

Biodiversity Record: New Singapore record of the keyhole limpet, *Diodora ticaonica*

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Subject: Ticao keyhole limpet, *Diodora ticaonica* (Mollusca: Gastropoda: Fissurellidae).

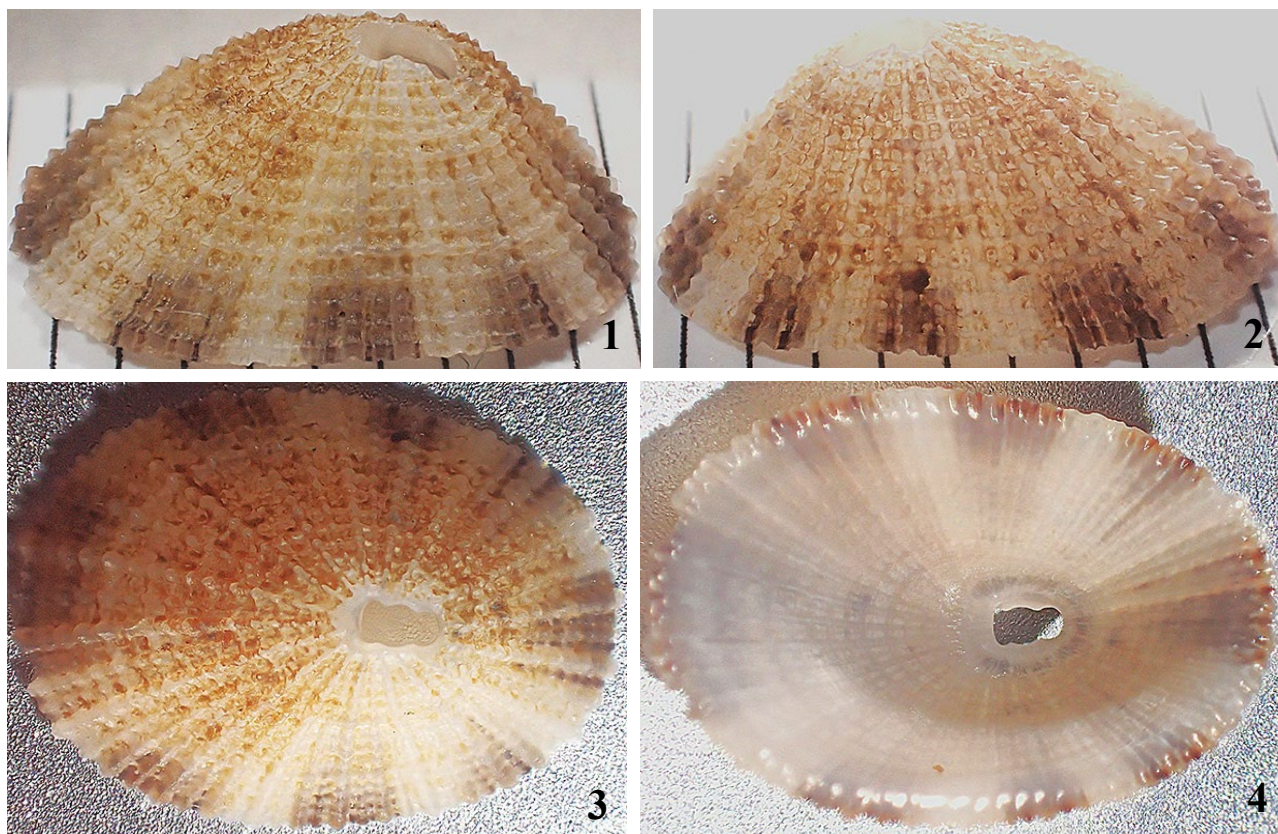
Subject identified by: Chan Sow-Yan and Lau Wing Lup.

Location, date and time: Johor Strait, Punggol Beach Park; 17 July 2025; around 0900 hrs.

Habitat: Estuarine. Intertidal zone of rocky shore at low tide.

Observer: Lau Wing Lup.

Observation: One dead specimen of about 10 mm shell diameter was found under rock among sponges. After cleaning, the shell was noted to be greyish white with brownish spots and blotches, ovate and elevated, inclined anteriorly, thickly latticed throughout with strong narrow radiating ridges and raised concentric striae (Figs. 1–6). The orifice is trilobed, elongated oblong with the sides excavated in the middle (Fig. 7); the interior has a horseshoe-shaped bluish-black mark around the margin of the internal callus of the foramen (Fig. 8).



Figs. 1 & 2. Dorso-lateral views of *Diodora ticaonica*. Fig. 3. Dorsal view. Fig. 4. Ventral/internal view of shell. Space between black bars is 1 mm (Photographs by Lau Wing Lup).

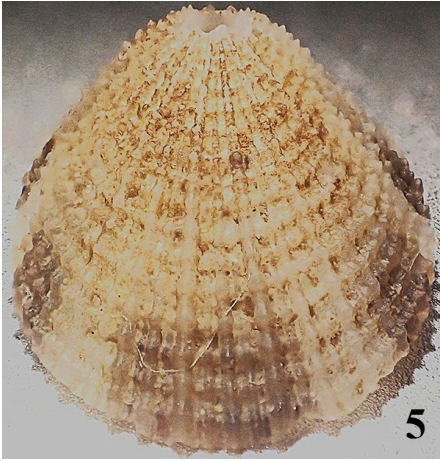


Fig. 5. View of posterior region.

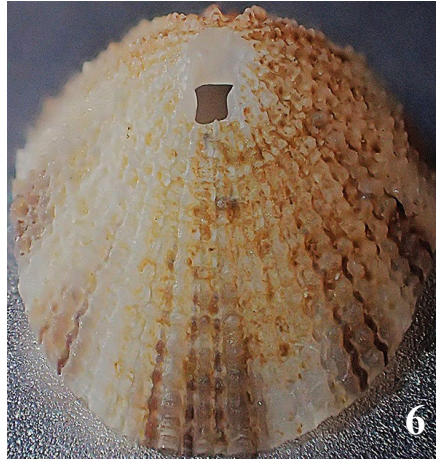


Fig. 6. View of anterior region.

Fig. 7. Close up view of the trilobed shell orifice on the exterior of the shell after cleaning.

Fig. 8. Close up view of the interior horseshoe-shaped bluish-black mark around the internal callus of the foramen.

(Photographs by: Lau Wing Lup)



Remarks: *Diodora ticaonica* is herein documented as a new record for Singapore (see Tan & Woo, 2010; Tan & Low, 2022). At the same habitat, the authors have observed three other congeners, i.e., *Diodora octagona* (see Chan & Lau, 2024a), *Diodora ruppellii* (see Chan & Lau, 2024b), and *Diodora jukesii* (see Chan & Lau, 2025). *Diodora ticaonica* can be distinguished from the rest of the Punggol keyhole limpets by having a trilobed foramen (Fig. 7) and a horseshoe-shaped bluish-black mark on the interior surface around the orifice (Fig. 8). It is also the smallest of the four species.

The table below, based on Kaicher (1988) and Chan & Lau (2024a, 2024b, 2025), lists key features that can be used to distinguish the four keyhole limpet species found at Punggol Beach.

Species	<i>Diodora ticaonica</i>	<i>Diodora ruppellii</i>	<i>Diodora jukesii</i>	<i>Diodora octagona</i>
Colouration of exterior surface of shell	Greyish white with brownish spots & blotches.	White with black rays.	Whitish bordered by blackish lines.	Whitish with irregular broad dark brown markings.
Sculpture of exterior surface of shell	Narrow ribs crossed by concentric threads.	Radiating ridges of varying width.	Scaly ribs.	Thin, broadly granulated scaled ridges. Radiating ridges most prominent and elongated.
Shape of foramen	Trilobed	Ovate	Ovate	Ovate
Markings on interior surface of shell	Horseshoe-shaped bluish-black border around callus of foramen.	Faint, dark brown radiating rays.	Callus of foramen bordered by blackish line.	Irregular, broad, dark brown markings.

The occurrence of *Diodora ticaonica* in Singapore is not surprising as it is distributed in the western Pacific (Kaicher, 1988), Gulf of Thailand (Sanpanich & Duangdee, 2013), northwestern Australia (Wells et al., 2000), and Pakistan (Kazmi, 2024). The type locality is the island of Ticao in the Philippines where it was first found under stones at low water (Reeve, 1850 as *Fissurella ticaonica*).

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