

Biodiversity Record: New Singapore record of the miniature bivalve, *Montacutona variabilis*

Chan Sow-Yan* & Lau Wing Lup

Email: chansowyan@gmail.com (*corresponding author), suiseki1984@yahoo.com.sg

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Subjects: *Montacutona variabilis* (Mollusca: Bivalvia: Lasaeidae).

Subjects identified by: Chan Sow-Yan, Tan Siong Kiat and Lau Wing Lup.

Location, date and time: Singapore Island, Changi Beach Park; 11 February 2021; around 1915 hrs.

Habitat: Estuarine section of a concrete canal. On the intertidal zone of a bio-fouled canal wall at low tide (Fig. 1).

Observer: Lau Wing Lup.

Observation: Six articulated valves of shell lengths between 1 to 3 mm, were found nestled within crevices of a left valve of a broken oyster shell, and amongst barnacles and mat-forming mussels (Fig. 2). Remnants of flesh on some valves indicate that those specimens were alive shortly before discovery.

Among the samples (Figs. 3–6), the valves are variable in shape, ranging from triangular to suborbital, with convex, straight or slightly concave ventral margins. The exterior surface of the thin valve is a translucent dull chalky white (Fig. 6), and rough with irregular concentric growth lines. The interior surface is glossy (Fig. 5). The embryonic shell is prominent (Fig. 4). From the umbones, the anterior and posterior margins slope downwards abruptly on both sides. The hinge of each valve has a pair of diverging laterals (resembling an inverted V). A trigonal ligament pit is positioned under each umbo.

Remarks: This is the first record of *Montacutona variabilis* for Singapore (see Tan & Woo, 2010). The featured specimens match the illustrations of the species in Lyngé (1909) and Robba et al. (2002 as *Mysella variabilis*). This species has been found in fossil records of the Holocene era and apparently has hitherto only been recorded in Thailand (see Nabhitabhata, 2009; Wells et al., 2021). Therefore, the present record is also a southward and extralimital extension of its known distribution. *Montacutona variabilis* is also one of the smallest bivalves recorded in Singapore.

An unidentified *Montacuta* sp., assigned to Galeommatidae in Tan & Woo (2010), was mentioned by Chuang (1973) to be residing in worm burrows, in association with either the peanut worm, *Siphonosoma cumanense*, or spoon worm, *Ochetostoma erythrogrammon*. This is unlikely to be conspecific with the featured specimens which nestled among encrusting organisms on the canal wall. A ‘Montacutid sp.’ illustrated by Lim (1969) resembles *Montacutona variabilis* in general outline but its specific identity cannot be confirmed.

The variable shape of *Montacutona variabilis* is attributed to its habitat and mode of living (Lyngé, 1909). Lasaeids occur in sheltered environments and some species are known to establish symbiotic relationships with other organisms feeding on mucous secretions or food particles of their host (Sasaki, 2008). Most Lasaeids can crawl actively using the planar sole of their feet (Mikkelsen & Bieler, 2008).

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Fig. 1. Biofouled canal wall where subjects were found.

Fig. 2. The broken oyster shell valve where subjects were found among encrusting organisms.

Fig. 3. *Montacutona variabilis* valves with encrustations in the foreground. Those in the background are cleaned. Space between black bars = 1 mm.

Fig. 4. Umbonal view of a specimen showing prominent embryonic shell.

Fig. 5. Interior of a left valve.

Fig. 6. Exterior of a right valve.

(Photographs by: Lau Wing Lup)

