

TWO NEW SPECIES OF MOLLUSCS (NATICIDAE: GASTROPODA) FROM INDIA

A. K. MUKHOPADHYAY¹, A. K. SHARMA² AND RAMAKRISHNA³

^{1,3}Zoological Survey of India, M-Block, New Alipore, Kolkata - 700 053 (W.B)

²Acharya Vinoba Bhave University, Hazaribagh (Jharkhand)

INTRODUCTION

The Naticidae is a cosmopolitan family of burrowing Cenogastropods under the Phylum Mollusca. It is commonly known as moon shell. This family is well represented and morphologically homogenous group of marine gastropods, living in habitats from the intertidal zone to deep sea.

The genus *Natica* was established by Scopoli, 1777 with *Nerita vitellus* Linnaeus, 1758 and subsequent designation given by Anton (1839) as the type. Several authors worked on the genus *Natica* (Sowerby, 1883, Reeve, 1885, Tryon 1886 and recently Cernohorsky, 1971, 1972,) which are distributed in the Indo-Pacific region. In India, Subba Rao and Dey (2000) listed 12 species of the genus *Natica* in their *Catalogue of Marine Molluscs of Andaman and Nicobar Islands*. Subba Rao (2003) enumerated 15 species under this genus in *Indian Sea Shell (Part-I) Polyplacophora and Gastropoda*. Of 91 species under the genus *Natica* reported globally, 41 species are from Indo-Pacific region and 19 species have been listed from various parts of India. While studying the molluscs of the family Naticidae, the authors came across with two new species of Naticidae from India. The type specimens are deposited in the National Zoological Collections, Zoological Survey of India, Kolkata.

Natica gongally sp. nov.

Fig. 1&4 (plate-1)

Diagnosis : Shell moderate in size 41.15 mm, shell width is larger than shell length, spire moderately high, whorls shallowly impressed below suture; suture broadly deep and deeply concave, subsutural area with a milky white band,

protoconch obtuse, white with 1-1/2 whorls, umbilicus partly filled by a callus pad. Parietal callus distinctly divided into anterior and posterior lobes; anterior portion after joining with the columellar lip making a transverse "u" shaped notch; shell white with broad brown orange band, subsutural area with microscopic axial striae, body whorl smooth, umbilicus and callus pad light orange brown; operculum slightly concave with a single marginal rib; inner edge of the operculum with a row of denticles.

Description : Globose, spire moderately raised, shallow concavity between suture and periphery; suture distinct, surface polished with fine growth lines which are especially distinct below suture; body whorl with microscopic axial striation. Aperture and labium very evenly and shallowly concave. Parietal callus distinctly divided by two lobes. Anterior portion of the callus join with the columellar callus by making a transverse "U" shaped notch. Funicle well developed and entering into the umbilical groove vertically; anterior portion of the parietal callus, columellar lip and umbilicus with light orange colour, base of the shell with labium forming lip like appearance. Teleoconch whorls 2, protoconch of about 2 whorls, first whorl fairly large. Ground colour white, protoconch white, started from protoconch a milky-white band encircles along the subsutural area of the penultimate whorl. Angulation with the body whorl is slightly folded and less than 90°.

Operculum : Single marginal rib.

Dimensions : (in mm)

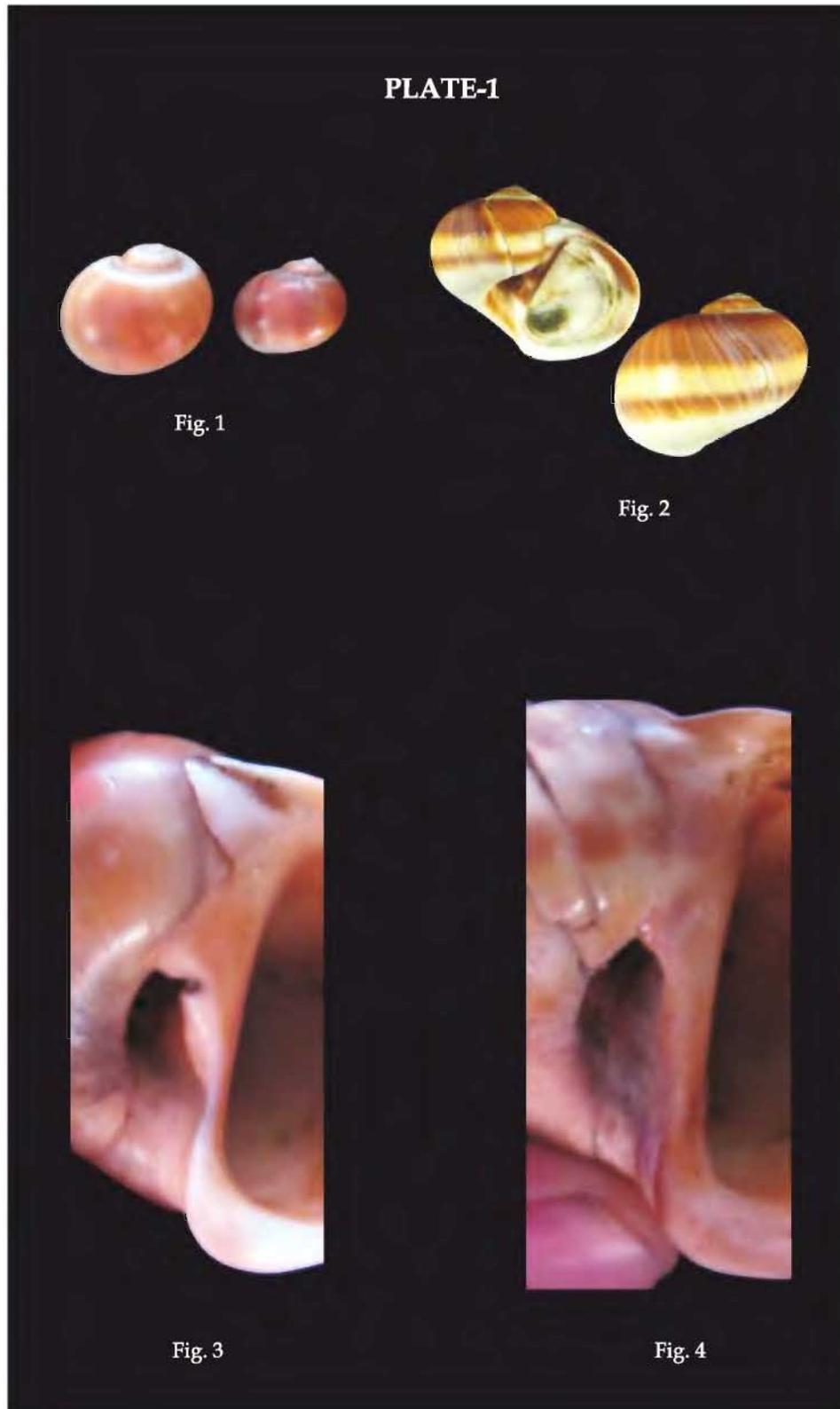


Fig. 1 & 2, *Natica gongally* and *Natica vitellus*. Fig. 3 to Fig. 4 shows the difference of the umbilical region of *N. gongally* and *N. vitellus*.

	Length	Width	Height of Aperture
Holotype	32.15	32.30	22.45
Paratype	41.15	44.10	24.50

Size : Average 36.65 mm.

It is remarkable that the ratio of length and width is directly proportional with the increase in size of the shell. Operculum is slightly concave with a thickened nuclear region, one marginal rib with a series of denticles along the labial edge is another significant character of the shell.

Type material : Holotype- collected from Gongally fishing harbour from trash material near Kundapur, Dist.Udipi, Karnataka, Coll. R. Venkitesan and party, Regd. No. M 26222/5; Paratype, same as above, Regd. No. M 26223/5.

Remarks : This species resembles *Natica vitellus* Linnaeus but differs from this species in several ways which are as follows:

Diagnostic Characters	<i>Natica vitellus</i>	<i>Natica gongally</i>
Shell width & length ratio	Width never exceed the length.	Width exceed the length.
Protoconch	Acuminate and deep chestnut colour.	Obtuse and white colour.
Body whorl	Rough and axial striation is deep and continuous upto the base of the shell.	Smooth with very light axial striation which only restricted to the subsutural area.
Colour of body whorl	Body whorl with concentric white and three brown bands.	Large deep brown bands on the body whorl.
Parietal callus	Parietal callus large not divided and anterior portion joined with the columellar lip; weak funicle, umbilical opening wide, channel like and open obliquely . Inner lip thick, straight and joined with funicle ..	Parietal callus is divided into two anterior and posterior by transverse "V" shaped structure ; anterior portion of the callus is partially covering the umbilical after making a "U" shaped transverse notch.
Umbilical area	Umbilical area completely white	Umbilical area white but light orange brown tint present.
Operculum	Operculum having two marginal ribs.	Operculum having only one rib.
Columellar callus	Columellar callus almost straight and anterior portion of the parietal callus feeble and joining with the wall of the umbilical callus.	Columellar callus slightly arched, funicle present and joining with the inner wall of the umbilical callus.
Angulation	Angulation of the aperture started from the body whorl is 90°.	Angulation of the aperture started from the body whorl is less than 90°.

PLATE-2



Fig. 1



Fig. 2

Fig. 3

Fig. 4



Fig. 5

Fig. 1 *Natica adansoni* Blainville
Fig. 2 to 5 *Natica andamanensis* sp. nov.

Natica andamanensis sp. nov.

Fig. 5 to 9 (Plate-2)

Diagnosis : Shell small in size, penultimate whorls 3; large body whorl, suture deep and encircle with much faint axial striae and restricted only to the subsutural region. Body colour light brown; deep brown maculation or pattern around the body whorl below the suture and it started from the 3rd penultimate whorl. Umbilicus deep almost covering by the funicle leaving a comma shaped area.

Description : Shell nearly globose, nuclear whorl 2- suture distinct, deep, surface polished, with fine growth lines which are especially distinct below suture; body whorl with fine microscopic axial striation that continues only some portion of the body whorl. Anterior portion of the parietal callus

coalescing with the umbilical wall, posterior is very thin, indistinct. Funicle well developed, large, entering into the umbilicus at right angle forming semicircular aperture; anterior portion of the aperture deep. Parietal callus and periostracum deep brown. Operculum is without nucleus, convex with two marginal grooves.

Dimension : (in mm)

	Length	width	Height of Aperture
Holotype :	12.00	11.75	6.65

Type material : 1 ex., Holotype, collected by G.H.Booley from Andaman and Nicobar Islands, Regd. No. M 26224/5.

Remarks : This species having close similarity with *Natica adansoni* Blainville, 1825 but differs from it as follows:

Diagnostic Characters	<i>Natica adansoni</i>	<i>Natica andamanensis</i>
Shell width and Shell length	Length is higher than width.	Shell length and width almost same.
Protoconch	Shell elongate ovate, spire much more elevated.	Shell is nearly globose, spire low.
Body whorl	Rough and axial striation deep and continuous upto the periphery of the shell.	Smooth with very faint axial striation which only restricted to the subsutural area.
Colour of the body whorl	Dark purple tint in the inner part of the mouth, Body surface ornamented with spots and bands and dots of variable colours.	Absent, only white, large, brown spiral maculation is only restricted below suture in the later. Body whorl ornamented with very light yellowish patches.
Umbilical area	Umbilical aperture large with a small ill developed funicle which is obliquely entering in the umbilical aperture (See fig. 94, Sowerby, 1883). Aperture elongate -ovate.	Funicle well developed, prominent, entering into the umbilicus at right angle with prominent sulcus. Aperture semicircular.
Parietal callus	Well developed.	Posterior of parietal callus is thin, rudimentary.
Operculum	Operculum having nucleus with many marginal.	Operculum having one marginal grooves. Slightly concave in the middle of the operculum.

Some authors erroneously included this species (Subba Rao and Dey, 2000) as *N. adamsoni* (misspelt) *adansonii* but a careful observation of the *N. andamanensis* suggested it to be a new species to science and new record from India with geographical distribution from Andaman and Nicobar Islands only.

ACKNOWLEDGEMENTS

The authors express their sincere thanks to the Director, Zoological Survey of India, Kolkata for providing necessary facilities and encouragement for carrying out this study. The authors thanks are also due to Dr. A. Dey, emeritus Scientist for kindly going through the paper and offering constructive criticism and to Dr. R. Venkitesan, Officer-in-Charge, and Dr. B. Tripathy, Scientist- C of Mollusca Section for the help rendered in many ways.

REFERENCES

- Cernohorsky, W.O. 1971. The family Naticidae in the Fiji Islands. *Rec. Auckland Ins.Mus.* 8:169-208.
- Cernohorsky, W.O. 1972. *Marine shells of the Pacific*, Sydney, Volume-II, 1-411, 68pls.
- Reeve Lovell, 1855. *Conchologia Iconica*: monograph of the genus *natica*. L. Reeve, vol.9, London pl 1-30.
- Sowerby, G.B. 1883. *Thesaurus Conchyliorum* of the Genus *Natica* pl 75-104.
- Subba Rao, N.V. 2003. *Indian Sea Shell (Part-I) Polyplacophora and Gastropoda. Occ. Paper 192* i.-x, 1-414 (Published by The Director, Zoological Survey of India, Kolkata.)
- Subba Rao, N.V. and Dey, A. 2000. Catalogue of Marine molluscs of Andaman and Nicobar Islands. *Rec. zool.Surv. India: Occ. Paper No.,i-x* 187: 1-323.
- Tryon, G.W. 1886. Naticidae, Calyptraeidae, Turritellidae, Vermitidae, Caecidae, Eulimidae, Turbonillidae, Pyramidellidae. *Man. Conch.* 8: 3-461, pls. 1-79.