

## Growth and biochemical composition of *Kappaphycus* (Rhodophyta) in customized tank culture system

### **Abstract**

The study was conducted to determine the growth and biochemical composition of *Kappaphycus* cultivated in a customized tank culture system. Two red seaweed species (*Kappaphycus alvarezii* and *Kappaphycus striatum*) were selected and cultivated using suspension culture method in the tank. Three cycles of 40-day culture trials were performed during September to December 2014, and both *K. alvarezii* and *K. striatum* were successfully grown in the tank. This is the first report on the success of seaweed culture in Malaysia involving land-based facility. Interestingly, *K. striatum* was found to grow better than *K. alvarezii* in the tank. The daily growth rate (DGR) and daily weight productivity (DWP) of *K. alvarezii* ranged from  $1.96 \pm 0.08$  to  $2.29 \pm 0.11$  % day<sup>-1</sup> and  $3.70 \pm 0.20$  to  $4.55 \pm 0.34$  g DW m<sup>-2</sup> day<sup>-1</sup>, and those of *K. striatum* ranged from  $2.25 \pm 0.06$  to  $2.96 \pm 0.02$  % day<sup>-1</sup> and  $4.48 \pm 0.19$  to  $6.17 \pm 0.18$  g DW m<sup>-2</sup> day<sup>-1</sup>, respectively. These values were influenced by the changes in the water quality variables during the culture period. On the other hand, the biochemical composition of *K. alvarezii* and *K. striatum* was not significantly different ( $p > 0.05$ ) from each other. Both growth and biochemical composition of *K. alvarezii* and *K. striatum* in the present study were comparable with those cultured in the open sea. In conclusion, the findings indicate the ability of *Kappaphycus* to grow well in land-based cultivation system which can be further explored to support the

development of local seaweed farming industry especially for the high-quality seed production.