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Short Communication

Further evidence of occurrence of *Bufonaria perelegans* Beu, 1987 (Gastropoda: Bursidae) from Indian waters

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Present paper was the second report of *Bufonaria perelegans* Beu, 1987 from Indian water, and first report from Odisha and Andhra Pradesh coast. It is also a confirmation of occurrence of this species from current study locality which was before misidentified with another congeneric species *Bufonaria rana* (Linnaeus, 1758). Figures of both the species are given for further authentication.

[**Keywords**: *Bufonaria perelegans*, *Bufonaria rana*, Bursidae, East coast, New records]

Introduction

Bufonaria Schumacher, 1817 is a genus of family Bursidae, which are commonly known as Frog snails. The genus *Bufonaria* differs from its closely related genus *Bursa* by its more dorsoventrally compressed shell, evenly granulous teleoconch sculpture (between rows of small to large nodules-three rows on almost all species) and fan shaped to oval operculum with its nucleus nearby to centre of the columellar margin[1]. There are eleven valid species of this genus worldwide[2,3]. The earlier studies on mollusca along Indian coast are well documented by Nagabuhushanam & Chandrasekhara Rao[4], Mookherjee[5], Subba Rao *et al.*[6,7], Surya Rao & Subba Rao[8], Rama Rao *et al.*[9], Surya Rao & Mitra[10], Subba Rao & Dey[11], Hylleberg & Kilburn[12], Subba Rao[13], Surya Rao *et al.*[14], Ramakrishna *et al.*[15], Pati & Sharma[16], Yennawar & Tudu[17], Apte[18], Tudu *et al.*[19,20] and Dey[21]. All the studies on Malacofauna along the Indian coast documented altogether five species of genus *Bufonaria*[12,13,21], i.e. *Bufonaria crumena* (Lamarck, 1816), *B. echinata* (Link, 1807), *B. margaritula* (Deshayes, 1932), *B. perelegans* Beu, 1987 and *B. rana* (Linnaeus, 1758). But, the *B. perelegans* Beu, 1987 was recently reported from Tuticorin coast of Tamilnadu[12] and present study confirms its occurrence along Paradeep (Odisha), Suryalanka beach and Kakinada (Andhra Pradesh), east coast of India.

Material and Methods

One empty shell (MARC/ZSI M2914) collected on 20.03.2013; one shell (MARC/ZSI M5943) with dead animal collected on 22.07.2013, from fish bycatch of Paradeep fishing Jetty (20°17.520' N; 86°42.933' E); six empty shells (MARC/ZSI M4825), collected on 9.12.2016, from Kakinada fishing jetty (16˚58'48.80" N; 82˚16'49.71" E); one empty shell (MARC/ ZSIM4835) collected on 10.12.2016, from Suryalanka beach (15˚50' 53.09" N; 80˚31' 57.26" E). The shells were dry preserved in a sample container and are deposited at National Zoological Collections (NZC) of Marine Aquarium and Regional Centre (MARC), Zoological Survey of India (ZSI), Digha, West Bengal. The photographs were taken with Sony digital camera (DSC Hx400v with GPS) and the measurements were taken in millimeter with Vernier caliper (Mitutoyo, Japan). The plate (Fig. 1) was prepared by Adobe Photoshop using lasso tool for removing the background and, the identification and classification of specimens are done following Beu[22] and Bouchet *et al.*[23], respectively. Diagnostic characters of the species were adopted from Beu[22].

Results

Systematic position

Phylum: MOLLUSCA
Class: GASTROPODA
Subclass: CAENOGASTROPODA
Oder: LITTORINIMORPHA
Superorder: LATROGASTROPODA
Superfamily: TONNOIDEA Suter, 1913(1825)
Family: BURSIDAE Thiele, 1925
Genus: *Bufonaria* Schumacher, 1817
Bufonaria perelegans Beu, 1987 (Fig. 1, a-d)
Holotype locality- off southwestern Taiwan

Synonym

Bufonaria (Bufonaria) perelegans Beu, 1987: p. 328; Fig. 211-217.

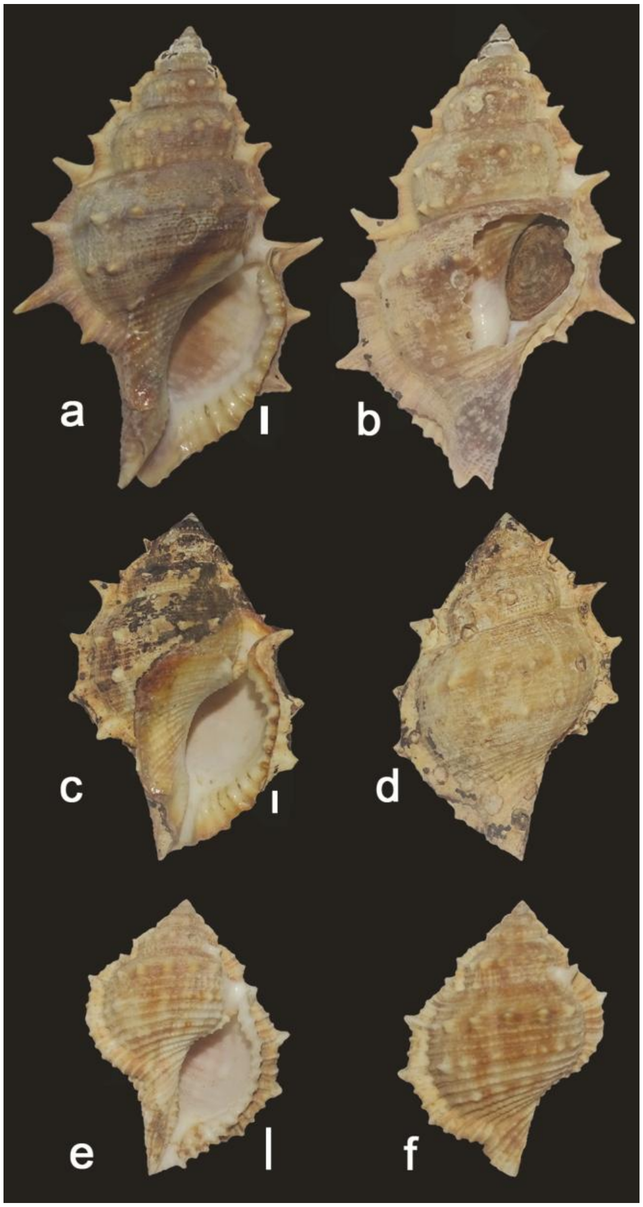

Fig. 1 — a-b, *Bufonaria perelegans* Beu, 1987 and c-f, *B. rana* (Linnaeus, 1758) (Scale: 5mm)

Diagnostic character

Shell largest in the genus, up to 110 mm in height[22]. Dimensions of the present shells including spines, height 68-80 mm, width 45-55 mm and ratio of width and height 0.66-0.68. Spire moderately tall, long open anterior canal, curved slightly to the left, inflated whorls, colour of the shell white and creamy to yellow brown. Varices strictly aligned up spire. Aperture elongate and narrowly oval and colour pale yellow brown. Outer lip flared widely beyond varix, ornamented with 18-20 narrow prominent, widely spaced radial ridges extending out from prominent denticles on inner edge of lip. External teleoconch pale yellow-brown to tan in colour, accompanied by paler nodules and gemmae. Protoconch is of small apex, 3⅓ whorl, turbiniform, smooth, and rounded. Fresh specimens contain thin, pale grey to pale straw-yellow periostracum. Operculum dark brown in colour, fan shaped curved outer margin and nucleus in the centre.

Distribution

In India, this species was only reported from Tamil Nadu[12], and present study reports the species from Odisha and Andhra Pradesh coast which suggest the wide distribution of the species along the east coast of India, and present report confirms its distribution to Indian Ocean. Global distribution: Taiwan, Philippines, Thailand and New Caledonia[1,22] (Pacific Ocean).

Discussion

Primary distribution records of species *Bufonaria perelegans* Beu, 1987 are mainly from Pacific Ocean (Taiwan, Philippines, Thailand, New Caledonia) as mentioned by Beu[1,22]. From Indian Ocean region, this species was first time reported from Gulf of Mannar (Tuticorin fish landing centre) of Tamil Nadu coast by Hylleberg and Kilburn[12], and present report is its geographic range extension to northern part of east coast of India i.e. Odisha and Andhra Pradesh. In the recent Indian literature (Ramakrishna *et al.*[15], pl. VI, Fig. 69-70), this species was identified as *B. rana* (Linnaeus, 1758) which is much smaller species in terms of size. *B. rana* bears short spire, wider width as compared to height (width and height ratio 0.73-0.76), compressed short nodules spine on the anterior and posterior canal, colour more or less creamy white, and whitish aperture. Comparative images of *B. perelegans* and *B. rana* are presented in plate (Fig. 1).

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Conflict of Interest

There is no conflict of interest.

Authors Contributions

PCT: Identified the specimens, taken photograph and prepared the original draft of manuscript; AM: Collected the specimens and edited the manuscript.

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