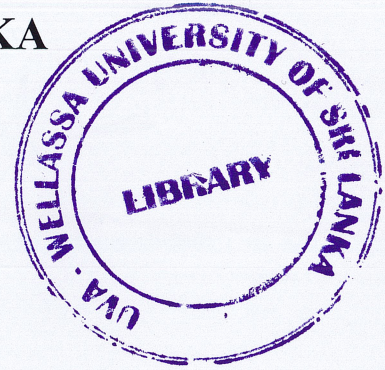


**INTENSIFICATION OF SEAWEED
CULTIVATION *Padina antillarum* USING
DIFFERENT METHODS IN MANNAR ISLAND,
KOKKUPUDAIYAAN, SRI LANKA**



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ABSTRACT

Padina antillarum is a brown seaweed used as a raw material in many industries viz. pharmaceutical, animal feed, and fertilizer. Sri Lanka has a great potential to utilize this seaweed especially in the fertilizer and animal feed production industry and naturally available stocks are insufficient for industrial uses. No previous studies were reported on the culture methods of *P. antillarum* in Sri Lanka. Therefore, this research was focused to find out the best culturing method of *P. antillarum* using three different culturing methods in coastal water, Mannar Island, Sri Lanka. Raft culture, long line culture and bag culture methods were used for the experiment with three replicates in an open sea area for 42 days. *P. antillarum* with a wet weight of 100 g including approximately 25 individual seaweeds of approximately same size and same weight were introduced for each replicate. The culture systems were maintained under the prevailing environmental conditions observing the cultures, removing epiphytes and debris twice a day. pH, temperature and salinity of water were measured daily in each culture system. The weight of the seaweed in each experimental unit was measured and Absolute Growth Rate (AGR) was calculated. Growth rate data were analyzed by one-way ANOVA, and AGR of the raft culture method was significantly different from the other two culture methods ($P < 0.05$). The highest AGR showed on raft culture as $11.11 \pm 2.82 \text{ g week}^{-1}$ and the lowest in bag culture as $5.19 \pm 1.67 \text{ g week}^{-1}$. There was no significant variation of pH (7.7), temperature (30.17°C) and salinity (31.7 ppt) during the study period with comparing the optimum levels of the natural growth of *P. antillarum* (7.0-8.2, $29\text{-}30^{\circ}\text{C}$ and 31.5-32 ppt respectively). The results indicated that raft culture is observed to be the best culture method with a higher growth rate providing baseline information for the initiation of *P. antillarum* farming in the coastal waters of Sri Lanka. Further studies are recommended to identify the impact of water quality and patterns of the water current on *P. antillarum* farming.

Keywords: Growth rate performance; Mannar Island; Seaweed cultivation, *Padina antillarum*; water quality.