



## THE VENUS CLAM *LIOCONCHA RUMPHII* (MOLLUSCA: BIVALVIA: VENERIDAE) – A NEW REPORT FROM THE CENTRAL INDIAN OCEAN

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**Abstract:** The zig zag venus clam *Lioconcha rumphii* van der Meij, Moolenbeek & Dekker, 2010 was collected for the first time from Lakshadweep, India, Central Indian Ocean. This paper discusses the taxonomic status and distribution of this species.

**Keywords:** Bivalve, Veneridae, clam, Central Indian Ocean, Lakshadweep.

The high intraspecific morphological variability within the family Veneridae (Lamprell & Healy, 2002) forward challenges in species-level identification of several genera, including the genus *Lioconcha* Mörch, 1853. *L. rumphii* was erected by (Van der Meij, Moolenbeek and Dekker 2010). The authors used the term ‘*L. castrensis*’ group’ comprising of 4 closely resembling species namely *L. castrensis*, *L. arabaya*, *L. rumphii* and *L. macaulayi* (Van der Meij *et al.*, 2010). This genus contains about 23 valid species (Bouchet 2015). *L. ornata* (Dillwyn, 1817) and *L. picta* (Lamarck, 1818) were recorded previously from Lakshadweep (Nagabhushanam and Rao, 1972; Rao and Rao 1991; Venkataraman *et al.*, 2004, 2012; KSCSTE, 2013) while, from the coastal waters of the mainland of India, *L. castrensis* (Linnaeus, 1758), *L. ornata* (Dillwyn, 1817), *L. philippinarum* (Hanley, 1844), *L. picta* (Lamarck, 1818), *L. polita* (Röding, 1798) and *L. trimaculata* (Lamarck, 1818) were recorded (Stoliczka, 1870–1871; Melvill and Sykes, 1897; Melvill and Sykes, 1898; Nagabhushanam and Rao, 1972; Rao and Rao, 1991; Rao and Dey, 2000;

Hylleberg and Kilburn, 2002; Venkataraman *et al.*, 2004, 2012; Ramakrishna and Dey, 2010; KCSTE, 2013 and Ravinesh and Biju Kumar, 2015).

In this paper, we report *Lioconcha rumphii* van der Meij, Moolenbeek & Dekker, 2010 for the first time from Lakshadweep, India, evidencing its extended distribution to the central Indian Ocean.

Three specimens were collected; length (maximum length from anterior to posterior tip of the left valve) 35–42 mm; height (apex tip to ventral margin edge of the shell) 29–36 mm and width (elevation of the shell from the base) 20–23mm. The specimens were collected from the shallow waters of Chetlat (11°41’N, 72°42’ E), Kavaratti (10° 33 ’N 72°37’ E), and Minicoy (8°16’N 73° 01’E) islands of Lakshadweep. Snorkelling gear was used to collect the specimens, from depths of 4–7 meters in coralline sand. Collected shells were cleaned, dried and identified following descriptions provided by Oliver (1992), Bosch *et al.* (1995), Lamprell and Healy (2002), Huber (2010) and Van der Meij *et al.* (2010). Voucher specimens were deposited at the Marine Biological Research Centre (MBRC) of Zoological

Survey of India, (ZSI/MBRC/M.1721) and Department of Aquatic Biology and Fisheries, University of Kerala, India (DABF-UOK/BIV 11-12).

### Identification

Order: Veneroida Gray, 1854

Superfamily: Veneroidea Rafinesque, 1815

Family: Veneridae Rafinesque, 1815

Genus: *Lioconcha* Mörch, 1853

*Lioconcha rumphii* Van der Meij, Moolenbeek & Dekker, 2010 (Fig. 1 a-d)

Distribution: Eastern Indian Ocean (Nicobar Islands) from West Sumatra (Indonesia) in the south to west Thailand (Van der Meij *et al.*, 2010).

Diagnosis: Shell thick, strong and smooth. Outer surface of right valve with mild longitudinal growth lines exaggerated only at the extreme posterior and anterior slopes of the outer shell. Beak or umbo inflated, broad and smooth without grooves; umbo pyrogate and low. Outer shell covered with “tent shaped markings”; markings start with a deep hickory brown and then progresses into a tawny brown to orange tinge in a streaked fashion like “dripping wet paint” (Fig. 1 a-d). Tent-like markings increase in size towards the apex of the shell; last prominent longitudinal growth line supports hickory brown, triangular patterns which do not trail as streaks like the tent-like marking above and instead have a definite end. Markings below the same longitudinal growth line trail down to the end of the

ventral margin of the shell.

The inner surface of right valve: The ligament appeared to be broken in all specimens. The umbo being inflated resulted in a deep wide umbo cavity. Two lateral teeth on the left wing of the right valve (Fig. 1d) smooth and enclosed a smooth eye-shaped cavity. Lateral teeth form a prominent swelling which progresses into the umbo cavity. Beside the lateral teeth is the interdentum region with three cardinal teeth; first tooth from the anterior was extremely small followed by a second cardinal tooth, which is the most prominent of all three; second cardinal tooth is spurred in structure while the third cardinal tooth is smooth and ridge-like. Pallial scar shallow and feebly developed; pallial line less prominent and connects the posterior adductor scar with a larger anterior adductor scar. Adductor scars oval; ventral margin tapers to a moderately sharp edge.

One of the characteristic identification patterns of *L. rumphii* is the inverted dendrogram on smooth shells, in shades ranging from orange to dark brown; the patterns include distinct chevron shaped, tent-like markings radiating towards the posterior ventral margins of the shell, resembling dripping paint over the white shell surface. The genus has been reported from clean, muddy or coral sand in shallow to moderate deep water lesser than 100 meters (Lamprell and Stanisic, 1996). The overall morphological features and size are comparable to the types of (Van Der Meij *et al.*, 2010) reported from Eastern Indian Ocean (Nicobar Islands) and from West Sumatra (Indonesia) in the south to West Thailand (Type material from Phuket, Thailand). The distribution of *L. rumphii* was reported along the Nicobar Islands, west Sumatra and south to west Thailand (Van der Meij *et al.*, 2010). The current record of this species from Lakshadweep reveals its extended distribution towards central Indian Ocean.

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**Fig. 1.** *Lioconcha rumphii* van der Meij, Moolenbeek & Dekker, 2010 a-c Dorsal view; d – Ventral view

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