

## RECORDS OF OCCURRENCE OF THREE SPECIES OF SCLERACTINIAN CORAL FROM PAKISTAN

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### ABSTRACT

Three species of scleractinian corals *Heterocyathus aequicostatus* Milne Edwards and Haime, 1848, *Paracyathus stokesii* Milne Edwards and Haime, 1848 and *Rhizopsammia verrilli* van der Horst, 1922 are reported for the first time in Pakistan. All three species are collected from the trawling grounds in the offshore waters of Pakistan.

**Keywords:** Scleractinian corals, *Heterocyathus aequicostatus*, *Paracyathus stokesii*, *Rhizopsammia verrilli*, trawling grounds, Pakistan

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### INTRODUCTION

Corals are one of least studied group of marine animals in Pakistan. Ali *et al.* (2014) was possibly the first one who has reported many species of corals from eight dive sites along Pakistan coast. Prior to these Kazmi and Kazmi (1997) have described the status of research on marine corals in Pakistan. Siddiqui *et al.* (2011) have also reported some fossilized coral species from Gunz, along Balochistan coast. Farooq *et al.* (2014), Reza and Parveen (2014) and Reza *et al.* (2014a-c; 2015) reported occurrence of corals in the collection of Zoological Museum of University of Karachi, however, origin of these coral could not be determined with certainty. Gul *et al.*, (2015) has published a checklist of cnidarians from Pakistan which include coral species reported from Pakistan. During the present studies three coral species which were not reported from Pakistan coast.

### MATERIALS AND METHODS

Samples of coral were collected from the trawling grounds during last 10 years (Fig. 1). Analysis of the samples have revealed presence of three species of corals which were not previously reported. These corals were dried and photographed except for the samples of *Rhizopsammia verrilli* which were photographed in living conditions. These samples have been deposited in the Museum of Marine Fisheries Department.

### RESULTS

Three species of scleractinian corals which are reported for the first time from Pakistan are alphabetically arranged in the paper.

*Heterocyathus aequicostatus* Milne Edwards and Haime, 1848

Fig. 2

### Specimen Examined

28 samples collected from southwest Karachi, Sindh Coast (23°55.900'N; 65°45.800'E), Depth 121m; date 10 November 2015 (samples deposited in Marine Fisheries Department Museum at Karachi, Pakistan).

### Description

Corallum usually compact in shape, without any visible trace of original substratum. Corallites are ceratoid to cylindrical in structure. Costae and septa distinct; they may be unequal in size and coarsely granulated. Septa not distinctly protruding laterally and are hexametrical in arrangement in five complete cycles. Septal faces covered by low pointed granules. Fossa is moderately deep. Columella is elongate with spongy mass. Coralla either flat with a round, symmetrical outline; pores at the aboral side or higher (columnar) and with pores at the surrounding sides. Pali usually densely packed and occasionally indistinct. Central part of calice is white; either shallow or relatively deep.

**Distribution**

Found at trawling ground in the offshore waters of Pakistan. Elsewhere found on soft horizontal substrates at depths of 20 meters or more., This species is known from Indo-West Pacific, Indo-central Pacific, tropical Australia, and the oceanic West Pacific (Hoeksema *et al.*, 2008).

**Remarks**

Commonly known as striped bum coral, this species is usually ignored because of its small size. It is interesting that the specimens during present were collected using bottom trawl designed to catch fish, however, specimens were found to be entangled between meshes of the net.



Fig. 1. Location from where coral species were collected.



Fig. 2. *Heterocyathus aequicostatus* collected from offshore Sindh Coast (Calicular view).

*Paracyathus stokesii* Milne Edwards and Haime, 1848

Fig. 3-4

### Specimen Examined

1 coral collected from off Sakoni, Ormara, Balochistan Coast (25°06.218N; 64°25.469), Depth 72 m; date 5 November 2007 (samples deposited in Marine Fisheries Department Museum at Karachi, Pakistan).

### Description

Solitary, azooxanthellate coral that is arising from an encrusting basal plate. The corallite stalk is cylindrical but tapering proximally. Corallite ovoid and pinched across the short axis; the corallite walls are higher in the middle at the short axis than at the ends of the long axis. Septa present in 4 orders, irregularly exsert over the wall. All septa are elaborately granulated, with all the granules often aligned to form fan-shaped ridges. All septa plunge steeply into the calice, and the inner margins of the second, third and fourth orders often fuse before reaching the columella. All septa carry pali and 1 or 2 deeply cut, vertical dentations prior to reaching the columella. The columella is long and narrow. Costae are lightly granulated and become more exsert as they approach the septa.



Fig. 3. *Paracyathus stokesii* – Collected from off Taq, Ormara, Balochistan Coast (Calicular view).



Fig. 4. *Paracyathus stokesii* – (lateral view).

### Distribution

Found at trawling ground in the offshore waters of Pakistan. It is widely distributed in the Indo-Pacific area including Galapagos, Cocos Island, off Timor, Indonesia (Carirns, 1991), Sri Lanka (Pillai and Patel, 1988) and India (Pillai and Patel, 1988; Venkataraman. and Satyanarayan, 2012; Venkataraman *et al.*, 2003). In the Indian Ocean it is also reported off Oman and Mergui Archipelago (Satyanarayana and Ramakrishna (2009). .

### Remarks

This species which is commonly included in cup coral group was found attached to a rock which was trawled off Sakoni, along Balochistan coast. This specimen was trawled in area which has rough bottom. The net was partially damaged as it got stuck up in hard rocky bottom and a number of stones were hauled. One of the stone has this coral attached to it whereas other rocks have a number of benthic animals.

*Rhizopsammia verrilli* van der Horst, 1922

Fig 5

### Specimen Examined

A colony of 4 coral collected from off Gunz, Jiwani, Balochistan Coast (24°45.100N; 65°45.800E), Depth 103 m; date 5 November 2010 (samples deposited in Marine Fisheries Department Museum at Karachi, Pakistan).

### Description

Corallites ceratoid to cylindrical; their well separated from one another, interconnected by cylindrical costate stolons, 3 or 4 originating from the base of each corallite. Costae equal in width and coarsely granular, intercostae porous and almost as wide as costae. Septa hexamerally arranged in five complete cycles. Inner edge of septa dentate to lacinate. Septal faces covered by low pointed granules. Fossa moderately deep. Columella an elongate spongy mass.

### Distribution

This species is known from India (Havelock Island of Andaman and Nicobar Islands), Galapagos (off Santiago, Floreana, Marchena, Wolf) and Cocos Island, off Timor and Indonesia (Mondal *et al.*, 2012).

### Remarks

Commonly known as Verrill's cup coral, this species was found to be attached to a rock that was retrieved from a bottom trawl station on board cruises of FAO/NORAD research vessel Dr. Fridtj of Nansen (2010). The rock also has growth of other benthic animals including gorgonian corals.



Fig. 5. *Rhizopsammia verrilli* Collected from Off Gunz, Balochistan Coast.

### DISCUSSION

Ali *et al.* (2014) have also described distribution and abundance of species found in some of the coral hotspot along Pakistan coast. A total of 29 hard coral species, one black coral species and eight soft coral species were recorded from 18 dive sites at nine locations along the coastline were reported by them. In addition to these, there are a number of other locations along the coast of Pakistan that have coral and coral assemblages. Three coral species added to the list of known corals were collected from three additional sites which were not included in Ali *et al.* (2014). Further investigations are required to enumerate comprehensively the species diversity of corals in Pakistan and to map the areas that have corals and coral assemblages.

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