clark & Rowe, 1971; Hoggett, 1991).

***Ophiopterion elegans*** Ludwig, 1888 (Fig. 3: H, I)

Specimen examined. St. 27, 2–3 m (NSMT E-5502, 1 specimen).

Remarks. Arm spines are webbed in the genus *Ophiopterion*. This species is distributed in Indo-West Pacific Region (Clark & Rowe, 1971; Guille *et al.*, 1986).

***Ophiothela danae*** Verrill, 1869 (Figs. 2: A, 3: J, K)

Specimens examined. St. 5, 3–11 m (NSMT E-5503, 27 specimens); St. 8, 5–10 m (NSMT E-5504, 282 specimens, NSMT E-5505, 29 specimens); St. 18, 13.0–16.8 m (NSMT E-5506, 162 specimens, NSMT E-5507, 1 specimen); St. 22 (NSMT E-5508, 1 specimen, NSMT E-5509 15 specimens); St. 32, 17.2 m (NSMT E-5510, 1 specimen), 23.2 m (NSMT E-5511, 13 specimens); St. 34, 7 m (NSMT E-5512, 185 specimens); St. 36, 17.4 m (NSMT E-5513, 1 specimen).

Remarks. The specimens were collected at-

taching to various species of cnidarians including thecate hydrozoans, gorgonaceans, alcyonaceans, and antipatharians. *Ophiothela danae* shows large color variation even among the specimens attaching to the same colony of a host cnidarian. This species is widely distributed in the Indo-West Pacific Region including temperate waters of Japan (Clark & Rowe, 1971).

***Ophiothrix (Keystonea) nereidina*** (Lamarck, 1816) (Fig. 3: L)

Specimens examined. St. 5, 3–11 m (NSMT E-5514, 1 specimen); St. 13, 1.6 m (NSMT E-5515, 1 specimen); St. 15, 7 m (NSMT E-5516, 1 specimen).

Remarks. *Ophiothrix (Keystonea) nereidina* is easily determined by its characteristic color pattern of transverse band across each arm segment observed even in alcohol-preserved specimens. This species is widely distributed in the Indo-West Pacific Region (Clark & Rowe, 1971)

***Ophiothrix (Ophiothrix) ciliaris*** (Lamarck, 1816) (Fig. 3: M)

Specimens examined. St. 3, 5–10 m (NSMT E-5517, 1 specimen); St. 4, 7 m (NSMT E-5518, 1 specimen); St. 11, 8.8 m (NSMT E-5519, 1 specimen), 10.2 m (NSMT E-5520, 1 specimen); St. 12, 9.0 m (NSMT E-5521, 2 specimens); St. 20, 15.8 m (NSMT E-5522, 1 specimen); St. 28, 3 m (NSMT E-5523, 2 specimens); St. 32, 11.6 m (NSMT E-5524, 1 specimen); St. 34 (NSMT E-5525, 1 specimen).

Remarks. Distal edge of ventral arm plates of *Ophiothrix (Ophiothrix) ciliaris* is convex. This species is widely distributed in Indo-West Pacific Region including temperate waters of Japan (Clark & Rowe, 1971).

***Ophiothrix (Ophiothrix) plana*** Lyman, 1874 (Fig. 3: N, O)

Specimens examined. St. 3, 5–10 m (NSMT E-5526, 1 specimen); St. 5, 3–11 m (NSMT E-5527, 1 specimen); St. 8, 5–10 m (NSMT E-5528, 1 specimen); St. 10 (NSMT E-5529, 1 specimen), 7.4 m (NSMT E-5530, 1 specimen);



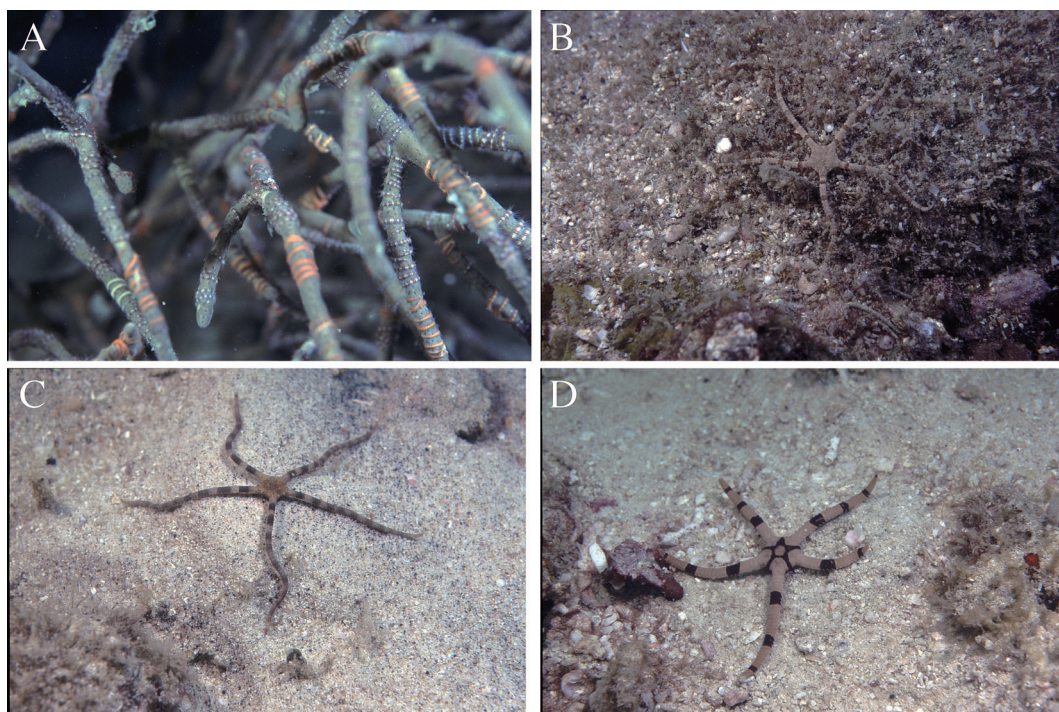


Fig. 2. Underwater photographs. A, *Ophiothela danae* (NSMT E-5506). B, *Ophiarachnella infernalis* (NSMT E-5558). C, *Ophiochaeta hirsuta* (NSMT E-5560). D, *Ophiolepis superba* (NSMT E-5585).

St. 30, 6.6 m (NSMT E-5531, 1 specimen); St. 34, 10 m (NSMT E-5532, 1 specimen, NSMT E-5533, 1 specimen); St. 37, 15.2 m (NSMT E-5534, 1 specimen).

Remarks. *Ophiothrix* (*Ophiothrix*) *plana* has a characteristic color pattern of purple rings on aboral disc and arms. Disc and arm spines are covered by skin. This species has been collected from the Philippines and Indonesian waters (Clark & Rowe, 1971).

***Ophiothrix* (*Placophiothrix*) *spongicola*** Stimpson, 1855 (Fig. 3: P, Q)

Specimen examined. St. 32 (NSMT E-5535, 1 specimen).

Remarks. The present specimen was determined to be *Ophiothrix* (*Placophiothrix*) *fumaria* Müller & Troschel, 1842 by following the identification key by Clark and Rowe (1971) who discussed the possible synonymy of *O. (P.) fumaria* with *Ophiothrix* (*Placophiothrix*) *spongicola*. Disk of the specimen is characteristically covered

by skin, and the specimen agreed well with the description of *O. (P.) spongicola* by Koehler (1904). This species has been so far from temperate Australia (Rowe & Gates, 1995).

#### Family Ophiactidae

***Ophiactis picteti*** (Loriol, 1893) (Fig. 3: R)

Specimen examined. St. 14, intertidal (NSMT E-5536, 1 specimen)

Remarks. Disc of *Ophiactis picteti* is covered by skin that obscure underlying scales. This species has been reported from Ambon, Indonesia (Loriol, 1893), Madagascar (Cherbonnier & Guille, 1978) and possibly Hong Kong (Mortensen, 1934; Clark, 1982).

***Ophiactis savignyi*** (Müller & Troschel, 1842) (Fig. 3: S)

Specimens examined. St. 3, 5–10 m (NSMT E-5537, 2 specimens); St. 10, 8 m (NSMT E-5538, 13 specimens); St. 11, 8.8 m (NSMT E-

5359, 1 specimen); St. 30, 7.0 m (NSMT E-5540, 1 specimen).

Remarks. *Ophiactis savignyi* is one of the most common shallow-water ophiuroids occurring in tropical and temperate waters in the world (Clark & Rowe, 1971; Irimura, 1982).

#### Family Ophionereididae

***Ophionereis dubia*** (Müller & Troschel, 1842) (Fig. 4: A, B)

Specimens examined. St. 11, 7.4 m (NSMT E-5541, 1 specimen); St. 31, 14.6 m (NSMT E-5542, 1 specimen); St. 37, 13.6 m (NSMT E-5543, 1 specimen).

Remarks. Three species of the genus *Ophionereis* were found in this study. They are distinguished mainly by their genital papillae and dorsal arm plates (Clark, 1953; Clark & Rowe, 1971). *Ophionereis dubia* is widely distributed in Indo-West Pacific Region including temperate waters of Japan (Clark & Rowe, 1971).

***Ophionereis fusca*** Brock, 1888 (Fig. 4: C, D)

Specimen examined. St. 16 (NSMT E-5544, 1 specimen).

Remarks. *Ophionereis fusca* is distributed in tropical Pacific Ocean (Clark & Rowe, 1971; Guille *et al.*, 1986).

***Ophionereis porrecta*** Lyman, 1860 (Fig. 4: E, F)

Specimens examined. St. 30, 5.0 m, (NSMT E-5545, 1 specimen); St. 34, 10 m (NSMT E-5546, 1 specimen); St. 35, 14.6 m (NSMT E-5547, 1 specimen).

Remarks. *Ophionereis porrecta* is widely distributed in the Indo-West Pacific Region including temperate waters of Japan (Clark & Rowe, 1971).

#### Family Ophiocomidae

***Ophiocoma erinaceus*** Müller & Troschel, 1842 (Fig. 4: G, H)

Specimen examined. St. 29, 8.8 m (NSMT E-5548, 1 specimen).

Remarks. Ophiocomids are one of the com-

mon ophiuroids in coral-reef region, but only one specimen was included in this collection. *Ophiocoma erinaceus* is widely distributed in Indo-West Pacific Region (Clark & Rowe, 1971).

#### Family Ophiordermatidae

***Ophiarachnella gorgonia*** (Müller & Troschel, 1842) (Fig. 4: I)

Specimens examined. St. 1, 1–3 m (NSMT E-5549, 3 specimens); St. 8, 5–10 m (NSMT E-5550, 2 specimens); St. 13, 1 m (NSMT E-5551, 1 specimen); St. 17, 5.6 m (NSMT E-5552, 1 specimen), 7.6 m (NSMT E-5553, 1 specimen); St. 21, 10.2 m (NSMT E-5554, 1 specimen); St. 27, 2–3 m (NSMT E-5555, 1 specimen); St. 29, 8.6 m (NSMT E-5556, 1 specimen).

Remarks. *Ophiarachnella gorgonia* is widely distributed in the Indo-West Pacific Region including temperate waters of Japan (Clark & Rowe, 1971; Irimura, 1982). However, the specimens of Japanese temperate waters are completely different in body color varieties the specimens of tropical and subtropical waters in the west Pacific, and these two color forms may possibly belong to different species (Irimura & Fujita, unpublished data).

***Ophiarachnella infernalis*** (Müller & Troschel, 1842) (Figs. 2: B, 4: J)

Specimens examined. St. 9, 9.8 m (NSMT E-5557, 1 specimen); St. 24, 16.4 m (NSMT E-5558, 1 specimen).

Remarks. There has been some confusion in identifying *Ophiarachnella infernalis* and its related taxa mainly due to large variation in disc and arm granulation [see remarks of *Ophistegastus novaecaledoniae* in Fujita (1998), which was synonymized to *Ophiodyscrita instratus* (Murakami, 1944) by Price and Rowe (1996)]. These specimens have a few granules at only some edges of dorsal arm plates of a few basal arm segments and should possibly belong to the present species. This species is widely distributed in the Indo-West Pacific Region (Clark & Rowe, 1971).



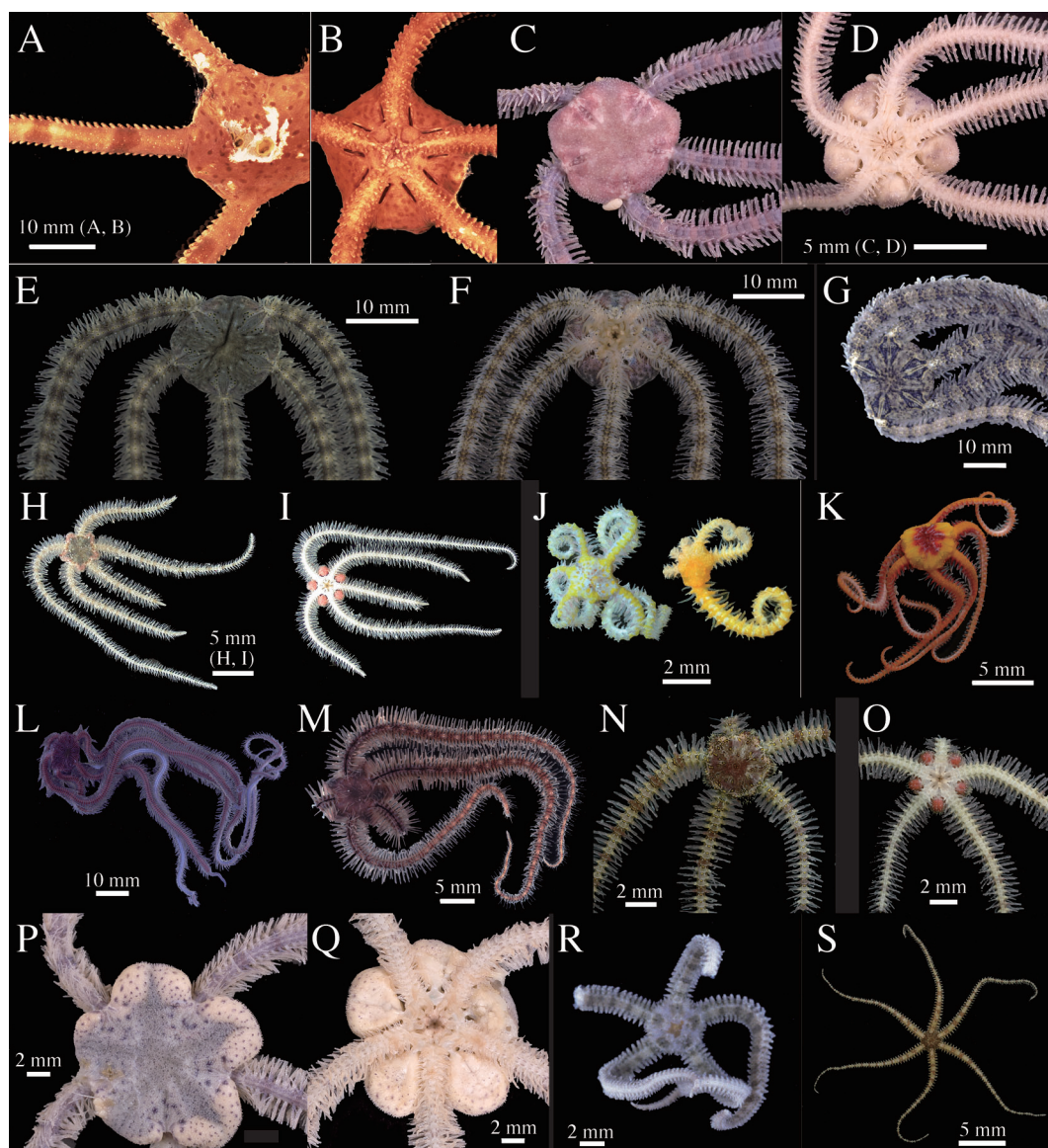


Fig. 3. A, B, *Ophiomyxa australis* (NSMT E-5493). C, D, *Macrophiothrix demessa* (NSMT E-5494). E, F, *Macrophiothrix longipeda* (NSMT E-5498). G, *Macrophiothrix variabilis* (NSMT E-5501). H, I, *Ophiopteran elegans* (NSMT E-5502). J, K, *Ophiothela danae* (J, NSMT E-5512; K, NSMT E-5513). L, *Ophiothrix (Keystonea) nereidina* (NSMT E-5515). M, *Ophiothrix (Ophiothrix) ciliaris* (NSMT E-5522). N, O, *Ophiothrix (Ophiothrix) plana* (NSMT E-5533). P, Q, *Ophiothrix (Placophiothrix) spongicola* (NSMT E-5535). R, *Ophiactis picteti* (NSMT E-5536). S, *Ophiactis savignyi* (NSMT E-5540). C, D, P, Q, alcohol specimens.

*Ophiochaeta hirsuta* Lütken, 1869 (Figs. 2: C, 4: K, L)

Specimens examined. St. 17, 7.6 m (NSMT E-5559, 1 specimen); St. 21, 8.4 m (NSMT E-5560, 1 specimen).

Remarks. *Ophiochaeta boschmai* A. H. Clark, 1964 and *O. crinita* Cherbonnier & Guille, 1978 were described as separate species from *O. hirsuta* mainly due to differences in the distribution of spines and granules on the disk. Later,

however, they were synonymized to *O. hirsuta* by Sloan *et al.* (1979) and Price and Rowe (1996). One of the present specimens (NSMT E-5560) has only spines both on aboral and oral sides of the disk like as *O. crinita*, while another (NSMT E-5559) has granules on the aboral and spines on the oral like as *O. boschmai*. The other features are not different between the two specimens. We agree with Price and Rowe (1996) about the synonymy of these three species. This species is widely distributed in the Indo-West Pacific Region (Clark & Rowe, 1971).

***Ophioclastus hataii*** Murakami, 1943 (Fig. 4: M, N)

Specimen examined. St. 30, 7.2 m (NSMT E-5561, 1 specimen).

Remarks. *Ophioclastus hataii* is characterized by having supplemental dorsal arm plates like as *Ophionereis*. This species has been recorded from Palau (Murakami, 1943) and New Caledonia (Guille *et al.*, 1986).

***Ophioconis cupida*** Koehler, 1905 (Fig. 4: O, P)

Specimens examined. St. 16 (NSMT E-5562, 1 specimen); St. 24, 15.6 m (NSMT E-5563, 1 specimen, NSMT E-5564, 1 specimen), 15.8 m (NSMT E-5565, 1 specimen), 16.2 m (NSMT E-5566, 1 specimen); St. 25, 10.2 m (NSMT E-5567, 1 specimen); St. 29, 7.8 m (NSMT E-5568, 1 specimen); St. 33, 9.8 m (NSMT E-5569, 1 specimen); St. 35, 14.0 m (NSMT E-5570, 1 specimen).

Remarks. The disk is armored only by granules, and the granules often peel off. *Ophioconis cupida* is widely distributed in Indo-West Pacific Region (Clark & Rowe, 1971).

***Ophiopeza spinosa*** (Ljungman, 1867) (Fig. 4: Q, R)

Specimen examined. St. 31, 13.2 m (NSMT E-5571, 1 specimen).

Remarks. The genus *Ophiopeza* shares enlarged marginal disc plates with *Ophiopsammus*, but the former differs from the latter by the coarser disc scaling according to Vail and Rowe

(1989). *Ophiopeza spinosa* has convex marginal disc plates and flat-topped disc granules. This species is widely distributed in the Indo-West Pacific Region (Clark & Rowe, 1971; Vail & Rowe, 1989)

#### Family Ophiolepididae

***Ophiolepis cincta*** Müller & Troschel, 1842 (Fig. 4: S)

Specimens examined. St. 2, 1–3 m (NSMT E-5572, 2 specimens); St. 6, 1–3 m (NSMT E-5573, 1 specimen); St. 9, 11.0 m (NSMT E-5574, 1 specimen); St. 19, intertidal (NSMT E-5575, 1 specimen); St. 23, intertidal (NSMT E-5576, 1 specimen); St. 28, 3 m (NSMT E-5577, 1 specimen); St. 35, 14.0 m (NSMT E-5578, 1 specimen).

Remarks. Two color varieties have been found in *Ophiolepis cincta* (Sloan *et al.*, 1979). Our collection also includes two distinct color varieties when viewed from aborally: one is almost uniformly brown and the other (NSMT E-5578, Fig. 4: S) is uniformly pale colored. This species is widely distributed in the Indo-West Pacific Region (Clark & Rowe, 1971).

***Ophiolepis irregularis*** Brock, 1888 (Fig. 4: T)

Specimens examined. St. 16 (NSMT E-5579, 1 specimen).

Remarks. *Ophiolepis irregularis* is distinguished from *O. superba* and *O. cincta* by its irregular arrangement of disc plates. This species has been collected from Palau, Indonesian waters, and Madagascar (Cherbonnier & Guille, 1978).

***Ophiolepis superba*** H. L. Clark, 1915 (Fig. 2: D)

Specimens examined. St. 3, 5–10 m (NSMT E-5580, 1 specimen); St. 7, 2–8 m (NSMT E-5581, 1 specimen); St. 10, 2.4 m (NSMT E-5582, 1 specimen); St. 11, 8.8–9.8 m (NSMT E-5583, 3 specimens); St. 16 (NSMT E-5584, 1 specimen); St. 20, 13.0 m (NSMT E-5585, 1 specimen).

Remarks. *Ophiolepis superba* is easily determined by its characteristic conspicuous color pat-





Fig. 4. A, B, *Ophioneis dubia* (NSMT E-5542). C, D, *Ophioneis fusca* (NSMT E-5544). E, F, *Ophioneis porrecta* (NSMT E-5546). G, H, *Ophiocoma erinaceus* (NSMT E-5548). I, *Ophiarachnella gorgonia* (NSMT E-5556). J, *Ophiarachnella infernalis* (NSMT E-5557). K, L, *Ophiochaeta hirsuta* (NSMT E-5560). M, N, *Ophioclastus hataii* (NSMT E-5561). O, P, *Ophioconis cupida* (NSMT E-5570). Q, R, *Ophiopeza spinosa* (NSMT E-5571). S, *Ophiolepis cincta* (NSMT E-5578). T, *Ophiolepis irregularis* (NSMT E-5579). G, H, M, N, alcohol specimens.

tern. This species is widely distributed in the Indo-West Pacific Region (Clark & Rowe, 1971).

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南シナ海ティオマン諸島（マレーシア）から採集された  
浅海産クモヒトデ類（棘皮動物）（予報）

藤田敏彦・Zulfigar Bin Yasin・Aileen Tan Shau Hwai

1999年から2005年までの間、マレーシアのティオマン諸島において潮間帯ならびに潮下帯からスキューバダイビングやスノーケルダイビングによってクモヒトデ類を採集した。全部で7科14属25種のクモヒトデ類が採集された。*Ophiothrix (Placophiothrix) spongicola*, *Ophioclastus hataii*, *Ophiolepis irregularis* の3種は南シナ海からの初めての報告である。