

NEW RECORDS OF *SALINATOR FRAGILIS* (LAMARCK) (MOLLUSCA: GASTROPODA: AMPHIBOLIDAE) AND *PSEUDONOBA COLUMNEN* (MELVILL), (GASTROPODA: IRAVADIIDAE) FROM INDIA

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INTRODUCTION

During the course of our regular faunistic surveys along Indian coast we have made collections from Gujarat, Sundarbans in West Bengal and from Kakinada Bay in Andhra Pradesh. After identification of the mollusc collections from these localities we have found that two gastropods species, namely *Salinator fragilis* (Lamarck), and *Pseudonoba columen* (Melvill) are new records. The first mentioned is a new record from India and the later is a new record for Gujarat as well as from India. This is a significant finding and we give below a systematic description of the two species.

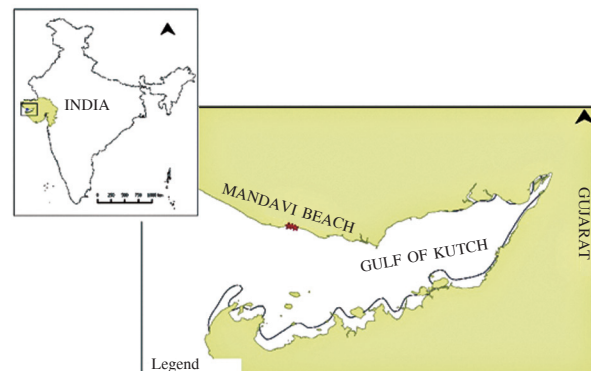
MATERIALS AND METHODS

Sampling was done by hand picking. Live specimens of Gastropods were brought to the lab in polythene bags filled with one-third seawater. The other specimens collected from the beach were washed thoroughly, kept in ice boxes and brought to the lab. In the lab, the fresh specimens were cleaned, washed and photographed using Nikon D90 digital camera. Live specimens were photographed in the wet lab of the Zoological Survey of India.

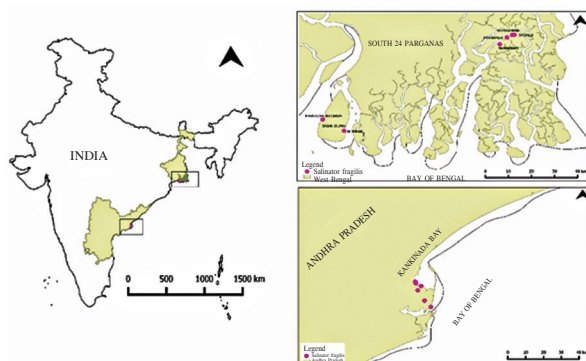
Morphometric measurements of all specimens were recorded to the nearest millimetre using a digital Vernier calliper. Morphological characters are here reckoned for confirmation up to species level. All the specimens are deposited in National

Zoological Collections (NZC) of Zoological Survey of India. The samples were identified with the help of literature (Bosch *et al.*, 1995; Dey, 2006) upto species level. All the specimens are deposited in NZC of Zoological Survey of India.

STUDY AREA



Map showing collection sites of the minute gastropods *Pseudonoba columen* (Melvill)



Map showing collection sites of the gastropods *Salinator fragilis* (Lamarck)

Family AMPHIBOLIDAE

Shell small to medium, globose, spirally coiled. Suture impressed. Whorls rounded. Sculpture smooth or with spirally or longitudinally ridged ribs, knobs or tubercles. Aperture large, umbilicus imperforate, wide and conspicuous. Operculum smaller than aperture, oval, corneous with sub central nucleus.

Head large, tentacles short, bearing eyes at the bases. Pulmonary cavity large, gill absent but an osphradium present. Hypobranchial gland may present or absent, if present in the roof of the mantle cavity. Sexes separate. Penis muscular. Eggs laid in capsules.

Mostly brakishwater, partly buried in the muddy or sandy substratum of the estuaries, backwater and mangroves. In Sundarbans one species found on the mangrove areas of Hugly – Matla estuary (A. Dey, 2006).

The Amphibolidae currently comprises five genera, namely *Amphibola* Schumacher, 1817 and *Salinator* Hedley, 1900, *Phallomedusa* Golding, Ponder and Byrne, 2007, *Lactiforis* Golding, Ponder and Byrne, 2007, and *Naranjia* Golding, Ponder and Byrne, 2007 with one nominal species occurring from India.

Class GASTROPODA

Subclass HETEROBRANCHIA

Superfamily AMPHIBOLOIDEA

Family AMPHIBOLIDAE

Genus *Salinator* Hadley, 1900

Salinator is a genus of small, air-breathing, terrestrial or semi-marine snails with an operculum, pulmonate gastropod. Shell thick, imperforate, conical or globose.

Salinator fragilis (Lamarck)

(Fig. 1 & 2)

1822. *Ampullaria fragilis* Lamarck, *Mem. Nat. Vict.* 27-1966.

2007. *Salinator fragilis*: Golding, Ponder and Byrne *Zootaxa*. 1476: 1-50.



Fig. 1

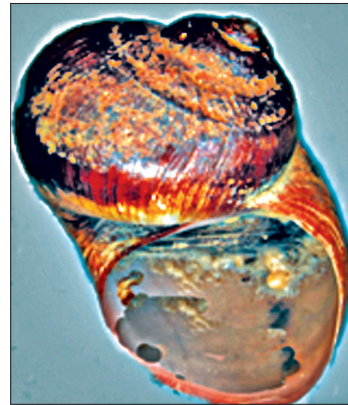


Fig. 2

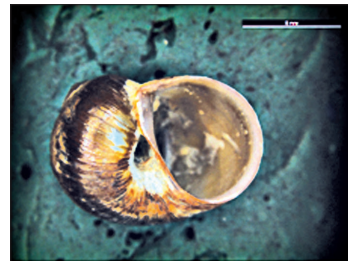


Fig. 3

Fig. 1. Top view of *Salinator fragilis* (Lamarck, 1822) Fig. 2&3. Ventral view of *Salinator fragilis* (Lamarck, 1822)

Material Examined: (i) 100 examples from Andhra Pradesh Survey: (Kakinada Bay, Station 1: 16° 53' 15.52" N and 82° 15' 32.88" E and Station 2: 16° 53' 53.76" N and 82° 15' 22.96" E, Station 3: 16° 52' 19.46" N and 82° 17' 13.25" E, Station 4: 16° 44' 46.89" N and 82° 20' 17.23" E, 16.04.2000, Coll: S.C. Mitra and party; (ii) 7 exs., from Sudarban Survey: Satjalia Islands: 22° 8' 50.91" N and 88° 51' 41.99" E, 27.3.2015, Coll: A.K. Mukhopadhyay and party; (iii) 6 exs., Jotirampur: Station 1 22° 8' 46.15" N

and 88° 51' 16.76" E and Station 2: 22° 8' 47.83" N and 88° 51' 8.42" E, 27.3.2015, Coll: A.K. Mukhopadhyay and party ; (iv) 6 exs., Sajnakhali: 22° 6' 6.04" N and 88° 47' 59.92" E, 27.3.2015, Coll: A. K. Mukhopadhyay and party; (v) 3 exs., Phakkirala: 22° 8' 8.16" N and 88° 49' 13.94" E, 27.3.2015, Coll: A. K. Mukhopadhyay and party; (vi) 1 ex., Sagar Islands: Mayagoalini ghat, 31.3.2015, Coll: A.K. Mukhopadhyay and party.

Measurements (in mm):

Length	Width
12.10	8.30
8.55	5.00
8.00	5.85

Distribution: India: Andhra Pradesh (Kakinada Bay), West Bengal: Sundarbans area and Sagar Island. *Elsewhere*: Australian peninsula.

Remarks: 12-8 mm Thick, ovate conical, operculate, about 5 whorls, almost circular aperture and umbilicus present. Brownish in colour; spire conical. Body obsoletely striated, regularly descending, the last globose, columella margin expanded. Aperture pink in colour. Closely allied species is *Salinator burmana* (Blanford) which is recorded from the Sundarban areas. This species is different in many ways from the available species. *Salinator burmana* is thin, imperforate, smooth. The last whorl is tumid, aperture sub elliptical, vertical and angulated above. (A. Dey, 2006).

Habitat: Common on mud of mangrove areas, sometimes found attached on the trunk of *Avicennia sp.* during the high tide when the area gets inundated. Juveniles were recorded during February.

Family IRAVADIIDAE
Subclass CAENOGASTROPODA
Order LITTORINIMORPHA
Superfamily TRUNCATELLOIDEA

Family IRAVADIIDAE
Subfamily LUCININAE

Genus *Pseudonoba*, O. Boettger, 1902

Shell thin, sub cylindrical, non umbilicate,

whorls convex, basal fold weak to absent, body smooth or extremely fine spiral striae. In some species distinct axial growth lines. Aperture pyriform, angled and weakly channelled posteriorly. Protoconch flat smooth and relatively large.

Chevallieria columen (Melvill)

(Fig. 3 & 4)

1904. *Rissoina columen* Melvill *Proc. malac Soc. Lond.* 6: 51-60, pl. 5.
1995. *Pseudonoba columen*: Donald, Bosch, Dance, Robert, Moolenbeek and Oliver, *Sea shell of Eastern Arabia*, Page 47, Pl. 125.

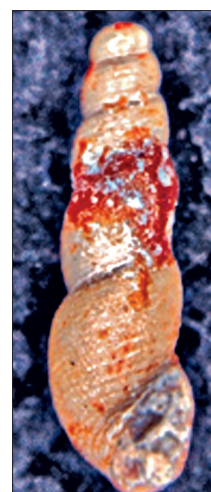


Fig. 3. Ventral and side view of *Pseudonoba columen* (Melvill, 1904)

Material Examined: (i) 3 examples, Gujarat: Mandavi Beach, Station 1.22° 49' 53.88" N and 69° 18' 38.49" E and S2.22° 49' 54.13" N and 69° 18' 53.73" E, 16.4.2015, 17.4.2015; Coll: A.K. Mukhopadhyay and party.

Measurements (in mm):

Length	Width
3.40	0.90
3.20	0.80
2.90	0.80

Remarks: 2.90 to 3.40 mm. Length. Shell sub cylindrical, usually solid, non umbilicate, whorls convex; body sculptured with fine close spiral striae. Aperture pyriform, angled and weakly



Fig. 4. Ventral and side view of *Pseudonoba columnen* (Melvill, 1904)

channelled. Protochonch large, smooth and flattened.

Habitat: Shell are usually found in beach drift. (Bosch, 1995)

Distribution: India: Gujarat coast. *Elsewhere:* Eastern Arabia: Gulf of Oman: Mascot.

ACKNOWLEDGEMENT

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