The viability of *Gracilaria salicornia* seaweed farming at Kibuyuni in Kwale County, South coast Kenya, for commercial extraction of agar

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Seaweed farming is an alternative livelihood venture that was initiated in southern coast of Kenya in the recent past with a purpose of raising the socioeconomic status of the local coastal communities. Seaweeds refer to several species of macroscopic multicellular marine algae and comprise of certain species that can be cultured in the sea. Two seaweed species; *Kappaphycus alvarezii* and *Eucheuma denticulatum* were introduced for farming in southern coast of Kenya. Though the production of *E. denticulatum* has been satisfactory, that of *K. alvarezii* which has greater commercial benefit has remained insignificant. This study aims to bridge the gap so created, by testing the suitability of an alternative commercially viable seaweed species for cultivation.

This study will be carried out at Kibuyuni in southern coast of Kenya for a period of six months in order to assess the suitability of the coastal site for cultivation of *Gracilaria salicornia* by the local coastal community for commercial gain. *G. gracilis* is a cultivatable seaweed species popularly known for use in production of agar which has commercial benefits and widely used in industry. The gracilarioid will be grown in three replicated sites using suspended polyethylene ropes (off-bottom method). Daily growth rate and the agar yield of *G. salicornia* harvested from the three sites will be determined and compared. Daily growth rate (DGR = % day^{-1}) will be calculated using the formula described by Dawes *et al*. 1993, while the native agar yield (NAY = % dry weight) will be determined using the procedure adapted from Wakibia *et al*. 2001. One way Anova statistical analysis test will be used to test significant differences in the mean growth rate and yield values between sites. All data obtained will be processed and analyzed using Microsoft® Excel and Minitab® software. All statistical tests of significance will be determined at $\alpha = 0.05$.

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