

Cultivation of marine red alga *Gracilaria edulis* (Gigartinales, Rhodophyta) from spores

*Reeta Jayasankar & Sally Varghese

Central Marine Fisheries Research Institute, Kochi-682014, Kerala, India

[*E-mail : reetajayasankar@yahoo.com]

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Gracilaria edulis, a major Indian agarophyte, has been successfully cultivated in an experimental scale from spores at sea off Narakkal, Kochi. Artificial objects like floating raft, nylon ropes and net pieces were provided in the open sea for collection of spores of *Gracilaria edulis*. They were allowed to grow to mature size of 30 cm. After 76 days of culture period, fully grown healthy plants of *Gracilaria edulis* were harvested from the nylon rope by hand pruning. Further growth was much faster. A total yield of 7.220 kg plants was obtained during 122 days of the culture period. The work has resulted in the successful cultivation of the species from the east coast to a coastal area of the west coast, Narakkal, and also in the identification of a fertile culture ground (open sea off Narakkal, Kochi) along the Kerala coast during favourable period of growth.

[**Key words** : Spores, propagation, *Gracilaria*, cultivation]

Demand for marine red alga *Gracilaria* has increased significantly over the last ten years for extraction of agarocolloids and this has led to overharvesting of the natural stock. The decline of the natural population of *Gracilaria edulis* in recent years has prompted the development of several restoration techniques and spore culture is one of the important techniques used for seaweed cultivation. Experimental research work has been carried out in the artificial propagation mainly by vegetative method in economically important red seaweeds like *Gelidiella acerosa*¹, *Gracilaria edulis*²⁻⁴ and *Hypnea musciformis*⁵. The vegetative method of seaweed culture, as the report suggests, is labour intensive, uneconomical and requires large quantity of seed material. On the other hand, equipments needed for spore cultivation is simple and can easily be utilized by fishermen cooperatives^{6,7}. Earlier works, which highlight the importance of culture of economically important seaweeds from spores^{8,9} have reported successful cultivation of the plants by this method.

A large-scale trial for cultivation of *Gracilaria edulis* from spores was done under the Bay of Bengal Programme during 1988-89, but it was reported¹⁰ to be unsuccessful, as the spores could not be grown to germling stage. Successful nursery rearing of *Gracilaria edulis* from the spores and their propagation was reported for the first time in India¹¹. The pre-

sent work is again an experimental one but aimed at a large-scale cultivation of agar yielding seaweed, *Gracilaria edulis* (Gmelin) Silva. (Gigartinales, Rhodophyta) from carpospores in an area where there is no natural vegetation of the particular seaweed.

Cystocarpic plants of *G. edulis* were collected from Mandapam, Tamil Nadu, south east coast of India (78° 08'E and 9° 17'N) during November 1999. Collection was made during lowtide in the morning. Healthy reproductive plants (app. weight 70 g) were selected, washed thoroughly in sterilized seawater and transported to Kochi in enriched seawater. The plants were kept under continuous aeration for 24 h in the marine hatchery complex in fresh enriched seawater to recover from transportation stress. Coastal area off Narakkal, Kochi, was selected as culture site. Floating raft of 5×5 m² size which was floated for mussel culture by fishermen with the aid of the Krishi Vigyan Kendra, Narakkal, was used for *G. edulis* culture too. The structure was anchored at a distance of about 125 m from the shore, where the depth is about 4 m.

Usually *Gracilaria* culture from spores requires a nursery unit for settling the spores till germling stage before they are transplanted to the natural environment. But in this experiment, the plants (approximately 70 g) were kept for spore output on the nylon twine for 48 h in the nursery and then transplanted to the natural environment in perforated plastic bags

Short Communication

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