



Study on Optimal Harvesting Period of Native Red Seaweed *Gracilaria Salicornia* Cultivation using Monoline Culture Technique

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Abstract: Seaweed provides numerous benefits to a wide range of industries, most notably for food and beverage materials, animal feed and fertilizer. Red seaweed is the primary sources of phycocolloid, including agar and carrageenan. Among red seaweeds, the genus *Gracilaria* is a significant agar source globally. As a developing country, Sri Lanka has recently engaged in seaweed cultivation that improve the livelihoods of local fishermen. Therefore, a study was conducted to find the feasibilities of culturing *Gracilaria salicornia* in the Chulipuram west coast of Jaffna, Sri Lanka. The major environmental factors, such as water temperature, pH, and salinity, were also measured weekly during the study period. The monoline and net-bag methods were adopted to find the efficient cultivation technique. As monoline cultivation technique showed high yield and growth, the optimal harvesting period for optimum yield of *G. salicornia* were evaluated. Polypropylene rope was used for monoline that measuring 7.5m in length with three replicates. An initial weight of $100\pm 1\text{g}$ of seaweed was attached at every 30cm interval. The initial harvest was begun from 25th day of cultivation and continued every ten days intervals up to 65th day. The harvested samples were recorded on a wet-weight basis. The most effective mean yield of *G. salicornia* was 372.73g on the 45th day of cultivation, with an average absolute yield of 272.73g and an average daily growth rate of 12.46% per day. Based on the data, this study suggests that the optimal harvesting period for *G. salicornia* production is 40th to 45th days of cultivation. This finding can be used as baseline information for fishermen to initiate supplementary sources of income.

Keywords: Chulipuram coast; *Gracilaria salicornia*; Growth rate; Mono-line; Net-bag