



NEW RECORD OF FIVE SCLERACTINIAN CORALS TO INDIAN WATER FROM ANDAMAN & NICOBAR ISLANDS

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ABSTRACT

Marine biodiversity of Andaman & Nicobar Islands bear an extensive framework of scleractinian corals with a great deal of diversified species distribution from intertidal regions to reef slopes under seventeen families. Five species of scleractinian corals under four families such as *Favia rosaria* Veron, 2000 & *Platygyra contorta* Veron, 1990 belong to Faviidae family, *Leptoseris gardineri* Horst, 1921 belongs to Agariciidae family, *Goniopora albiconus* Veron, 2000 belongs to Poritidae family and *Psammocora nierstraszi* Horst, 1921 belongs to Siderastreidae family were reported first time from Andaman & Nicobar Islands. The present paper deals with the taxonomic features, ecology and distribution of those five newly recorded species.

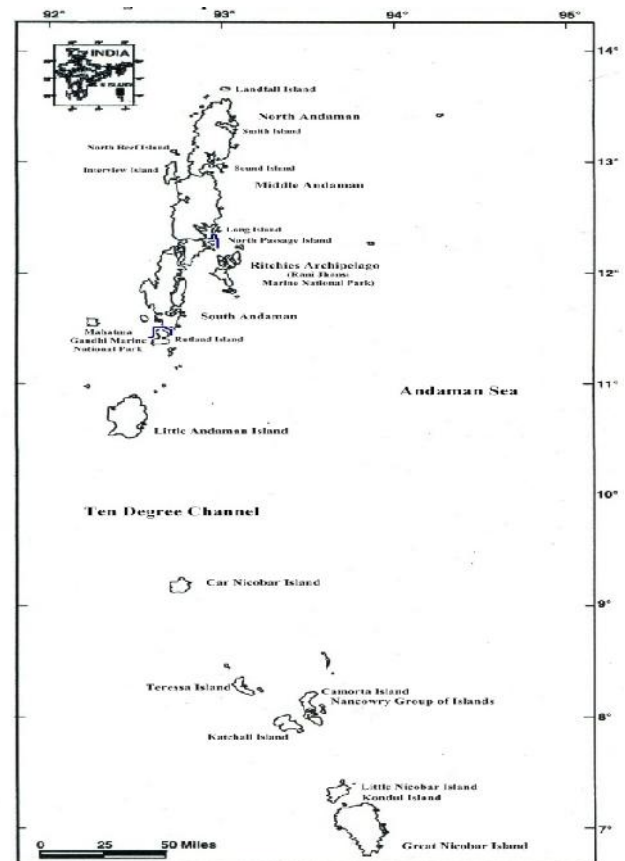
KEY WORDS: Scleractinian corals, new record, Andaman & Nicobar Islands

INTRODUCTION

The islands of Andaman & Nicobar offer a varied and complex animal life of which colourful coral reefs constitute the most fragile and interesting faunal element as elsewhere in Indo-Pacific Reefs (Ramakrishna *et al.*, 2010). Coral reef ecosystems are the most diverse and complex aquatic realm. Although they are diverse as a whole, this diversity is not evenly distributed among habitat types within the reef (Karlson *et al.*, 2004). The structure of a reef provides home and food for many types of plants, fish and invertebrates (Nelson, 1999). The studies on taxonomy of coral reefs in India started as early as 1847 by Rink in Nicobar Islands and later in 1898 by Thurston at Gulf of Mannar region. A total account on the corals of Andaman & Nicobar Islands has been reported with the impetus gained from the earlier works on the collection made from Andaman & Nicobar Islands (Scheer and Pillai, 1974). With the efforts of several workers taxonomical works of scleractinian corals species have been continuing to explore the marine environment of Andaman and Nicobar Islands. This documentation depicts the taxonomical analysis of five newly recorded species of scleractinian corals with their ecological status and distribution.

MATERIAL AND METHODS

Several underwater surveys were conducted at the islands of Middle and South Andaman (Map 1) to monitor the coral reefs during December 2011 to February, 2012 by employing Self-Contained Underwater Breathing Apparatus (SCUBA) diving. Photographs of scleractinian



Map 1 Study Areas of Andaman & Nicobar Islands

Corals were taken by underwater digital camera (Sony - Cyber shot, Model DSC-T900, marine pack, 12.1 megapixels and Sony- Cyber shot, Model DSC-TX1, marine pack, 10.2 megapixels) for detailed identification. Species identification was confirmed with the in consultation with Veron *et al.* (1977), Veron and Pichon (1979), Sheppard (1987) and Veron (2000).

RESULT

The features of five corals reported through the study are given below.

SYSTEMATICS

Order SCLERACTINIA Bourne, 1900

Family Faviidae Gregory, 1900

Genus *Favia* Oken, 1815

***Favia rosaria* Veron, 2000 Fig.1**

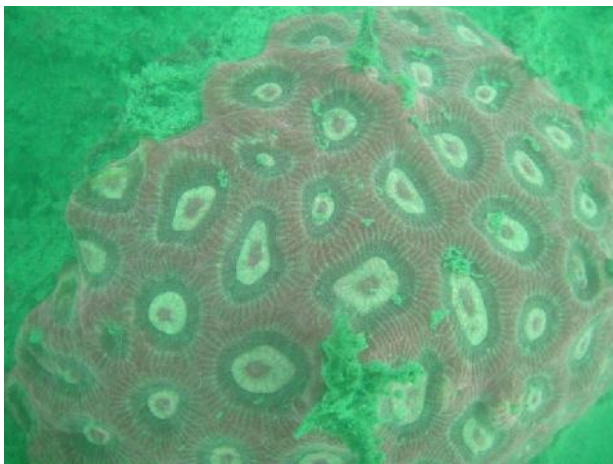


FIGURE 1. *Favia rosaria* Veron, 2000

Order SCLERACTINIA Bourne, 1900

Family Faviidae Gregory, 1900

Genus *Platygyra* Ehrenberg, 1834

***Platygyra contorta* Veron, 1990 Fig. 2**

Material examined: Six colonies were recorded at Little Andaman Island (Lat. 10°53.384'N & Long. 092°32.045'E) on 11th February 2012 at the depth of 5-22 meter.

Description: Colonies are massive, encrusting or columnar. Valleys are usually long and relatively straight at colony margins, becoming short, sinuous and contorted towards the colony centre. Walls are thin. Septa are highly irregular.

Habitat & ecology: It is found on rocky foreshores or shallow reef environments. This species is found on sub-tidal rock and rocky reefs, on the back and fore-slope of the reef, and in lagoons. This species was observed at 20m depth.

IUCN Red list Category and Criteria: Least Concern, 2011.

Distribution: *India:* Little Andaman Island of Andaman & Nicobar Islands; *Elsewhere:* Australia, British Indian Ocean Territory, Fiji, Indonesia, Japan, Kenya, Kiribati, Madagascar, Malaysia, Marshall Islands, Micronesia, Federated States of, Mozambique, Myanmar, Nauru, New

Material examined: Eight colonies were recorded at North Passage Island (Lat. 12°17.410'N & Long. 092°55.603'E) on 11th December 2011 at the depth of 5-21 meter.

Description: Colonies are sub-massive to encrusting and often up to one metre across. Corallites are crowded, up to 20 mm diameter, and have low walls. Extra-tentacular budding is common. Septo-costae are uniform, not exsert. Septa have fine teeth. Paliform lobes are inconspicuous.

Habitat & ecology: This species occurs in shallow reef slopes and is also found in lagoons. This species was found to 20 m.

IUCN Red list Category and Criteria: Vulnerable, 2011.

Distribution: *India:* North Passage Island of Andaman & Nicobar Islands; *Elsewhere:* Australia, Fiji, Indonesia, Micronesia, Federated States of New Caledonia, Papua New Guinea, Solomon Islands, Vanuatu and Vietnam.



FIGURE 2. *Platygyra contorta* Veron, 1990

Caledonia, Palau, Papua New Guinea, Philippines, Seychelles, Singapore, Solomon Islands, Somalia, Taiwan, Province of China, Tanzania, United Republic of, Thailand, Tuvalu, United States Minor Outlying Islands, Vanuatu, Vietnam, Wallis, Futuna and Yemen.

Order SCLERACTINIA Bourne, 1900

Family AGARICIIDAE Gray, 1847

Genus *Leptoseris* Milne Edwards and Haime, 1849

***Leptoseris gardineri* Horst, 1921 Fig. 3**

Material examined: Four colonies were recorded at North Passage Island (Lat. 12°17.410'N & Long. 092°55.603'E) on 11th December 2011 at the depth of 9-19 meter.

Description: Colonies are horizontal, uni-facial, subdividing fronds. Stands may be over 10 metres across. Corallites are aligned on the centre of narrow parts of fronds or several may be aligned transversely on broad parts. They are outwardly inclined. Branches are <2 cm across and contain 1-3 corallites atleast. Calices are slit-like or elliptical with a maximum dimension of <4mm. the thecal rim is usually distinct. Septo-costae are arranged alternately, frequently second order costae become first order when a new lateral pair of second order costae develop. All septo-costae are lightly granulated with those of the first order being thicker, more exsert and more

granulated. They primarily radiate from the calice centres to reach the margins or to extend along the branch to the next calice. They plunge vertically within the calices, which are deep except at the periphery, 8-12 of the first order reaching the columellae. The columellae are situated deep within the calices and usually consist of a fused mass of trabeculae with similar shape as calices. The back of the branches are smooth with fine costal striations.

Habitat & ecology: It usually occurs on lower reef slopes with soft substrates. It can form large fields even on sandy bottoms. This species is found from 10-30 m.

IUCN Red list Category and Criteria: Least Concern, 2011.

Distribution: *India:* North Passage Island of Andaman & Nicobar Islands; *Elsewhere:* American Samoa, Australia, British Indian Ocean Territory, Cook Islands, Fiji, Indonesia, Japan, Kiribati, Malaysia, Maldives, Marshall Islands, Micronesia, Federated States of, Myanmar, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Islands, Sri Lanka, Taiwan, Province of China, Thailand, Tokelau, Tonga, Tuvalu, United States Minor Outlying Islands, Vanuatu, Vietnam, Wallis and Futuna.



FIGURE 3 *Leptoseris gardineri* Horst, 1921

Order SCLERACTINIA Bourne, 1900
Family Siderastreidae Vaughan & Wells, 1943
Genus *Psammocora* Dana, 1846

***Psammocora nierstraszi* Horst, 1921 Fig. 5**

Material examined: Three colonies were recorded at Rutland Island (Lat. 11°05.421'N & Long. 092°40.050'E) on 25th January 2012 at the depth of 30 meter.

Description: Colonies are massive and are primarily characterized by highly meandering valleys, often with steep walls. Corallites are distributed largely independently of the valleys. Petaloid primary septa are exsert giving the colony surface a rough appearance.

Habitat & ecology: This species is often found in reef habitats exposed to strong wave action, generally to depths of 30 m.

Order SCLERACTINIA Bourne, 1900

Family Poritidae Gray, 1842

Genus *Goniopora* de Blainville, 1830

***Goniopora albiconus* Veron, 2000 Fig. 4**

Material examined: Three colonies were recorded at North Passage Island (Lat. 12°17.410'N & Long. 092°55.603'E) on 11th December 2011 at the depth of 6-32 meter.

Description: Colonies are encrusting, forming thin irregular laminae. Corallites are shallow, polygonal, and have thin walls. Corallites vary greatly in size. Septa are irregularly fused but do not form deltas. Columellae are very small. Polyps are short and even. Oral cones are exceptionally large while tentacles are short and thin. Polyps retract rapidly if disturbed.

Habitat & ecology: This species is found in shallow reef environments, generally to a depth of 30 m.

IUCN Red list Category and Criteria: Vulnerable, 2011.

Distribution: *India:* North Passage Island of Andaman & Nicobar Islands; *Elsewhere:* Australia, British Indian Ocean Territory, Djibouti, Eritrea, Indonesia, Madagascar, Malaysia, Maldives, Oman, Philippines, Singapore, Somalia, Sri Lanka, Thailand and Yemen.



FIGURE 4 *Goniopora albiconus* Veron, 2000

IUCN Red list Category and Criteria: Least Concern, 2011.

Distribution: *India:* Rutland Island of Andaman & Nicobar Islands; *Elsewhere:* American Samoa, Australia, British Indian Ocean Territory, Cambodia, China, Comoros, Cook Islands, Djibouti, Egypt, Eritrea, Fiji, French Polynesia, Indonesia, Israel, Japan, Jordan, Kenya, Kiribati, Madagascar, Malaysia, Maldives, Marshall Islands, Mauritius, Mayotte, Micronesia, Federated States of Mozambique, Myanmar, Nauru, Niue, Palau, Papua New Guinea, Philippines, Réunion, Samoa, Saudi Arabia, Seychelles, Singapore, Solomon Islands, Somalia, Sudan, Taiwan, Province of China, Tanzania, United Republic of Thailand, Tokelau, Tonga, Tuvalu, United States Minor Outlying Islands, Vanuatu, Vietnam, Wallis, Futuna and Yemen.



FIGURE 5 *Psammocora nierstraszi* Horst, 1921

DISCUSSION

Taxonomical study of scleractinians is completely dependent on the structural morphogenesis of those. It is the study of calcareous structure with their orientation pattern along with the present environmental condition. As ecology is one of the major stressors to build the structural confirmation of scleractinian life, ecological study was also started in past decades. Sewell (1922) provided the first account of the ecology and formation of reef in the region after visiting the Nicobar Islands. Pillai is the pioneer worker of Indian scleractinian taxonomy life as he (1983) listed 135 coral species from the region and found that the Andaman Islands were less diverse than the Nicobar Islands. Venkataraman *et al.* (2003) listed 228 species of corals belonging to 58 genera and 15 families. This report includes the corals of Andaman & Nicobar Islands, Lakshadweep, Gulf of Kutch, Gulf of Mannar and Palk Bay. Ramakrishna *et al.* (2010) reported checklist of a total of 418 scleractinian coral species from the Andaman & Nicobar Archipelago. Tamal *et al.* (2010a-c and 2011a-g) with the extensive surveys in underwater marine life, reported 70 species of scleractinian corals from different areas of these entire group of islands as new record to Indian water. These consecutive additions of scleractinian corals gradually increase marine faunal diversity in India. Report on this paper is addition of another set of seven scleractinian species in the existing database of corals enlisted from Indian waters.

ACKNOWLEDGEMENT

Authors are grateful to the Ministry of Environment and Forests, Government of India for providing financial assistance to undertake the study through the projects of National Coral Reef Research Institute, Zoological Survey of India, Port Blair.

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