

## Short Communication

### **Observation of Pennatulacea (Order) From Gulf of Mannar Biosphere Reserve, Indian**

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**Abstract:** Present paper dealt with six species of new distribution recorded in Indian waters viz. *Crassophyllum cristatum*, *Sarcoptilus grandis*, *Sarcoptilus rigidus*, *Ptilosarcus undulates*, *Veretillum tenuis* and *Virgularia densa* belonging three families under the order Pennatulacea from Gulf of Mannar.

**Keywords:** Pennatulacea, Seapen, Octocorallia, Gulf of Mannar

#### **INTRODUCTION**

Sea pens and sea pansies, scientifically called pennatulaceans, are a highly specialized and distinct group of sessile benthic coelenterates. They are distributed at different depths from intertidal to subtidal zone, throughout the world's oceans from the polar seas to the tropic seas [1, 2, 3].

The ability to inhabit soft substrata has allowed several abyssal-dwelling sea pens to have a nearly cosmopolitan distribution. Despite these widespread geographic ranges, pennatulacean species diversity in the deep-sea is relatively low, and may be attributed to a combination of factors including: relatively low energy input and productivity in the abyssal environment, coupled with a relative lack of ecological diversity [4-6].

Thirty-two genera in fifteen families of living pennatulaceans are currently recognized. Of the 436 nominal species names described in literature, approximately one half are currently considered valid. Major monographic works on the Pennatulacea was carried out by Kukenthal [2], and Williams [3, 7]. The objective of this research correspondence is to report an exceptional abundant occurrence of the poorly known pennatulaceans, off the Gulf of Mannar, India.

#### **MATERIAL AND METHODS**

An extensive survey of pennatulaceans was conducted during 2008 in various regions of the Gulf of Mannar Biosphere Reserve. SCUBA gear was used for surveying the subtidal regions. The surveys were carried out in the Vembar group of islands (Upputhanni, Puluvinichalli and Nallathanni) and Tuticorin group of islands (Van, Kaswary, Kariyachalli and Vilanguchalli) in the Gulf of Mannar. The patchy reef area other than the island periphery locally known as "Mainland" was also surveyed. The pennatulaceans were observed and

photographed underwater using Canon Powershot S45 camera with underwater housing. Specimens were not collected as the study area is a Biosphere Reserve. Morphological characters used in this study for the identification of species are general shape and animal profile, colour and pattern.

#### **RESULT AND DISCUSSION**

The present paper reports the occurrence of six species of pennatulaceans from the Gulf of Mannar Biosphere Reserve (GOMBR). This six species belonging to six genera and three families, it is reported from India. A more extensive survey in deeper waters of Gulf of Mannar Biosphere Reserve may further exposed several species under Pennatulacea. The systematic account and morphological features of presently observed pennatulaceans are given below:

#### **Systematic Account**

**Phylum** : Cnidaria

**Class** : Anthozoa

**Order** : Pennatulacea

**Suborder** : Subsessiliflorae

**Family** : Pennatulidae

**Genus** : *Crassophyllum*

#### **1. *Crassophyllum cristatum* Tixier – Durivault, 1961.**

**Material Observed:** Live colony height: 6 cm; width: 2.3 cm; Depth: 9 meter Lat. 08<sup>o</sup>45'30.0 N, Long. 078<sup>o</sup>14'20.0 E) Thoothukudi region, Gulf of Mannar, Figure 1 (1<sup>st</sup> site), Sandy bottom, seagrass bed with clear water.

**Description:** Colony ash in colour when alive. Average size of the colony is 5 to 6 cm. The central stem was only a 3mm thick and yellowish gray colour (Figure 2A).

**Habitat:** Lives embedded in sandy bottom, into which it can withdraw. Mostly occurs in shelter localities in depths greater than about 5m.

**Distribution:** Eastern south Atlantic.

**Genus :** *Sarcoptilus*

## 2. *Sarcoptilus grandis* Gray, 1848

**Material Observed:** Live colony height: 8 cm; width: 3 cm; Depth: 12 meter Lat. 08<sup>o</sup>49'28.8 N, Long. 078<sup>o</sup>14'28.6 E) Thoothukudi region, Gulf of Mannar, Figure 1 (2<sup>nd</sup> site), Sandy bottom with clear water.

**Description:** Bears polyps is black with yellow, center stalk whitish yellow colour, 4 mm thickness. Colony is yellowish or whitish colour (Figure 2B).

**Habitat:** Mostly lives in muddy sand, Occurs in sheltered localities in depths greater than about 5m.

**Distribution:** Australia, Gulf of Mannar

**Genus:** *Sarcoptilus*

## 3. *Sarcoptilus rigidus* Williams, 1995

**Material Observed:** Live colony height: 4 cm; width: 2 cm; Depth: 12 meter Lat. 08<sup>o</sup>49'28.8 N, Long. 078<sup>o</sup>14'28.6 E) Thoothukudi region, Gulf of Mannar, Figure 1 (2<sup>nd</sup> site), Sandy bottom with clear water.

**Description:** Colony pink with blue in colour when alive. Average size of the colony is 3 to 4 cm and very slender colonies. The average size of the polyp is 0.56 mm and it was capable of luminescence in darkness. The central stem was only a 0.3mm thick (Figure 2C).

**Habitat:** Lives in sandy bottom, into which it can withdraw. Occurs in sheltered localities in depths greater than about 5m.

**Distribution:** South Australia, Gulf of Mannar.

**Genus:** *Ptilosarus*

## 4. *Ptilosarcus undulates* (Verrill, 1865)

**Material Observed:** Live colony height: 7 cm; width: 3.5 cm; Depth: 10 meter Lat. 08<sup>o</sup>54'37.1 N, Long. 078<sup>o</sup>16'38.5 E) Thoothukudi region, Gulf of Mannar, Figure 1 (3<sup>rd</sup> site), sandy bottom with clear water.

**Description:** colony is spiny and whitish yellow colour, polyps are black with yellow, central stalk yellow colour, 4 mm thickness (Figure 2D).

**Habitat:** Mostly lives in sand, Occurs in sheltered localities in depths greater than about 5m.

**Distribution:** East Pacific and Gulf of Mannar

**Family:** Veretillidae

**Genus:** *Veretillum*

## 5. *Veretillum tenuis* (Marshall and Fowler, 1889)

**Material Observed:** Live colony height: 8 cm; width: 2 cm; Depth: 15 meter (Lat. 09<sup>o</sup>00'25.4 N, Long. 078<sup>o</sup>24'15.3 E) Vembar region, Gulf of Mannar, Figure 1 (4<sup>th</sup> site), Sandy bottom with clear water.

**Description:** Colony dirty white in colour when alive. Size of the colony is 8 cm height, 2 cm in head, 1.7 cm in angering portion and rounded tip. The extended polyp's average size is 1 cm in underwater live condition (Figure 2E).

**Habitat:** Lives embedded in muddy sands and sandy mud bottoms at 15m depth.

**Distribution:** East Indian Ocean and Gulf of Mannar.

**Family:** Virgulariidae

**Genus:** *Virgularia*

## 6. *Virgularia densa* Tixier – Durivault, 1966

**Material Observed:** Live colony height: 14 cm; width: 1.5 cm; Depth: 15 meter (Lat. 09<sup>o</sup>04'00.3 N, Long. 078<sup>o</sup>35'50.0 E) Vembar region, Gulf of Mannar, Figure 1 (5<sup>th</sup> site), Sandy bottom with clear water.

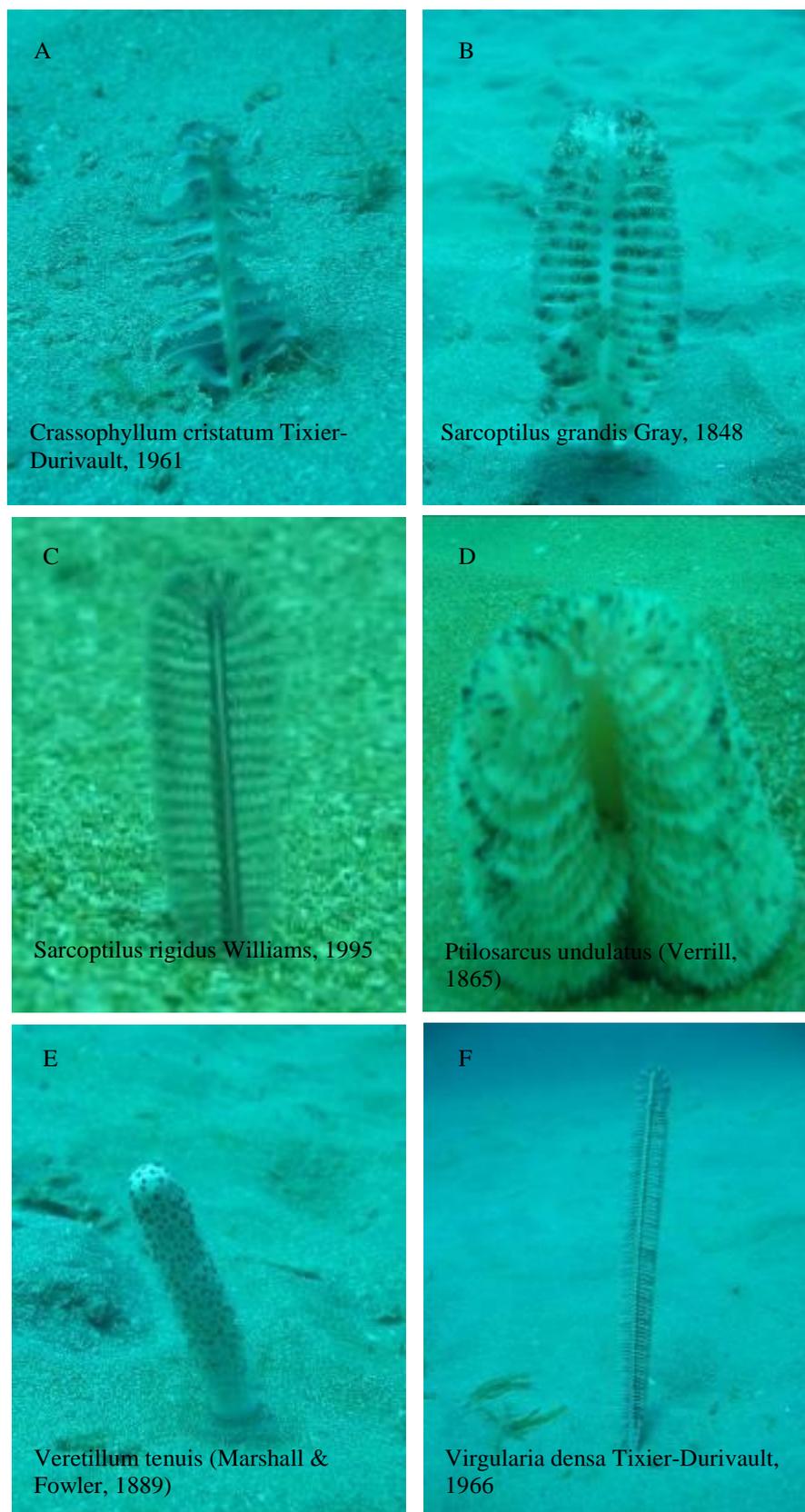
**Description:** Forms elongated, very slender colonies with narrow leaves and bears polyps. Colour is yellowish or whitish. Up to 14 cm long with central stem, it is 2 mm thickness (Figure 2F).

**Habitat:** Mostly lives in muddy sand, into which it can withdraw. Occurs in sheltered localities in depths greater than about 5m.

**Distribution:** West Indian Ocean and Gulf of Mannar.



Figure 1 Study Area Google Earth Map



**Figure 2: Underwater observation of Pennatulacea from Gulf of Mannar Biosphere Reserve**

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#### REFERENCE

1. Kukenthal W, Broch H; Pennatulacea. Wissenschaftliche Ergebnisse der Deutschen Tiefsee-Expedition "Valdivia" 1898-99, 1911; (13):113-576, plates 1-17.
2. Kukenthal W; Pennatulacia. Das Tierreich, 1915; (43):1-132.
3. Williams GC; Living genera of the sea pens (Coelenterata: Octocorallia: Pennatulacea): illustrated key and synopses. Zoological Journal of the Linnean Society, 1974; 113:93-140.
4. Birkeland C; Interactions between a sea pen and seven of its predators. Ecological Monographs, 1995; (44):211-232.
5. Langton RW, Langton EW, Theroux RB, Uzmann JR; Distribution, behavior and abundance of sea pens, *Pennatula aculeata*, in the Gulf of Maine. Marine Biology, 1990; 107: 463-469.
6. Rice AL, Tyler PA and Paterson GJL; The Pennatulid *Kophobelemnon stelliferum* (Cnidaria: Octocorallia) in the Porcupine Seabight (north-east Atlantic Ocean). Journal of the Marine Biological Association of the United Kingdom, 1992; 72: 417-434.
7. Williams GC; The Pennatulacea of southern Africa (Coelenterata, Anthozoa). Ann.S.Afr.Mus.1990; 99: 31-119.