

Antimacrofouling Assays of *Sargassum duplicatum* Extract in the Settlement Inhibition of *Balanus* sp. on Wooden Plank Substrate

Fahrudin Fahrudin*, Eva Johannes, Zaraswati Dwyana,
and Nur Haedar

Department of Biology, Faculty of Mathematics and Natural Sciences,
Hasanuddin University, Makassar 90245, Indonesia

*Corresponding author. E-mail: fahrudin_science@unhas.ac.id
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ABSTRACT

Marine macro-biofouling by Balanus sp. is a source of problems in marine industry. Chemicals have been employed in dealing with biofouling, but are harmful to the environment. The bioactive compounds in seaweeds offer an environment-friendly anti-biofouling alternative. The aim of this study was to examine the ability of Sargassum duplicatum crude extract to inhibit macrofouling by Balanus sp. S. duplicatum was extracted by using the maceration method. Balanus sp. settlement inhibition assays were conducted by applying extract on wooden planks at varying extract and paint ratios. The wooden planks were later immersed in the seawater. Observation of the number of Balanus sp. attached on the planks was carried out after 10, 20, and 30 days of immersion in seawater. The results from the observation showed that treatment P4 (75% extract, 25% paint) was the most effective in inhibiting macrofouling by Balanus sp. This was evident from the 10-day and 30-day observations in which the number of Balanus sp. attached was only 12.3 or 3%. The number was lower compared to in other treatments in 30-day observation, i.e., treatment P3 (50% extract, 50% paint) at 24 or 6%, treatment P5 (100% extract) at 48.3 or 12%, P2 (25% extract, 75% paint) at 73.6 or 19%, treatment P1 (100% paint) at 102 or 26%, and control P6 (no paint and extract) at 135.6 or 34%. For this reason, S. duplicatum extract was considered to have the potential to be developed as an anti-fouling agent on marine materials.

Keywords: Biofouling, Antifouling, Wooden plank, *Sargassum duplicatum*, *Balanus* sp.