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First record of rare marine gastropod *Margovula tinctilis* (C. N. Cate, 1973) (Gastropoda: Ovulidae) from West coast of India

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Abstract
Present paper report a species of false or allied cowrie *Margovula tinctilis* (C. N. Cate, 1973) for the first time from west coast of India. This species sparsely distributed in premises of coral reef zone at lower intertidal zone of Sikka, Gujarat. Formerly, *M. tinctilis* has so far been reported only from Andaman and Nicobar Islands. Morphological shell characters such as shell description, habitat, geographical distribution, illustrations and affinities with similar species is discussed here.

Keywords: *Margovula tinctilis*, first record, gulf of kachchh, west coast

Introduction
Ovulidae (J. Fleming, 1822) is also known as an allied cowrie or false cowrie due to weaker or completely lacking of columella and outer lip dentition in comparison to cypraeidae family [1, 2]. Ovulidae are common associate of coelenterates, hard corals, soft coral, gorgonians, hydrozoans and alcyonarians in tropical and sub-tropical waters of the world [2, 3]. Presently a total of 278 species belonging to 45 genera from 06 subfamilies of false cowries are known throughout world [4]. Whereas only 17 species belonging to 12 genera from 02 subfamilies are known from India [3, 5-18]. A single species of Ovulidae was recorded and listed as *Phenacovolva rosea* (A. Adams, 1855) from Gujarat coast [7, 12-13]. Hence the genus of *Margovula* C. N. Cate, 1973 reported for the first time from West coast of India. The genus *Margovula* consists of those Ovulids whose shell is pyriform in shape, margined narrowing toward the front and broader to the rear [19]. Only 09 species are known under the genus *Margovula* in the world [20]. The species *Margovula tinctilis* (C. N. Cate, 1973) was described by Cate in 1973 from the Kaohsiung, Taiwan [19]. In India, only two species were formerly reported in the form of checklist e.g., *Margovula bimaculata* (A. Adams, 1855) and *Margovula tinctilis* (C. N. Cate, 1973) from Andaman and Nicobar Islands [7]. *Margovula tinctilis* inhabits in water depth of 80ft in association with coral reefs [7, 19]. In this paper, we describe shell characteristics of this species for the first time from West coast of India with its present distribution status.

Materials and Methods
The present study was carried out at Sikka reef (22°26'38.8"N 69°47'50.6"E) in Gulf of Kachchh, Gujarat. Intertidal zone of Sikka reef is rocky, sandy and muddy. The exposure of intertidal zone of Sikka is about 3-4 kilometres during ebb tide. The coast is bestowed with coral reef zone and mangroves ecosystem with their important associates such as ascidians, sponges, crabs, molluscs and seaweeds. Sikka reef is under great anthropogenic pressure. There are several coastal instalments of various industries such as Reliance Jetty, Gujarat State Fertilizer Corporation Jetty, Thermal Power Station silt settlement ponds and Shree Digvijay Cement Company Jetty, etc as well as offshore terminals.
In the present study, only two dead specimens were found on coral reef zone in lower intertidal zone of Sikka coast (22°27'38.4"N 69°48'11.8"E) (Figure 1). Specimens were collected from 0.5-meter depth of water and carried out to laboratory further taxonomical identification. Samples were labelled and deposited in the museum of Fisheries Research Station, Junagadh Agricultural University, Sikka. Specimens were identified using the standard literature and identification keys of Cate (1973) [19], Abbott (2000) [21], Apte (2014) [7] and through gastropod expert communication. Dead specimens were observed and measured with the help of standard

Vernier callipers. Size of the specimen indicated by total length (tl) which is measured from anterior extremity to posterior extremity and total width (tw) which measured centrally from both the side.

Results

Systematics:
Phylum: Mollusca Linnaeus, 1758
Class: Gastropoda Cuvier, 1795
Sub class: Caenogastropoda Cox, 1960
Order: Littorinimorpha Golikov & Starobogatov, 1975
Family: Ovulidae J. Fleming, 1822
Genus: *Margovula* C. N. Cate, 1973

***Margovula tinctilis* (C. N. Cate, 1973) (Figure 2 a-b)**
Material examined: 02 dead specimens (1) tl: 18.50 mm, tw: 11.50 mm; (2) tl: 18 mm, tw: 11 mm, lower intertidal zone of coral reef area, coll. by Piyush Vadher, 22 April 2019.

Shell description
Shell pale yellowish with light brown transverse bands, shell smooth and sub-glossy; Shell pyriform in shape; narrower anteriorly, base ovate, convexly swollen which become ovate in shape, entire dorsal surface with weak striations. Outer lip concave and thickened, inner side with more than 15-20 sharp teeth along the entire length. aperture evenly curving in back; terminal ridge straight and short, terminal ridge short, almost straight. Inner lip of aperture smooth.

Habitat: Dead specimens were found on coral reef zone, Sikka, Gulf of Kachchh, Gujarat, India.

Distribution: Taiwan [19], East Asia [21] and Philippine [22].

India: Andaman and Nicobar Islands [7]. Presently, this species is reported from Gulf of Kachchh, Gujarat, India.

Discussion
This species is identical morphologically to *Margovula pyriformis* (G. B. Sowerby I, 1828) but immediately distinguished by having light weight, pale brown colour, translucent and more rounded and inflated in shape than *M. pyriformis. Margovula tinctilis* is also differentiated by having more sharply curving adapical aperture (Cate, 1973) [19] but Rosenberg (2010) [1] studied both the species and concluded the possibilities that *Margovula tinctilis* will prove to be conspecific with *M. pyriformis.*

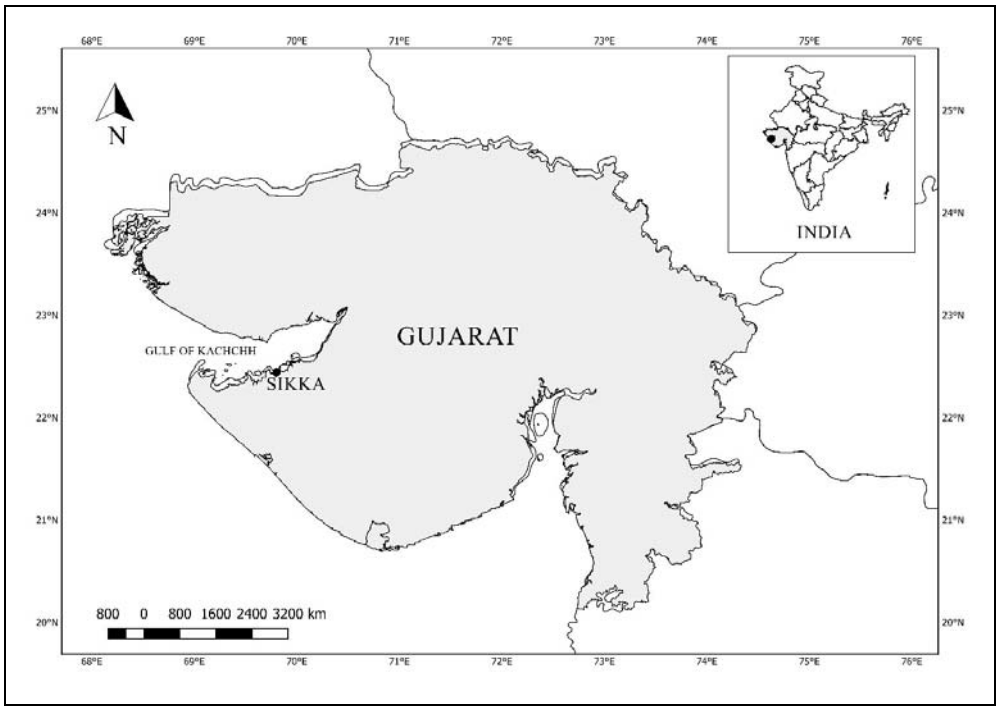

Fig 1: Map of the study area

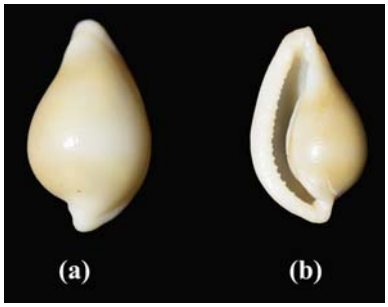

Fig 2(a): Dorsal view of *Margovula tinctilis* (b) Dorsal view of *Margovula tinctilis*

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References

1. Rosenberg G. Description of a new species of Prionovolva (Mollusca, Gastropoda, Ovulidae) from East Africa, with reassessment of the composition of the genus. Proceedings of the Academy of Natural Sciences of Philadelphia. 2010; 159:39-66.
2. Wong HW. The Ovulidae (Mollusca: Gastropoda) of Singapore. Raffles Museum of Biodiversity Research, National University Singapore, Singapore. 2011, 58.
3. Subba Rao NV. Indian Seashells. Polyplacophora and Gastropoda (Part-1). Records of the Zoological Survey of India, Kolkata. 2003, 416.
4. Mollusca Base. Mollusca Base. Ovulidae J. Fleming, 1822. Accessed through: World Register of Marine Species, 2019. at: http://www.marinespecies.org/aphia.php?p=taxdetails&id=1747 on 2019-05-13.
5. Mookherjee HP. Contributions to the Molluscan fauna of India, Part III. Marine molluscs of the Coromandel Coast, Palk Bay and Gulf of Mannar- Gastropoda: Mesogastropoda (Part-2). Zoological Survey of India, Kolkata.1985, 93.
6. Apte D. The Book of Indian Shells. Bombay Natural History Society, Oxford University press, Waston Street, Oxford. 1998, 115.
7. Apte D. Sea Shells of India, An Illustrated Guide to Common Gastropods. Bombay Natural History Society, Oxford University Press, New Delhi. 2014, 197.
8. Subba Rao NV, Dey A. Catalogue of Marine Molluscs of Andaman and Nicobar Islands. Records of the Zoological Survey of India, Kolkata. 2000, 323.
9. Ramakrishna DA, Barua S, Mukhopadhya A. Marine Molluscs: Polyplacophora and Gastropoda. Fauna of Andhra Pradesh, State Fauna Series-5 (Part-7). Zoological Survey of India, Kolkata. 2007, 148.
10. Rao DV. Field Guide to Coral and Coral Associates of Andaman and Nicobar Islands. Zoological Survey of India, Kolkata. 2010, 283.
11. Gopalakrishnan A, Divya PR, Basheer VS, Raja Swaminathan T, Kathirvelpandian A *et al*. Macro flora and fauna of the Gulf of Mannar - a checklist. National Bureau of Fish Genetic Resources, Lucknow, India. 2012, 127.
12. Anonymous. Fifth Interim Progress Report, Capacity Building of GEER Foundation, (Database of Marine Biodiversity and Coral Transplantation Experiment in Gulf of Kachchh). Gujarat Ecological Education & Research Foundation, Gandhinagar. 2014, 160.
13. Anonymous. Sixth Interim Progress Report, Capacity Building of GEER Foundation, (Database of Marine Biodiversity and Coral Transplantation Experiment in Gulf of Kachchh Gujarat Ecological Education & Research Foundation, Gandhinagar. 2014, 206.
14. Tripathy B, Mukhopadhyay AK. Marine molluscan diversity in India. Marine faunal diversity in India: taxonomy, ecology and conservation, edited by Venkataraman, K. & Sivaperuman. Academic Press, London. 2015, 39-74.
15. Venkatesan V, Alloycious PS, Sajikumar KK, Jestin Joy KM, Sheela PP, Mohamed KS. Checklist of marine bivalves and gastropods off Kollam, Kerala. Marine Fisheries Information Service, Technical and Extension Series. 2015; 225:16-19.
16. Ravinesh R, Biju Kumar A. A Checklist of the Marine Molluscs of Lakshadweep, India. Journal of Aquatic Biology & Fisheries. 2015; 3:15-55.
17. Narayana S, Apte D. New Records of Marine Parasitic Molluscs (Mollusca: Gastropoda) from Andaman & Nicobar Islands, India. Journal of the Bombay Natural History Society. 2016; 113:39-43.
18. Subba Rao DV, La Fond WG. Compendium of Biota of the Bay of Bengal, Indian Ocean. http://bayofbengalbiota.org/ visited on 17.05.2019.
19. Cate CN. A systematic revision of the Recent cypraeid family Ovulidae (Mollusca: Gastropoda). Veliger. 1973; 15:116.
20. Mollusca Base. Mollusca Base. Margovula C. N. Cate, 1973. Accessed through: World Register of Marine Species, 2019. at: http://www.marinespecies.org/aphia.php?p=taxdetails&id=430491 on 2019-05-13.
21. Abbott RT, Dance SP. Compendium of seashells: a color guide to more than 4,200 of the world's marine shells. 4th Edition. Odyssey Publication, USA. 2000, 424.
22. Poppe GT. Philippine Marine Mollusks. Conch Books. Hackenheim, Germany. 2008; 1:758.