



# FIRST REPORT OF DEEP WATER CONE SNAIL *PROFUNDICONUS TERAMACHII* (KURODA, 1956) (GASTROPODA: CONOIDEA) FROM THE ARABIAN SEA

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**Abstract:** The deepwater cone snail species *Profundiconus teramachii* (Kuroda, 1956) (Mollusca: Gastropoda: Conidae) was collected off the Kerala coast, which is the first record of the species from the Arabian Sea.

**Key words:** Conidae, Kerala, *Profundiconus*, Deeper water snails, Arabian Sea, New record

## INTRODUCTION

Cone snails are famous for their large diversity [with MolluscaBase (2019) showing the presence of more than 900 species were recorded worldwide], elegancy as well as complex venom (Nelson,2004). Belonging to the family Conidae within the superfamily Conoidea, they are usually abundant in tropical coral reef areas; most of them occur in the intertidal and shallow sublittoral regions, however some of them inhabit deeper waters on the continental shelf as well as slopes (Poutiers, 1998). According to MolluscaBase (2019), the family Conidae is divided into 16 valid genera including seven fossil records. According to Tenorio and Castelin (2016), the genus *Profundiconus* Kuroda, 1956 includes 26 extant species recorded worldwide. *Profundiconus* is a deep-water cone snail genus usually living in deep to very deep waters up to a depth of about 1134 m (von Martens, 1901; Röckel *et al.* 1995, Tenorio and Castelin, 2016). Shells of the *Profundiconus* Kuroda, 1956 are conical to narrowly conical in shape, thin, very small to very large in size, operculum large and serrated; periostracum smooth (Tenorio and Castelin, 2016).

Diversity of cone snail fauna really unknown and more than 100 species of cone snails were recorded from Indian coastal waters (Ravinesh *et al.*, 2018a). Initially Smith (1894, 1899) recorded few species of

deep water cone snails from different parts of Indian coastal waters in the part of Indian Marine Survey Steamer “Investigator” expeditions. Venkitesan *et al.* (2019) recorded 93 species and Kohn (2001) recorded 79 species from different parts of Indian waters, Ravinesh *et al.* (2018b) recorded 78 species of cone snails from Lakshadweep and Franklin *et al.* (2009) recorded 60 species from the Tamil Nadu. More than 50 species of cone snails have been documented from the Andaman and Nicobar Islands (Rao, 2003; Venkataraman *et al.*, 2004, 2012). This is the first record of *Profundiconus teramachii* (Kuroda, 1956) from the Arabian Sea and Indian coasts.

## MATERIALS AND METHODS

The specimens were obtained from the by-catch of deep water shrimp trawlers operating from the Neendakara fishing harbour (8°352 N; 75°382 E), south west coast of India. The collected specimens were cleaned, photographed and morphometric measurements were taken by using digital caliper. Identification was confirmed following Kuroda (1956), Röckel *et al.* (1995), Marshall (1981) and Tenorio and Castelin (2016). The collected specimen is deposited in the Museum collections of Dept. of Aquatic Biology and Fisheries, University of Kerala, Karyavattom, Trivandrum, Kerala, India with accession number (DABFUK/MOL/GAS/1423).

## RESULTS

### Taxonomic Account

Superfamily : Conoidea J. Fleming, 1822  
Family : Conidae J. Fleming, 1822  
Genus : *Profundiconus* Kuroda, 1956  
Species : *Profundiconus teramachii* (Kuroda, 1956)  
*Asprella* (*Endemoconus*) *teramachii*: Kuroda (1956, 8, pl. 1 fig. 4) [Type locality: Tosa Bay 200 fathoms]  
*Conus teramachii* (Kuroda, 1956) Röckel *et al.* (1995: 145-146, Pl. 26, Fig 1-5)  
*Profundiconus teramachii* (Kuroda, 1956): Tenorio and Castelin (2016: 2, Pl. 1 fig. B)

**Materials Examined:** Five specimens ranging from (shell length 46.12-57.26 mm; shell width 22.91-26.90 mm)

Specimen Accession Number: DABFUK, no. 1423;  
Locality: Neendakara fishing harbour, Kerala, India;  
Date of collection: 13.05.2014; Morphometric measurements: shell length 57.26 mm; shell width 26.90 mm

**Remarks:** Kuroda, 1956 described *P. teramachii* from Tosa Bay Japan. In the western Indian Ocean, the species was recorded from Somalia south to Natal and Madagascar; in the Pacific it occurs from Japan to Taiwan, north of New Zealand, Queensland, and Western Australia (Röckel *et al.*, 1995; Marshall, 1981). Moolenbeek *et al.* (2008) recorded the species from deep waters off Fiji. Tenorio and Castelin (2016) recorded the specimens from Madagascar, China, Papua New Guinea and Solomon Islands (Monnier *et al.*, 2018). The specimens of *P. teramachii* morphologically similar to the western Indian Ocean species *P. neotorquatus* apart from the radula and DNA analysis (Tenorio and Castelin, 2016).

### DISCUSSION

Deep water molluscs are least studied from the Indian coastal waters (Kumar and Ravinesh, 2016). Recently Bozzetti (2014) and Monnier *et al.* (2017) described of deeper water cone snails *Conus indomaris*



**Fig. 1 A-C.** *Profundiconus teramachii* (DABFUK/MOL/GAS/1423), Neendakara, Kerala, India. A- dorsal view; B- apical view; C- ventral view; 57.26 mm length and 26.90 mm width

(Bozzetti, 2014) and *Conus malabaricus* (Monnier, Limpalaër & Tenorio, 2017) from the Kerala coast and Preetha *et al.* (2015) documented deep-water cone snail *Conus vicweei* Old, 1973 from the Kerala coast. The present specimen *Profundiconus teramachii* has not been recorded from the Indian coast. The present record of *Profundiconus teramachii* in India, approximately 2500 km away from the previous records, represents a significant range extension of its distribution to the Arabian Sea. The study points towards the need for exploratory surveys for the documentation of molluscan diversity in the Indian deep waters.

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