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# **ABSTRACTS**



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## Mariculture of seaweeds for carbon sequestration and livelihood support

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PS seaweeds are cultivated for their commercial value of polysaccharides such as agar, algin and carrageenan. World seaweed production through mariculture is expected to increase to 9.8 million tonnes by the year 2025. Seaweed mariculture in India remained in experimental trials until recently though started in 1964. Large scale seafarming of *Kappaphycus alvarezii*, a carrageenan yielding seaweed started in 2000 with a back up by Pepsico India Holdings Ltd in the coastal waters of Tamilnadu, Odisha and Gujarat including Daman & Diu with technical support from CSMCRI, Bhavnagar. Contract farming of *Kappaphycus alvarezii* by the fishfolks of east coast of India has touched 20,000 tonnes/year. Seaweeds are proved to be excellent bio-remediating agents and are capable of improving water quality by uptake of dissolved metals, ammonia and phosphates. It is estimated quantitatively that seaweeds are also capable of sequestering dissolved CO<sub>2</sub> at the rate 80.5 mg/g wet weight/day while their rate of emission through respiration is only 10 mg/g wet weight/day as majority of brown and green seaweeds are capable of utilizing the respiratory emission of CO<sub>2</sub> within the cells for photosynthesis. Mariculture potential of seaweed in India is estimated to be 2 million tonnes by the year 2020. Hence large scale mariculture of seaweeds like *Gracilaria*, *Gelidiella* for agar, *Kappaphycus alvarezii* for *k*-carrageenan and *Ulva* and *Caulerpa* for their nutraceuticals and other secondary metabolites can help mitigate major green house gases and can check ocean acidification, while the seaweed farmers can make a living out of the harvest.

**Keywords:** Seaweed farming, mariculture, carbon sequestration, *Kappaphycus alvarezii*,