



RESEARCH NOTE

First record and range extension of *Liotina cycloma* Tomlin, 1918 (Gastropoda: Liotiidae) to the Central Indian Ocean

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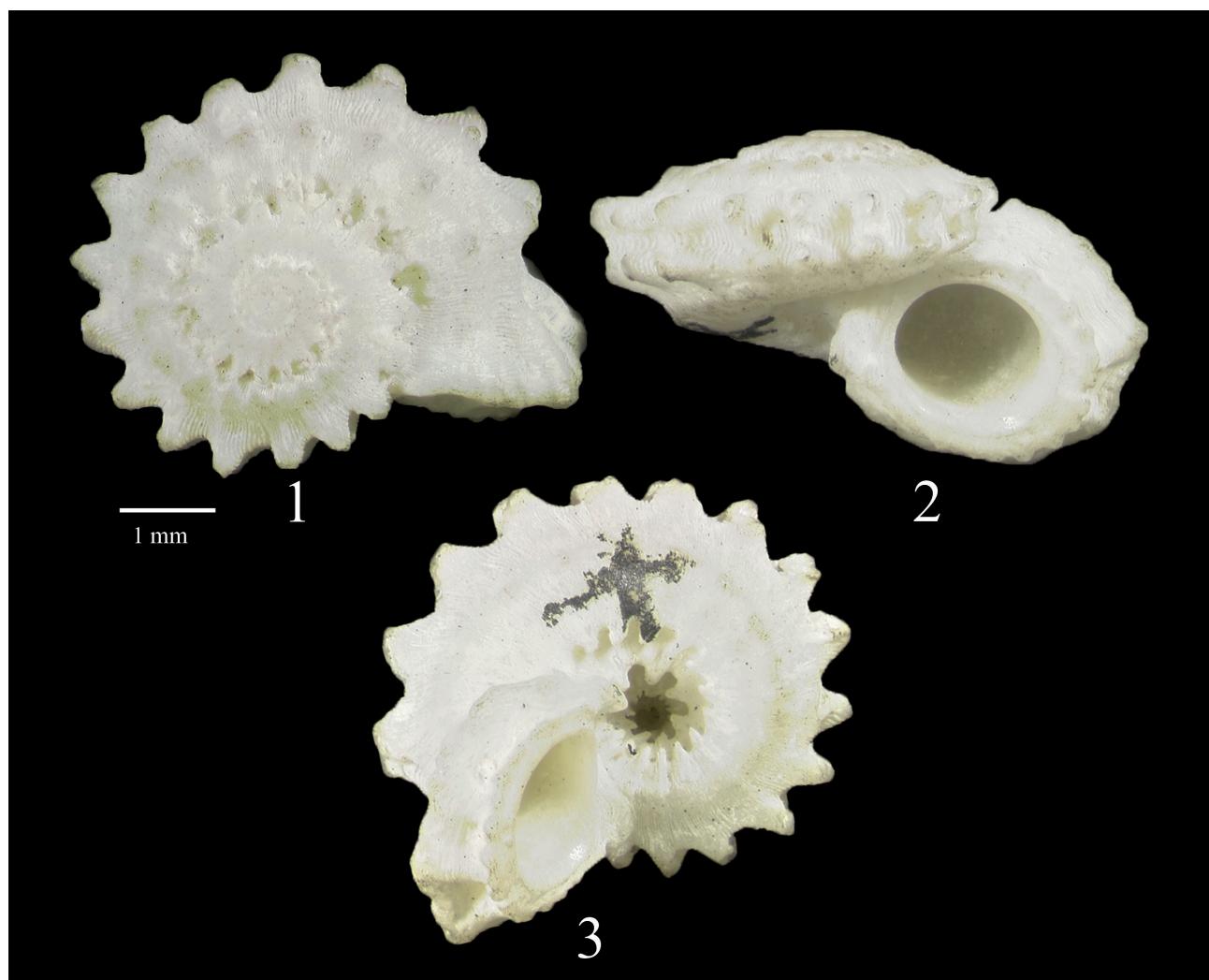
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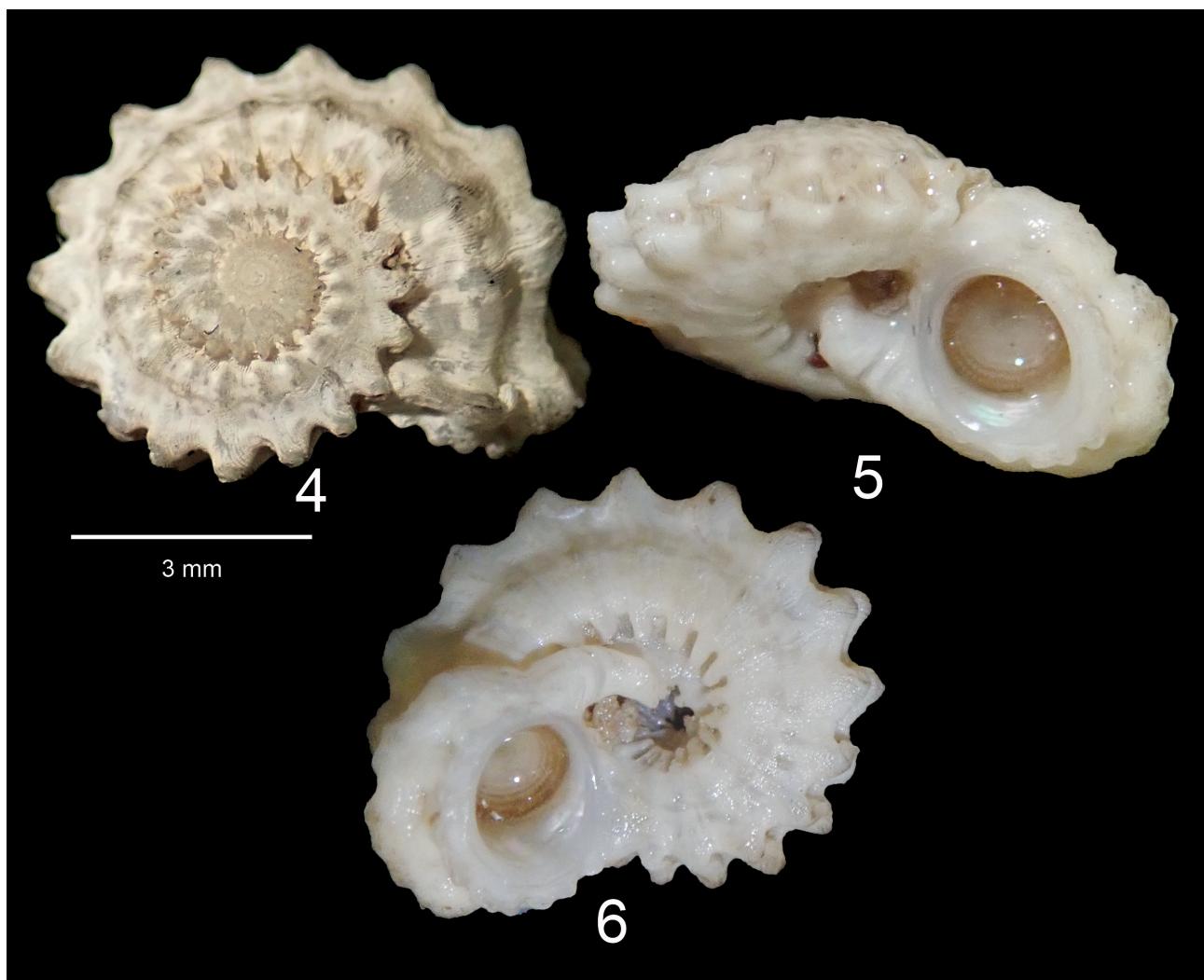
The family Liotiidae Gray, 1850, commonly known as wheel shells, live from the intertidal zone down to deep waters (McLean 2008). Members of the family can be recognised by their small, heavily sculptured disc-shaped shells with chalky periostracum, a large open umbilicus, circular aperture, thickened peristome, and a multispiral operculum with calcareous beads (Pilsbry 1933; McLean 1988, 2008).



Figures 1-3. Holotype of *Liotina cycloma* (NMW.1955.158.00966), Oshima, Japan. ©Amgueddfa Cymru – National Museum Wales.

According to MolluscaBase (2018), the family comprises 18 valid genera and the genus *Liotina* contains some 10 valid species, including two fossil forms.

Hitherto three liotiid species have been recorded from India. They are *Globarene cidaris* (Reeve, 1843) and *Liotinaria peronii* (Kiener, 1838), reported from Lakshadweep, Tamil Nadu and Andamans (Apte 1998, 2014; Rao 2003; Ravinesh & Kumar 2015), and *Liotia varicosa* (Reeve, 1843) from the Andaman and Nicobar islands (Rao & Dey 2000). Recently, a fourth species was found while snorkelling at Kavaratti Island ($10^{\circ}32'43.4''N$ $72^{\circ}36'57.2''E$), Lakshadweep, India, on 23 June 2013. It was attached to the underside of an algae-covered rock at a depth of 2 m. It was collected and identified as *Liotina cycloma* Tomlin, 1918, which is a new record for India. Identification was based on descriptions provided by Tomlin (1918), Ladd (1966), Trew (1984) and Higo *et al.* (2001). It also agrees well with the images of the holotype in the Amgueddfa Cymru – National Museum Wales, United Kingdom (NMW.1955.158.00966; Figures 1–3). The Indian specimen, measuring 9 mm in shell length, 7 mm in shell width and 4 mm in shell height, was deposited in the museum collection of the Department of Aquatic Biology and Fisheries, University of Kerala under the accession number DABFUOK No 180 (Figures 4–6)



Figures 4–6: *Liotina cycloma* (DABFUOK No 180), Kavaratti Island ($10^{\circ}32'43.4''N$ $72^{\circ}36'57.2''E$), Lakshadweep, India.

Shells of *Liotina cycloma* are solid, discoidal in shape with a depressed spire, and have a smooth protoconch. The shell surface is sculptured with very fine closely spaced axial lamellae. The suture is ornamented with a series of sharp-pointed projections, the one on the shoulder bearing blunt tubercles. The outer lip is strong with a crenulated outer edge and bordered with an additional flaring rim. The aperture is circular and guarded by a strong outstanding varix that extends from the parietal edge into the umbilicus. Small teeth projecting from the edge of the basal axial ribs border the wide and deep umbilicus.

Tomlin (1918) described *Liotina cycloma* based on a specimen from Oshima, Japan, Northwest Pacific. The species was subsequently recorded from the Central Pacific by Ladd (1966), Trew (1984) and Higo *et al.* (2001), but it had not been previously reported from the Indian Ocean so far. Thus, in addition to the present discovery being the first record of the species in India (Figure 7), it is approximately 5000 km away from the previous record (Central Pacific Islands), representing a significant range extension of its distribution to the central Indian Ocean.

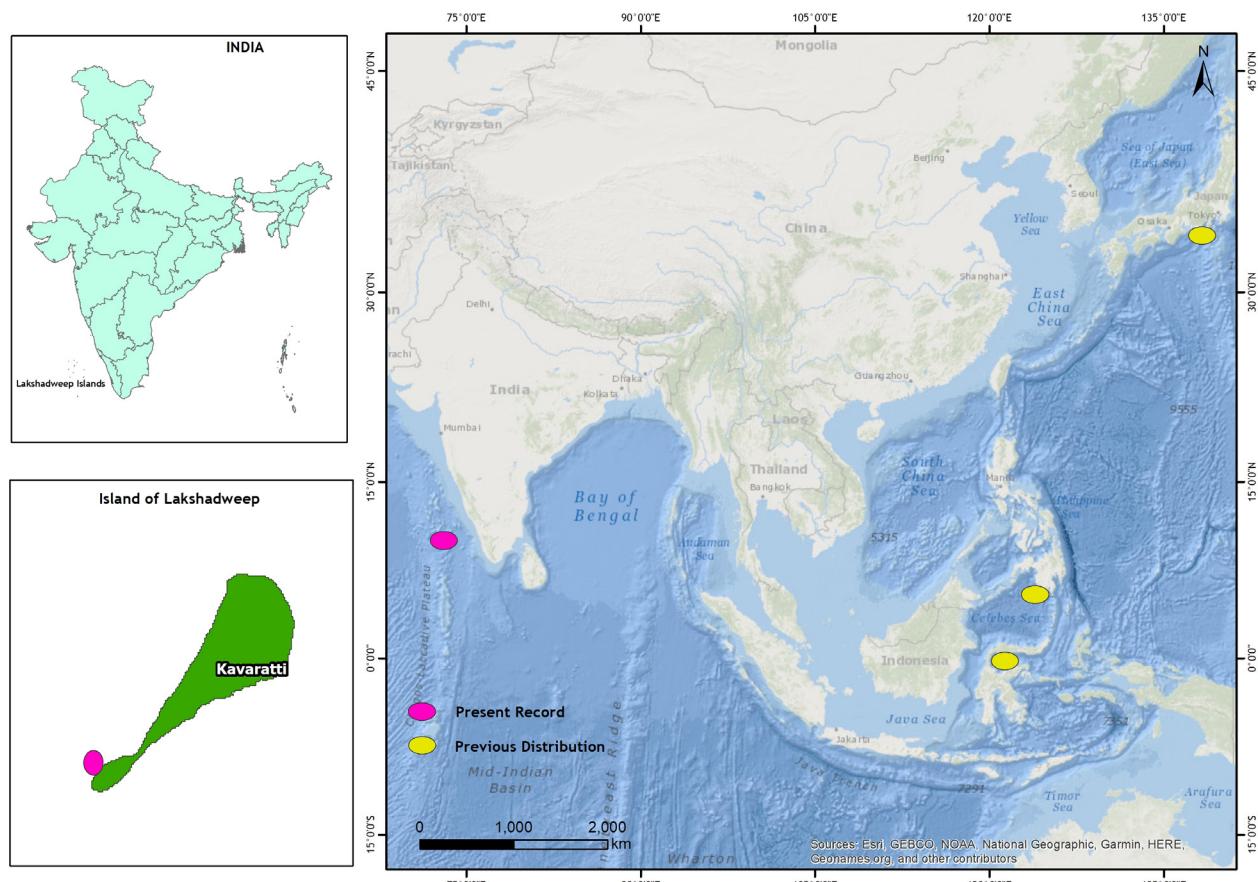


Figure 7. Distribution map of *Liotina cycloma*.

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