



## NEW RECORD OF SEA STAR *NARDOA TUBERCULATA* GRAY (ECHINODERMATA: OPHIDIASTERIDAE) FROM ANDAMAN AND NICOBAR ISLANDS

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### ABSTRACT

The present study described a sea star species *Nardoa tuberculata* reported from Andaman and Nicobar Islands is a new record to India. Including of presently reported one, five species of Genus *Nardoa* have been found in India.

**KEY WORDS:** *Nardoa tuberculata*, Andaman and Nicobar Islands, sea star.

### INTRODUCTION

Out of 7000 living species of echinoderms from oceans around world, the class Asterozoa represents 2100 living species and 13000 fossil species (Pawson, 2007). In India, a total of 765 species of echinoderms were reported of which Asterozoa has 180 species belonging to 20 families and 81 genera (Venkataraman and Wafar, 2005). Asterozoa acts as a predator in a reef ecosystem by feeding on oysters, sponges, ascidians, small crustaceans, molluscs, algae and encrusting organisms (Sastry, 2002). Predators may influence the induction of phenotypic modification in prey species (Lima, 1998), that in turn can influence species growth, survival and fitness (McPeck *et al.*, 2001). Predators have also influenced size limitation of prey within populations (Menge, 1976) as well as population dynamics (Bolker *et al.*, 2003). During a coral reef survey along the Andaman Coast we found one species of Asterozoa, *Nardoa tuberculata* which has been reported as a new record from Indian waters. This *Nardoa* species is described with its salient morphological features and comparisons also made with closely allied species of *Nardoa tuberculata* in the present paper.

### MATERIALS AND METHODS

Two specimens were collected by employing SCUBA diving. Collected specimens were preserved in rectified spirit for taxonomic studies. The species identification was made following Clark and Rowe (1971), A. M. Clark, (1967) and Gray (1840).

### RESULTS

#### *Nardoa tuberculata* (Gray, 1840)

##### Systematic Position:

Phylum: Echinodermata Bruguiere, 1791  
Subphylum: Asterozoa Zittel, 1895  
Class: Asterozoa de Blainville, 1830  
Order: Valvatida Perrier, 1884  
Family: Ophidiasteridae Verrill, 1870  
Genus: *Nardoa* Gray, 1840  
Species: *Nardoa tuberculata* Gray, 1840

*Common Name:* Warty Mesh Sea Star

*Synonymised Taxa:*

*Nardoa obtusa* (Perrier, 1875); *Nardoa pauciformis* (Von Martens, 1866)

#### Material examined

Two specimens (radial arm length- 5 to 7cm) were collected from the coral reef areas of Rutland Island (11°27.307'N and 92°36.098'E) at the depth of 6m on 19<sup>th</sup> August, 2010. The specimen has been registered in National Zoological Collection of ZSI (ZSI/ANRC- 4917).

#### Description

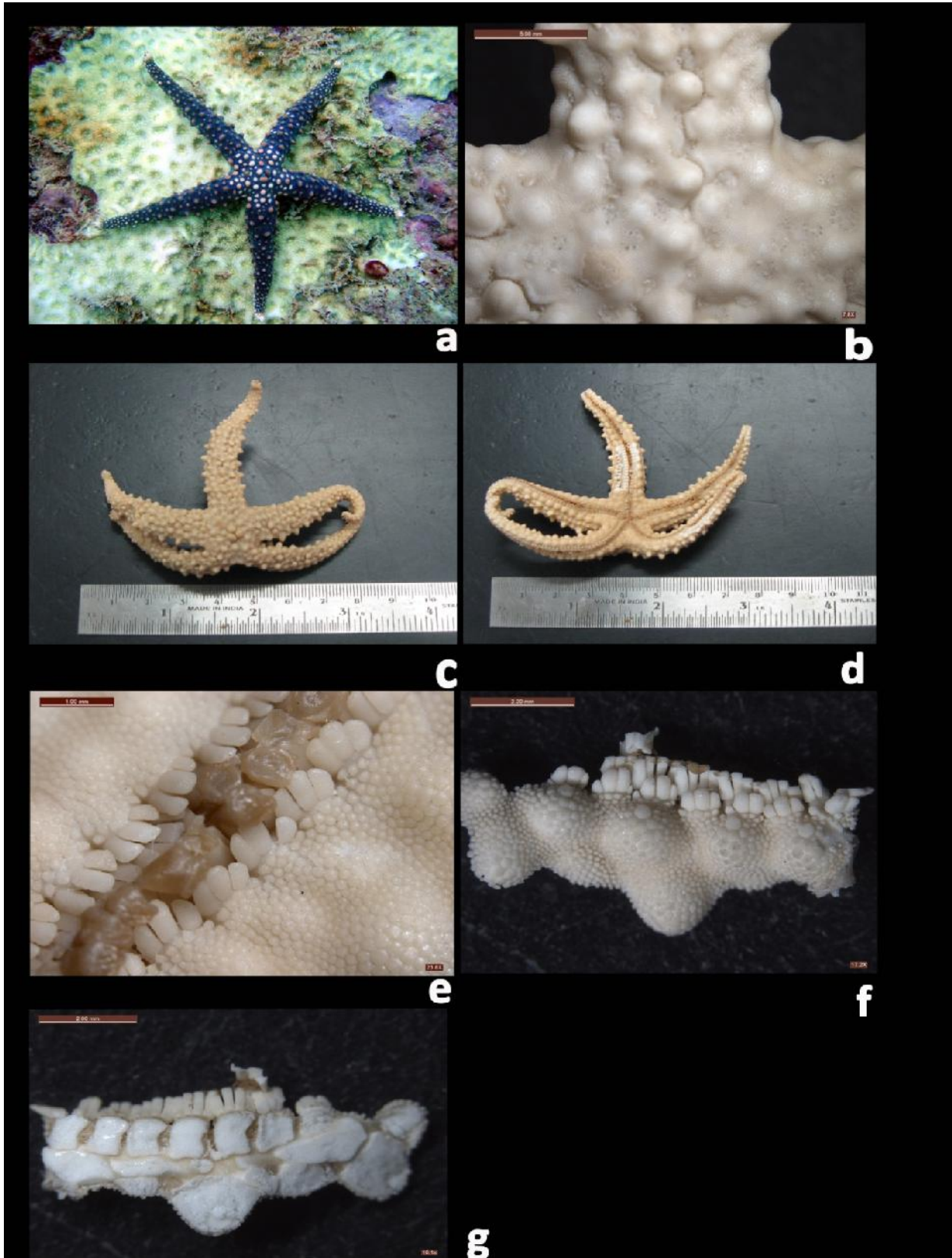
Colour in life is blue or yellow with large granules of different colour on the aboral surface of the body (Fig.a). The entire surface is coated with fine granules concealing the underlying plates (Fig. b&c). On the flatter parts of the aboral skeleton these number c. 48/sq. mm. but on the convexities they become distinctly coarser, especially towards the tips of the plates (Fig.e). Tubercular plates are relatively low and infrequent, often restricted to the sides of the distal parts of the arms and rarely exceeding 2.8mm. The supero-marginal plates (Length 0.5mm) are all similar and barely convex (Fig. g). Arms are blunt at the tip. The main series of actinal plates runs for almost entire length of the arm. The adambulacral plates for much of the arm bear four, rarely five, prismatic furrow spines, the fans of which are slightly oblique so that consecutive ones tend to overlap.

#### Distribution

Philippines, East Indies, China, South Japan and South Pacific Island.

#### Remarks

*Nardoa tuberculata* was first described by Gray (1840) from Philippines. However, present record is a new report on the distribution of the species in India. *Nardoa tuberculata* usually found on reef flats, lagoon holes and coral rubble. The similar species of *Nardoa tuberculata* come the holotype of *Nardoa obtusa* which described by Fisher in 1914. *Nardoa obtusa* is also called as young tuberculata with the tubercles a little more prominent than usual. The other four species of *Nardoa* reported from India are *Nardoa frianti*, *Nardoa galatheae*, *Nardoa lemonnieri*, *Nardoa novaecaledonia*. The presently reported species differs from other four species with the presence of arm blunt tip and actinal papulae.



**FIGURE a-** Field photograph of *Nardoa tuberculata*; **b:** Details of aboral surface (7.8X); **c & d:** Ventral and dorsal view of *Nardoa tuberculata*; **e:** Granules in the flatter part of the arms (23.8X); **f:** T.S of the aboral surface of the arm (17.2X); **g:** Details of supero-marginal plates (16.1X)

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