

Biodiversity Record: New Singapore record of the marine cyanobacterium, *Symploca hydnoides*

Lik Tong Tan*, Nursheena Parveen Katermeran & Ma Yadanar Phyo

Natural Sciences and Science Education, National Institute of Education, Nanyang Technological University, 1 Nanyang Walk, Singapore 637616, Singapore; Email: liktong.tan@nie.edu.sg (*corresponding author)

Recommended citation. Tan LT, Katermeran NP & Phyo MY (2023) New Singapore record of the marine cyanobacterium, *Symploca hydnoides*. Nature in Singapore, 16: e2023063. DOI: 10.26107/NIS-2023-0063

Subjects: *Symploca hydnoides* (Cyanobacteriota: Cyanophyceae: Oscillatoriales: Microcoleaceae).

Subjects identified by: Lik Tong Tan.

Location, date and time: Singapore Strait, Lazarus Island (Pulau Sakijang Pelepah); 10 March 2020; around 1745 hrs.

Habitat: Marine. Intertidal, attached on rocks.

Observers: Lik Tong Tan, Nursheena Parveen Katermeran and Ma Yadanar Phyo.

Observations: Since 10 March 2023, several erect cyanobacterial bundles, each with an average height of about 1.5 cm and width of 0.8 cm, were observed attached on hard substrate, such as rocks (Figs. 1 & 2). The occurrence of the marine cyanobacterium appears to be seasonal, peaking during March and April annually as observed over a period of four years from 2020 to 2023.



Fig. 1. A cluster of erect tufts of *Symploca hydnoides* attached on rock. Fig. 2. View of individual tuft of *Symploca hydnoides*. (Photographs by: Lik Tong Tan).

Remarks: As this filamentous marine cyanobacterial species is not listed in several taxonomic publications, including Wee (1978), Pham et al. (2011), Phang et al. (2016) and Curren & Leong (2018), it is likely to be a new record for Singapore. In addition, it is the first record of a marine cyanobacterial strain belonging to the genus *Symploca* in Singapore. To date, only the terrestrial *Symploca elegans* has been recorded locally by Wee (1978).

The sighting of this cyanobacterial species is significant as members belonging to the genus *Symploca* are known to be prolific sources of bioactive specialized metabolites with therapeutic applications (Tan & Phyo, 2020). As such, small samples were collected in March 2020 for chemical analysis and subsequent chromatographic steps and spectroscopic analysis, including NMR, detected a new molecule structurally related to santacruzamate A, a potent histone deacetylase inhibitor (Pavlik et al., 2013).

Literature cited:

- Curren E & Leong SCY (2018) New records of benthic coastal cyanobacteria observed from the Southern Islands of Singapore. *Algological Studies*, 154: 93–112.
- Pavlik CM, Wong CY, Ononye S, Lopez DD, Engene N, McPhail KL, Gerwick WH & Balunas MJ (2013) Santacruzamate A, a potent and selective histone deacetylase inhibitor from the Panamanian marine cyanobacterium cf. *Symploca* sp. *Journal of Natural Products*, 76: 2026–2033.
- Pham MN, Tan HTW, Mitrovic S & Yeo HHT (2011) A Checklist of the Algae of Singapore, 2nd Edition. Lee Kong Chian Natural History Museum, National University of Singapore, Singapore, 99 pp. Uploaded 1 October 2011. https://lkcnhm.nus.edu.sg/wp-content/uploads/sites/10/app/uploads/2017/04/singapore_algae_checklist_second_edition.pdf (Accessed 26 June 2023).
- Phang SM, Yeong HY, Ganzon-Fortes ET, Lewmanomont K, Prathep A, Hau LN, Gerung GS & Tan KS (2016) Marine algae of the South China Sea bordered by Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam. *Raffles Bulletin of Zoology, Supplement No. 34*: 13–59.
- Tan LT & Phyo MY (2020) Marine cyanobacteria: a source of lead compounds and their clinically-relevant molecular targets. *Molecules*, 25(9): 2197.
- Wee YC (1978) Annotated list of algae of Singapore (I). *Gardens' Bulletin Singapore*, 31: 238–250.