

Hermatypic corals of the Goa coast, west coast of India

C L Rodrigues, S Caeiro & S V Raikar

Department of Marine Sciences and Marine Biotechnology, Goa University, Taleigao Plateau, Goa 403 206, India

Three species of reef building corals: *Porites (Porites) lutea*, *Favites pentagona* and *Turbinaria mesenterina* were recorded near Grandi island, off Marmagao (Goa). The coral patch was observed at a depth of 3 m. This is the first report of hermatypic corals along the Goa coast. A non-reef building solitary coral of the Atlantic region *Astrangia* sp. was also recorded and could have been introduced in Indian waters due to maritime activities.

Coral reefs are among the most diverse and most productive marine ecosystems occurring only in tropical regions. They are formed by hermatypic scleractinian corals, originating as patches and growing to form reefs. Another group of scleractinians, referred to as ahermatypic corals, do not form reefs and are distributed worldwide. Coral patches have been reported to occur in some regions along the west coast of India—in the Gulf of Kutch and along the coasts of Ratnagiri, Malvan and Redi¹. Along the Goa coast, the only scleractinian coral documented is that of *Astrangia* sp., an ahermatypic coral, settled on aluminium and mild steel panels exposed at Cortalim bridge and Marmagao harbour².

During an underwater survey conducted along St. George's islands off Marmagao along Goa coast, natural coral patches were observed near Grandi island (Fig. 1) in clear waters, at a depth of about 3 m. Coral samples were collected by SCUBA diving and examined. These stony corals colonised sub tidal lateritized greenstones, prevalent along the Goa coast. The presence of reef building corals along the Goa coast has not been documented so far. Three species of hermatypic corals were identified and their systematic positions and descriptions are given below:

Class: Anthozoa Ehrenberg, 1834
Order: Scleractinia Bourne, 1900
Sub order: Fungiina Verill, 1865
Family: Poritidae Gray, 1842
Genus: *Porites* Link, 1807

Porites (Porites) lutea Edwards and Haime, 1860

The specimen comprised of a young colony. The corallum is encrusting with cerioid corallites 0.8-1.0 mm diameter. Intercorallite wall is made up of 3 rows of dentations, the middle one forming a ridge. Ventral directive septa form a triplet. There are 5 well developed pali. Columella comprise of a single style. Along the west coast, *P. lutea* has been reported at Malvan³ (Maharashtra) and in the Gulf of Kutch⁴.

Family: Faviidae Gregory, 1900

Genus: *Favites* Link, 1807

Favites pentagona (Esper, 1794)

The corallum is encrusting, measuring about 30 cm in greater spread. Calices are cerioid,

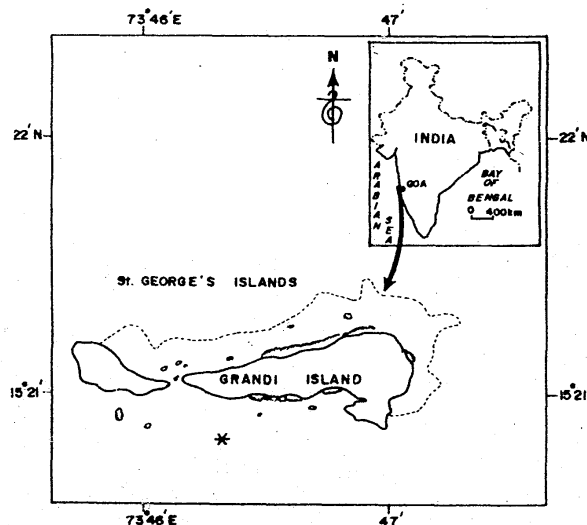


Fig. 1—Location of the hermatypic coral patch (indicated by the star) near Grandi island, off Marmagao along Goa coast

pentagonal, measuring 6-10 mm in length and 5-7 mm in breadth. An intercorallite ridge separates adjoining corallites. Septa are in three orders and range from 24-30 in number. Septa show dentations that increase in size towards the columella with the last dentation forming a well developed paliform lobe on the major septa. The columella is poorly developed and surrounded by the paliform crown. Though not recorded on the west coast, this species was recorded in the Gulf of Mannar⁵ and in the Lakshadweep⁶.

Sub order: Dendrophylliina Vaughan & Wells, 1934

Family: Dendrophyllidae Gray, 1847

Genus: *Turbinaria* Oken, 1815

Turbinaria mesenterina (Lamarck, 1816)

Two specimens were examined. The corallum of the first specimen comprised of a unifacial plate approximating 30 cm across and 5 mm thick at the periphery. Inter corallite distance is 2-3 mm. Corallites project to about 3 mm or are submerged in the coenochyme. They are conical with 2.0-2.5 mm diameter at the top. Septa are of 2 orders, 16-18 in number and cannot easily be distinguished. All septa are heavily granulated. Columella consists of a poorly developed ridge. Coenosteum is covered with spinules. The second specimen differed in growth form and comprised of an explanate cup shaped corallum growing horizontally rather than vertically, unifacial, with a thickness of about 3 mm at the rim and attached to the substrate by a broad stalk. Corallites are circular, 2.0-2.5 mm in diameter, crowded or up to 3 mm apart, level or up to 3 mm exsert, with 16-18 septa. Corallites tend to incline towards the margin. Columella is plate like. Coenosteum is echinulate. Though not recorded on the west coast, this species has been reported in the Gulf of Mannar⁵ and in the Lakshadweep⁶.

Hermatypic corals occur only in the tropics as their distribution is primarily controlled by water temperature. Other important factors are water depth, salinity, sedimentation, wave action and period of emergence into air⁷. When submerged, rainfall is not necessarily fatal for coral growth⁸.

In addition to reef building corals, the solitary ahermatypic coral, *Astrangia* sp. was also recorded. While the hermatypic corals recorded in this study are Indo-Pacific species, *Astrangia* sp. is an Atlantic coral genus⁹. Due to their separation for millions of years, Atlantic and Indo-Pacific coral genera are distinct, with the exception of few genera common to both regions. This species has been recorded earlier on metallic surfaces². It could have been introduced in Indian waters by ships/tankers originating from the Atlantic.

Hermatypic corals are thus widely distributed along the west coast of India. Their occurrence could possibly extend further south to the Kerala coast.

Authors are grateful to Dr. A.G. Untawale and Dr. C.G. Naik of the National Institute of Oceanography, Goa, and Mr. Elias Vaz, amateur diver, for the coral specimens.

References

- 1 Bakus G J (Ed.), *Coral reef ecosystems*, (Oxford & I B H Publ Co, New Delhi) 1994, pp 232.
- 2 Anil A C & Wagh A B, *Curr Sci*, 53 (1984) 585.
- 3 Qasim S Z & Wafar M V M, *Mahasagar - Bull Natn Inst Oceanogr*, 12 (1979) 53.
- 4 Pillai C S G & Patel M I, *J Mar Biol Ass India*, 30 (1988) 54.
- 5 Pillai C S G, in *Stony corals of the seas around India*, edited by C Mukundan & C S G Pillai, (Marine Biological Association of India, Cochin) 1972, 191.
- 6 Pillai C S G, *J Mar Biol Ass India*, 25 (1983) 78.
- 7 Stoddart D R, *Biol Rev*, 44 (1969) 433.
- 8 Ditlev A, *Mar Biol*, 47 (1978) 29.
- 9 Wood E M, *Reef corals of the world*, (T F H Publications, Hong Kong) 1983, pp 256.