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# Technical feasibility of cultivating *Sargassum podacanthum* and *Sargassum linearifolium* in inland saline water in Western Australia

**Ha Thi Thu Bui, Trong Quoc Luu and Ravi Fotedar**
Curtin University, Australia

Aquaculture using salt-affected land is considered as an additional resource for mariculture in Australia, India and USA. However, the deficiency of potassium in ISW is the major constraint in cultivating marine aquatic species. The aim of this research was to investigate the technical feasibility of cultivating *Sargassum* spp. in inland saline water (ISW) in Western Australia by conducting a three-phased research. The first phase was aimed to determine the suitable seaweed species which can survive in ISW. *Sargassum linearifolium* and *S. podacanthum* were selected out of seven trialled species. The second phase focused on investigating the optimum potassium concentration to grow *Sargassum* spp. in ISW by testing the different levels of potassium fortification in ISW (33%, 66% and 100% of potassium concentration equivalent to potassium concentration in ocean water) under both indoor and outdoor conditions. The results showed that 100% fortification of potassium by potassium chloride or sulphate of potash can sustain the growth of *Sargassum* spp. in ISW. The relationship between the fresh biomass of *S. linearifolium* and cultivation time was correlated (R2>0.7) in all potassium fortified ISW. The third phase attempted to improve the productivity of both *Sargassum* spp. by enriching nutrients to 100% potassium-fortified ISW. Only *S. podacanthum* showed the highest dry biomass at a nutrient mix of 160 mg $l^{-1}$ of ammonium and 16 mg $l^{-1}$ phosphate in potassium-fortified ISW. After 84 days of cultivation, the biomass of both species was significantly ($P<0.05$) affected by the nutrient levels. It is technically feasible to cultivate *S. linearifolium* and *S. podacanthum* in 100% potassium-fortified ISW.

## Biography

Ha Thi Thu Bui is pursuing her PhD in Aquaculture at Curtin University, Australia. She has been a Researcher at Research Institute for Aquaculture in Vietnam since 1998, after graduating in Aquaculture Engineering with excellent grades, working on socio-economic studies in Fisheries sector. She completed her Master of Aquaculture at Nha Trang Fisheries University in Vietnam in 2001 with first class-excellent grade. She completed her Master of Natural Resource Management from University of Western Australia in 2011. She has been pursuing her PhD since 2012 sponsored by Vietnamese Government and Curtin International Post-graduate Research Scholarship. Topic of her PhD research is on "Growing seaweed species in inland saline waters in Western Australia".

ha.bui@postgrad.curtin.edu.au

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