

## Biodiversity Record: Micro-cone hive snails, *Kaliella microconus*, in Singapore

Chan Sow-Yan<sup>1\*</sup> & Lau Wing Lup<sup>2</sup>

<sup>1</sup>VBox 888313, Singapore 919191; Email: [chansowyan@gmail.com](mailto:chansowyan@gmail.com) (\*corresponding author)

<sup>2</sup>Hougang Avenue 10, Singapore 530450; Email: [suiseki1984@yahoo.com.sg](mailto:suiseki1984@yahoo.com.sg)

**Recommended citation.** Chan S-Y & Lau WL (2022) Biodiversity Record: Micro-cone hive snails, *Kaliella microconus*, in Singapore. Nature in Singapore, 15: e2022008. DOI: 10.26107/NIS-2022-0008

**Subjects:** Micro-cone hive snail, *Kaliella microconus* (Mollusca: Gastropoda: Chronidae).

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

**Locations, dates and times:** Two locations on Singapore Island –

1. Dairy Farm Nature Park, along Wallace Trail; 10 October 2020; around 1535 hrs.
2. Singapore Botanic Gardens, rainforest patch; 17 July 2021; around 1140 hrs.

**Habitat:** Lowland forest.

**Observers:** Lau Wing Lup and Chan Sow-Yan.

**Observations:** Live examples, the largest with shell diameter of around 2.5 mm, were found along footpaths among leaf litter on damp ground shaded by vegetation (Fig. 1). About four individuals were seen at Dairy Farm Nature Park along a 1.5-m stretch, and around three at the Botanic Gardens along a 3-m stretch.

The shell of *Kaliella microconus* is brownish yellow, glossy, translucent and pyramidal with up to six whorls, with flat sides and a slightly convex base. The whorls are slightly convex, separated by clearly demarcated and shallow sutures. An acute keel is present at the periphery. The apex is rounded. The shell sculpture comprises delicate radial striations along the growth lines, which are crossed by spiral lirae that diminish in strength at the umbilical region. The umbilicus is either almost closed, or minutely perforated and partially covered by reflected columella. The oblique aperture is subquadrate or rhombiform. The peristome is sharp, simple, discontinuous, slightly angular and not thickened (see Figs. 2A, 3). The snail's foot is yellowish white (Fig. 2B). There are two pairs of dark grey tentacles (Fig. 2C) and a pinkish patch on the head and dorsal region. The eye spots are on the ends of the upper tentacles.



Fig. 1. Forested habitat at Dairy Farm Nature Park where *Kaliella microconus* snails were found among leaf litter along the footpath. (Photograph by: Lau Wing Lup).

**Remarks:** Originally described from Fiji (Mousson, 1865, as *Nanina microconus*), *Kaliella microconus* has also been recorded from Australia, Bali, Java, Borneo and Peninsular Malaysia (Brazier, 1875; Godwin-Austen, 1891; Möllendorff, 1897; Vermeulen & Whitten 1998; Maassen, 2001). It has been encountered on moss, vegetable debris, among dead leaves and on low vegetation, from sea level to an altitude of 1,650 m (Bentham Jutting, 1950). *Kaliella microconus* was first recorded from Singapore by Tan et al. (2012, as *Coneuplecta microconus*), but images of live examples are rare in literature.

*Kaliella microconus* closely resembles *Kaliella barrackporensis*, but the latter can be distinguished by its larger size (at least 3 mm in shell height), more pronounced and convex whorls, rectangular aperture and blackish-grey flesh (see Chan & Lau, 2020). In Singapore, *Kaliella microconus* inhabits forest (Tan et al., 2012; pers. obs.), while *Kaliella*

*barrackporensis* appears to be more common in anthropogenic environments such as urban parkland (Chan & Lau, 2020). The “*Coneuplecta microconus*” of Lim et al. (2018, fig. 2H), which was obtained at the edge of Nee Soon freshwater swamp, is actually *Kaliella barrackporensis*.



Fig. 2. Lateral views of aestivating *Kaliella microconus* snail on a dead leaf (A) and of grazing snails showing the yellowish foot (B) and dark grey tentacles (C). (Photographs by: Lau Wing Lup).



Fig. 3. Aperture (left), umbilical (centre) and apical (right) views of a *Kaliella microconus* shell of about 2 mm diameter. (Photographs by: Lau Wing Lup).

#### Literature cited:

- Benthem Jutting WSS van (1950) Systematic studies on the non-marine Mollusca of the Indo-Australian Archipelago. II. Critical revision of the Javanese pulmonate land-shells of the families Helicarionidae, Pleurodontidae, Fruticicolidae and Streptaxidae. *Treubia*, 20: 381–505.
- Brazier J (1875) Descriptions of eleven new species of terrestrial and marine shells from north-east Australia. *Proceedings of the Zoological Society of London*, 1875: 668–672, pl. 83.
- Chan S-Y & Lau WL (2020) Barrackpore hive snail, *Kaliella barrackporensis*, in Singapore. *Singapore Biodiversity Records*, 2020: 121–124.
- Godwin-Austen HH (1891) On a collection of land shells made in Borneo by Mr. Everett, with descriptions of supposed new species. Part II. Zotinidae and Helicinidae. *Proceedings of the Zoological Society of London*, 59: 22–47, pls. 2–6.
- Lim WH, Li TJ & Cai Y (2018) Diversity of terrestrial snails and slugs in Nee Soon freshwater swamp forest, Singapore. *Gardens' Bulletin Singapore*, 70 (Supplement 1): 109–121.
- Maassen WJM (2001) A preliminary checklist of the non-marine molluscs of West-Malaysia: “A Hand List”. *De Kreukel (Supplement)*: 1–155.
- Möllendorff OF von (1897) Neue Landschnecken von Java. *Nachrichtsblatt der Deutschen Malakozoologischen Gesellschaft*, 29: 57–72, 89–97.
- Mousson A (1865) Coquilles terrestres et fluviatiles de quelques îles de l'océan Pacifique, recueillies par M. le Dr. E. Graeffe. *Journal de Conchyliologie*, 13: 164–209, pl. 14.
- Tan SK, Chan SY & Clements GR (2012) *A Guide to Snails and Other Non-Marine Molluscs of Singapore*. Singapore Science Centre, Singapore, 176 pp.
- Vermeulen JJ & Whitten AJ (1998) *Guide to the Land Snails of Bali*. Backhuys, Leiden, 164 pp.