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Echinoderms Epizoic on Gorgonian Corals from Karachi Coast

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Abstract: Three species of the genus *Ophiothela* and a single specie each of *Ophiactis* and *Asterina* belonging to the families Ophiotrichidae, Ophiactidae and Asterinidae respectively epizoic on gorgonian corals were studied. These were recorded from the Karachi coast North Arabian Sea. A brief account of each specie is given with special reference to *Ophiothela hadra* which is new to this region.

Key words: Epizoic, Echinoderms, gorgonia, Karachi coast

Introduction

As mentioned Morton (1989) an epizoite is one which is habitually found attached to the outer surface of another. The host does not suffer from its epizoites.



Fig. 1: Gorgonian colony with brittle stars.

Various gorgonian colonies (Fig. 1) collected from different sites of Karachi coast with asterozoans echinoderms epizoic on them are studied, but there is no indication that they affect host survival. The gorgonia provides home and shelter of small animals for protection as well as food. Patton (1972) mentioned some forms of protection from fish predators also results from the association with gorgonians and several hundred ophiuroid clinging to a single host colony. Three species of the genus *Ophiothela* belonging to family Ophiotrichidae and a single specie of genus *Ophiactis* and *Asterina* belonging to family Ophiactidae and Asterinidae are given as under.

Family: Ophiotrichidae

Ophiothela venusta, de Loriol (1900).
O. verrill (Verrill, 1869).
O. hadra (Clark, 1915).

Family: Ophiactidae

O. savignyi (Müller & Troschel, 1842)

Family: Asterinidae

Asterina burtoni (Gray, 1840)

Brief account of each epizootic specie associated with different gorgonian corals is given, while *O. hadra* is a new one in this region.

Materials and Methods

The gorgonian associated asterozoans echinoderms are observed from various localities. The asteroid is dry preserved while, the ophiuroids carefully detached (due to pre-hensile coiling of arms) and relaxed with epsom salt (aqueous $MgSO_4$) and fresh water. Then fully relaxed specimens were preserved in 70% alcohol. The entire collection is housed in Marine Reference Collection and Resource Center, University of Karachi. The diversity of echinoderm epizoics on gorgonian corals was studied.

Results and Discussion

According to Clark (1976b), the genus *Ophiothela* contains the true brittle stars, characterized by the arms normally more flexible in horizontal plane.

There are five species of the genus *Ophiothela* which are distributed in the Indo-West Pacific region: *Ophiothela beauforti* (Engel); *O. danae* Verrill; *O. hadra* H.L. Clark; *O. tigris* Lyman and *O. venusta* (de Loriol). Three species of the genus are available locally. They all are fissiparous, as Clark (1976b) mentioned "fissipary is a common reproductive strategy found in epizoic ophiuroids".

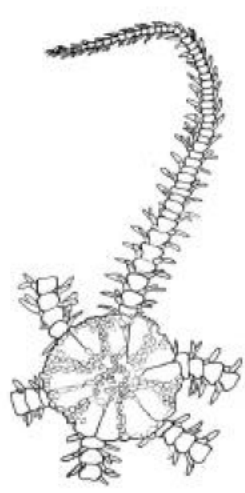


Fig. 2: *O. danae* (Verrill, 1869).

Ophiothela danae (Verrill, 1869)

Remarks: This small epizoic echinoderm is ectosymbiotic, nonspecific. Arms, six (3 large and 3 small) dorsoventrally coiled, anteriorly. Abactinal surface of disc (Fig. 2) is covered with coarse granules and rounded tubercles. Oral papillae lacking jaw with compact cluster of apical tooth papillae. The

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dorsal arm plate is triangular, while the ventral is squarish. The lower arm spines are hook shaped and used for attachment. Clark (1978a) reported the range of this species and stated that it lived mainly on gorgonians.

Colour: Live specimen is orange, red maroon or blue with contrasting colour spots. Clark (1978b) noted that "where two or more sympatric, differently coloured gorgonians are found, associated with ophiothelas clinging to them, the predominant colour of the ophiuroids almost (but not quite) invariably matches the ground colour of the host".

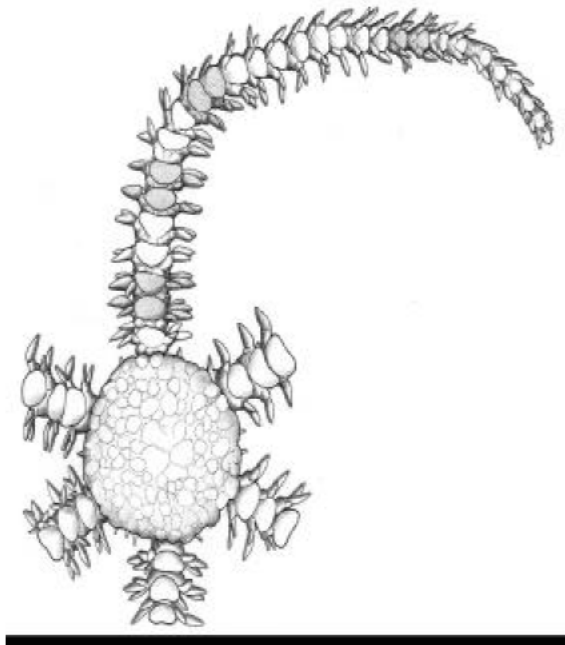


Fig. 3: *O. venusta* (de Loriol, 1900).

***Ophiothela venusta* (de Loriol, 1900)**

Remarks: It (Fig. 3) is also ectosymbiotic, non-specific. Arms short, normally five rarely six, slightly larger than *O. danae*. Disc covered with coarse granules and some spinelets. Each arm with one coarse granule on each segment, usually five or six blunt dorsal spines with hooked spinelets on the lower side for clinging.

Colour: Disc light purple, arms with purple-black bands.

***Ophiactis savignyi* (Müller & Troschel, 1842)**

Remarks: This "Tropico-politan" species (Fig. 4) epizoic on gorgonia is ectosymbiont, nonspecific and also found among weeds and collected from crevices of rocks. Sane & Chhapgar (1982) collected *O. savignyi* from crevices of sponges. Pawson (1985) has reported them to be secretive, living in crevices and among rocks and coralline algae in shallow water. Arms six, (3 small and 3 large), each arm with six truncate spines and a single oval tentacle scale. Disc is covered with scale and small spines.

Colour: Most commonly both surfaces variegated with a pattern of light dark green and white spots.



Fig. 4: *O. savignyi* (Müller & Troschel, 1842).

***Ophiothela hadra* (Clark, 1915)**

Remarks: This species is new for the region, also ectosymbiont on gorgonia. Specificity is not determined due to new record. Disc is covered with cylindrical stumps. The disc diameter (d.d) is 1.9mm, arms six and twice the disc diameter. Dorsal arm plate with median Knob. Clark (1915) found *O. hadra* from dredges in the Torres strait and mentioned its association with gorgonian as rheophilic organisms.

Colour: Disc more or less reddish in colour.

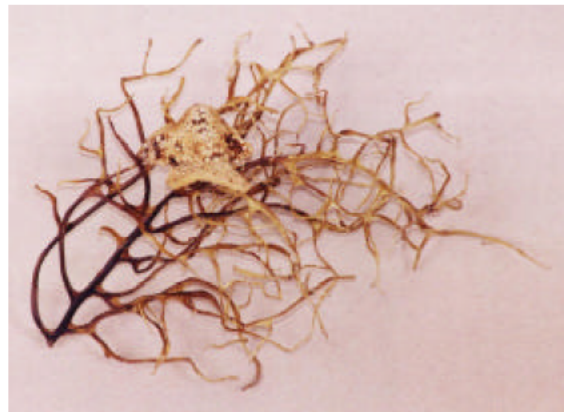


Fig. 5: *Asterina burtoni* (Gray, 1840) epizoic on gorgonia

***Asterina burtoni* (Gray, 1840)**

Remarks: This asteroid species (Fig. 5) is also fissiparous,

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ectosymbiont. Body stellate with blunt tipped, arms normally 5. Fissiparous individuals have 6-8 arms. Actinal plate of 2-6 spinelets is arranged in cluster.

Colour: Colour in life variable, mostly grayish orange, light yellow, dull brown, red or grey, often mottled, epizoic specimen khaki brown.

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