

STUDIES ON THE EGYPTIAN ECHINODERMATA. Ophiocoma latilanaxa
(OPHIUROIDEA: OPHIOCOMIDAE). A NEW RECORD FROM THE RED SEA

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Received: 3/10/1989

A new record of an ophiuroid species belonging to genus Ophiocoma L. Agassiz; Ophiopominae; was investigated. The species was collected from dead coral reefs and from under stones in the midintertidal zone in the Northwestern part of the Red Sea. The species was recorded at 25° 30' Latitude and 34° 42' Altitude. A detailed description of the natural colour, morphology and biometry of the important taxonomical characters of the species were done. The species is not only new to the Egyptian marine fauna but also to the Red Sea fauna.

تناولت هذه الدراسة وصف نوع من النجوم الهشة من جنس فيوكوما "أفيوكوما ليتلانكسيا" فصيلة أفيوكوميدي . وقد سجل تواجد هذا النوع عند الشاطئ خط عرض ٣٠ ٢٥ وخط طول ٤٢ ٣٤ تقريبا . وقد تم تجميع أفراد هذا النوع من أجزاء الشعب المرجانية البعيتة وتحتها وكذلك من تحت الأحجار المنتشرة في المنطقة الوسطى للحد والجزر الشمالي الغربي للبحر الأحمر وهذه هي أول مرة يسجل هذا النوع في البحر الأحمر وكذلك الفونا المصرية .

INTRODUCTION

Though brittle stars are one of the main inhabitants of the littoral and intertidal zones of the Red Sea coasts which are characterized by the great abundance and distribution of the coral reefs, very few studies have been carried out on this animal group and much efforts are needed to reveal their taxonomy, their economical value and their ecological effects on the sea shore and biota. Till now, only five species of genus Ophiocoma L. Agassiz were recorded from the Red Sea. These species are O. pica Müller and Troschel, 1842 (Clark, 1952 and James and Pearse, 1969), O. erinaceus Müller and Troschel, 1842 (Clark, 1967 a and

James and Pearse, 1969), *O. scolopenderina* Lamarck, 1816 (James, 1969 and James and Pearse, 1969), *O. valenciae* Müller and Troschel, 1842 (Clark and Rowe, 1971) and *O. pusilla* Brock, 1888 (Clark and Rowe, 1971). Recently, a new record of two *Ophiocoma* species (Soliman under publication), *O. schoenleini* Müller and Troschel, 1842 and *O. anaglyptica* Ely, 1944 was added to the five known Red Sea *Ophiocoma* species. Extensive work has been done in the littoral and intertidal zones in the Northwestern part of the Red Sea to evaluate if there are more new records or new species of genus *Ophiocoma*; family Ophiocomidae.

MATERIALS AND METHODS

Ophiuroids were sampled from the littoral zone to the extreme low water spring tide (ELWST) along the Northwestern part of the Red Sea; from north of Marsa Alam city to north of Hurghada city (see Fig.1). Sampling was carried out every 10 to 20 km and where the coast is accessible for sampling. The specimens were collected by hand from the crevices of flat dead coral reefs, dead isolated coral blocks, from under large and small stones by turning over the latter, from living corals and when they are crawling freely on the dense of algal cover. Specimens were anaesthetized by several drops of ethyl alcohol in two liters of sea water, until nearly dying then picked and lefted on flat surface to dry taking care to stretch the arms from time to time. Identification and drawings were carried out using a binocular research microscope with attached camera lucida. The specimens were labelled and preserved on cotton and naphthalene in woody boxes.

RESULTS

Ophiocoma latilanaxa Murakami, 1943.

Description: The diameter of the disc varies between 12-24 mm (Holotype 18 mm in life specimen). The disc is covered by tiny brown scales which are completely concealed by fine granules. These granules are of two types, one is brown which

covers most of the disc (Fig.2C) and the other is white in colour. White granules are arranged in six sets; a central (Fig. 2D) and five interradials (Fig.2E). The central set is irregular in shape and the granules are less spaced than those near the margin of the disc. There are about 25-27 white granules/mm². The number of white granules in the five interradial sets ranges between 10-16. The number of brown granules at the center is nearly similar to those near the margin about 16-20/mm².

The interambulacral areas on the oral side are indistinct. They are covered by tiny brown scales and few numbers of white granules near their proximal margins. Oral shields (Fig,3A) are brown except their external margins, site of the madreporite and irregular white spots in their centers. The sizes of the oral shields differ to some extent. The three shields near the bivium (the shield carrying the madreporite and the two beside it) are longer than the two included within the trivium, but the ratio of length to width of all is 1:1. The proximal edge of each shield is truncated and the distal is concave. The ratio of the length of proximal edge of each oral shield to its width is 1:1.5 except for the shield carrying the madreporite; about 1:2. Lateral edges of each oral shield are straight.

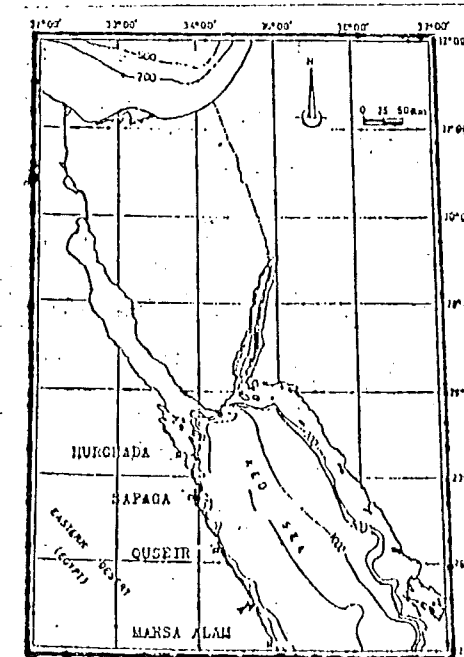


Fig. 1- Map showing the study area. Square symbol shows cities locations and arrow shows the location of the new record.

Fig. 2. Aboral surface of
Ophiocoma latilanaxa

- A - Uppermost arm spine
- B - Dorsal arm plate
- C - Black granules
- D - Central white granules
- E - Interradial white granules

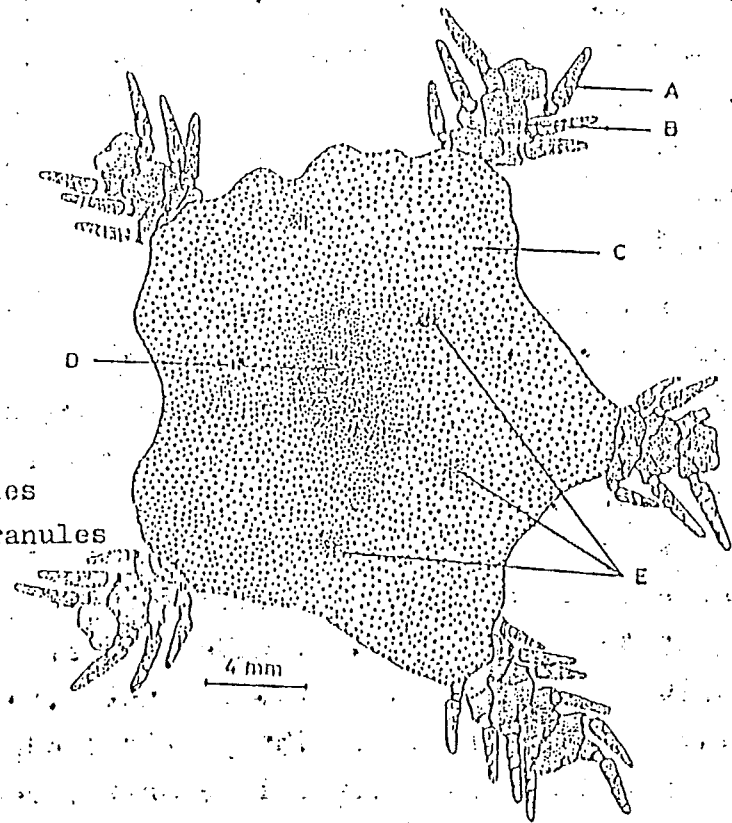
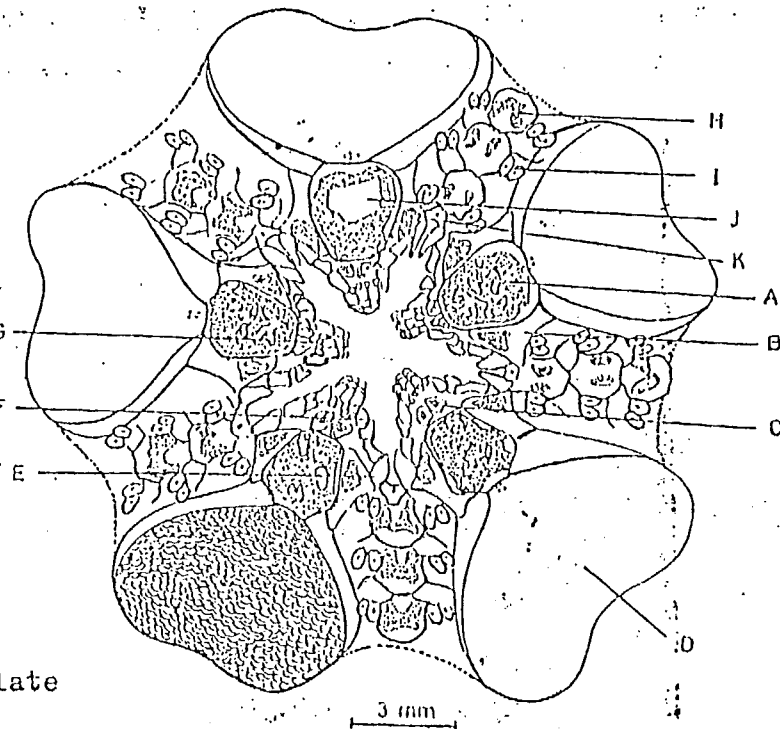


Fig. 3. Oral surface of
O. latilanaxa

- A - Oral shield
- B - Adoral shield
- C - Oral plate
- D - Interambulacral area
- E - Distal oral papillae
- F - Proximal oral papillae
- G - Teeth papillae
- H - Ventral arm plate
- I - Tentacle scales
- J - Madreporite
- K - First ventral arm plate



Adoral shields (Fig. 3B) are elongated, white with a brown spot in the center of each. A pair of adoral shields is extending along the sides of each oral shield and in intimate connection with it. Each adoral shield is longer than wide with two projections, one is free and directed outwardly and the other is in connection with the first ventral plate.

Oral plates are present in pairs at the tip of each jaw (Fig. 3C). They are irregular in shape. These plates are separated from the oral shields and have a central white spots.

Oral papillae (Fig. 3E-F) are four pairs on each jaw. The outermost pair (Fig. 3E) is the longest and directed downwardly within the mouth slit. The second from the innermost is umbrellar in shape.

Tooth papillae (Fig. 3G) are 13 in number arranged in four rows. The uppermost row has four small papillae that differ in size. The other three rows have three large papillae each, that are similar in size. Teeth are present and have enamel covers.

The dorsal arm plates (Fig. 4B) are brown with or without white notch at the distal margin and nearly hexagonal. The length of the fully grown plates are similar but their breadth differ from one segment to another. Therefore, their ratio of length to breadth is unconstant. The distal margin of each plate is slightly concave and the proximal is straight and overlapped by the preceding plate. Dorsal arm spines (Fig. 4A) are one type, short, club-shaped with sharp pointed distal ends. The spines are brown with white notches. The length of each dorsal spine exceeds slightly two times the length of the dorsal plate of the segment that belongs to it.

The ventral arm plate (Fig. 5C) are white with two brown spots near the lateral edge. The distal edge of each plate is slightly concave while the lateral ones are distinctly concave. The ratio of length to breadth of each plate is 1:1. On both sides of each plate two pairs of tentacle scales

Fig. 4. Dorsal view of some arm segments of *Ophiocoma latilanaxa*

- A - Dorsal arm spine
B - Dorsal arm plate

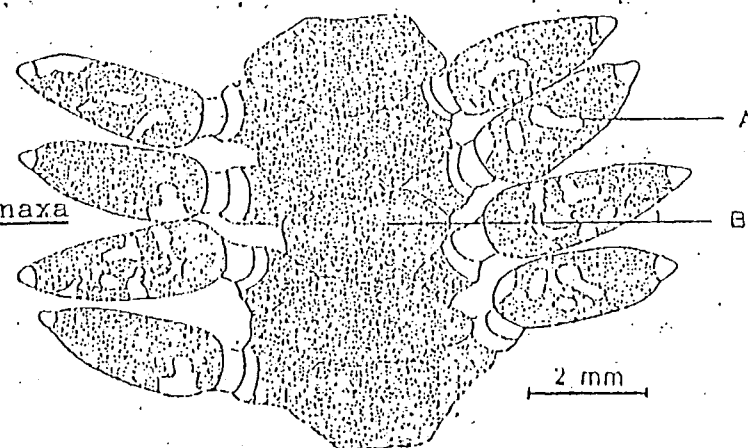


Fig. 5. Ventral view of some arm segments of *O. latilanaxa*

- C - Ventral arm plate
D - Ventral arm spine
E - Tentacle scales

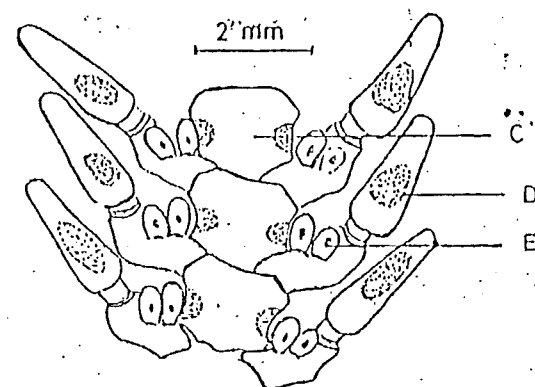
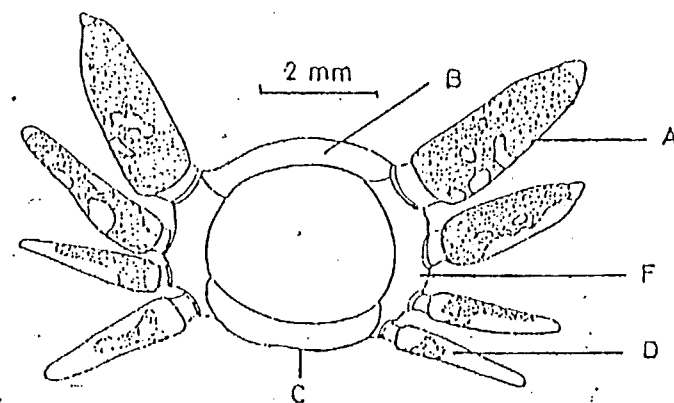


Fig. 6. Isolated segment of *O. latilanaxa*

- A - Uppermost arm spine
B - Dorsal arm plate
C - Ventral arm plate
D - Lowermost arm spine
F - Lateral arm plate



are oval in shape, longer than broad and with small brown dot inside it. The inner tentacle scale of each pair is larger than the outer. Ventral arm spines (Fig. 5D) are short cone like. They are nearly equal in length. The ratio of the ventral arm spine length to the breadth of the ventral arm plate is 1.5:1.

The lateral arm plates (Fig. 6F) carry four spines each. The ratio of the four spines is as follows:

$$\frac{\text{Right lateral arm plate's spines from upper to lower}}{\text{Left lateral arm plate's spines from upper to lower}} = \frac{7.0:5.0:4.6:4.6}{6.6:6.0:5.0:5.0}$$

Habitat: The species inhabits in/under dead coral reefs and under stones in the lower midintertidal zone.

DISCUSSION

The relationships of the distribution and abundance of both coral reefs and species of genus *Ophiocoma*; Ophiocomidae; are so intimate that one can expect the presence of the latter wherever the former are present (Clark and Rowe, 1971, James, 1982 and Mortensen, 1927). Eleven species of genus *Ophiocoma* are known from the Indo-West Pacific region (Clark and Rowe, 1971). These species are *O. pusilla* Brock, 1888, *O. anaglyptica* Ely, 1944, *O. wendti* Koehler, 1907, *O. scolopenderina* Lamark, 1816, *O. pica* Müller and Troschel, 1842, *O. erinaceus* Müller and Troschel, 1842, *O. schoenleini* Müller and Troschel, 1842, *O. valenciae* Müller and Troschel, 1842, *O. dentata* Müller and Troschel, 1842, *O. latilanaxa*, Murakami, 1943, and *O. brevipes* Peters, 1851. Of these species five are known from the Red Sea; *O. pica* (Clark, 1952 and James and Pearse, 1969), *O. erinaceus* (Clark, 1967a), *O. scolopenderina* (James, 1969 and James and Pearse, 1969), *O. valenciae* and *O. pusilla* (Clark and Rowe, 1971). Recently, Soliman (under publication) added a new record of two species; *O. schoenleini* and *O. anaglyptica*; to the Red Sea fauna. Of the previously mentioned five old known Red Sea species four only were recorded from the Egyptian coasts of the Red Sea; *O. pica*, *O. erinaceus*

and O. pusilla from the Gulf of Aqaba (Clark, 1952 and 1967a) and O. scolopenderina from Suez Canal (James and Pearse, 1969). Adding the two newly recorded species by Soliman and the present species the number of Ophiocoma species recorded from the Red Sea becomes eight, seven of them are belonging to the Egyptian fauna.

ACKNOWLEDGEMENT

I am grateful to Dr. Irimura Seiichi and Prof. Jaiji Kikuchi Kyushu University, Faculty of Science, Amakusa Marine Biological Laboratory for their kind help in species identification and useful discussion. Thanks are also to Mr. Tito Habib for his valuable help in sea shore trip preparations. Thanks also to Mr. Khalaf Aly and Mr. Mohamed Abdel Hammed for their good assistance. Best thanks to all members of Zoology Department, Sohag Faculty of Science, Assiut University for encouragement and financial support.

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