

**STUDY ON RESTORATION OF *Gracilaria edulis* BY
ARTIFICIAL PROPAGATION IN PUTTALAM
LAGOON; SRI LANKA**

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Abstract

The red algae, *Gracilaria edulis* is a principle source of agar which was disappeared from the Puttalam lagoon after 1998 period. The real cause for the disappearance is still unknown. Culture of *Gracilaria edulis* was undertaken using a floating raft method to investigate the culturing possibility in the Puttalam lagoon, Kalpitiya area after the depletion of natural stock. Propagules were taken from emerged natural stock in Sinna Arichchal area. The aim of this culture study was to restore the *Gracilaria edulis* natural stock if the artificial culture is possible. Two locations were selected namely "Near shore" (Location 1) and "Distance away from the shore" (Location 2). Culturing was possible with the current condition of the environmental factors. Growth and physio-chemical parameters was tested with biweekly frequency. The highest daily growth rate (DGR) (7.15 ± 0.23 %/ day) was recorded at near shore location than (5.63 ± 0.107) distance away from the shore location. Maximum average fresh weight gained by propagules at near shore location was 1.552 ± 1.361 kg after 60 days of culture period. Though high nutrient content is available in south west monsoon period, fragmentation of plants due to heavy wave actions coincide with the high wind speed was noted. The recorded highest growth rate in near shore location was lower than the growth rate recorded in previous culture study in Kalpitiya by Jayasuriya in 1993. Maximum surface water temperature recorded in present study (33° C) also higher than previous study (31° C). The results reveled that growth rates were significantly influenced by temperature and nutrients ($P < 0.05$). The disturbance in the area is higher due to fisheries and eco-tourism activities. Therefore the community around the area should be informed to regulate the disturbances without affecting their fisheries activities as well. Restoration should be accompanied with the community around the area.

Key word: *Gracilaria edulis*, Restoration, Culture, depletion, Puttalam lagoon, Floating raft