Seaweed Res. Utiln
14 (1) : 21-23 (1991)

EXPERIMENTAL CULTURE OF *GRACILARIA EDULIS* BY SPORE SHEDDING METHOD

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Abstract

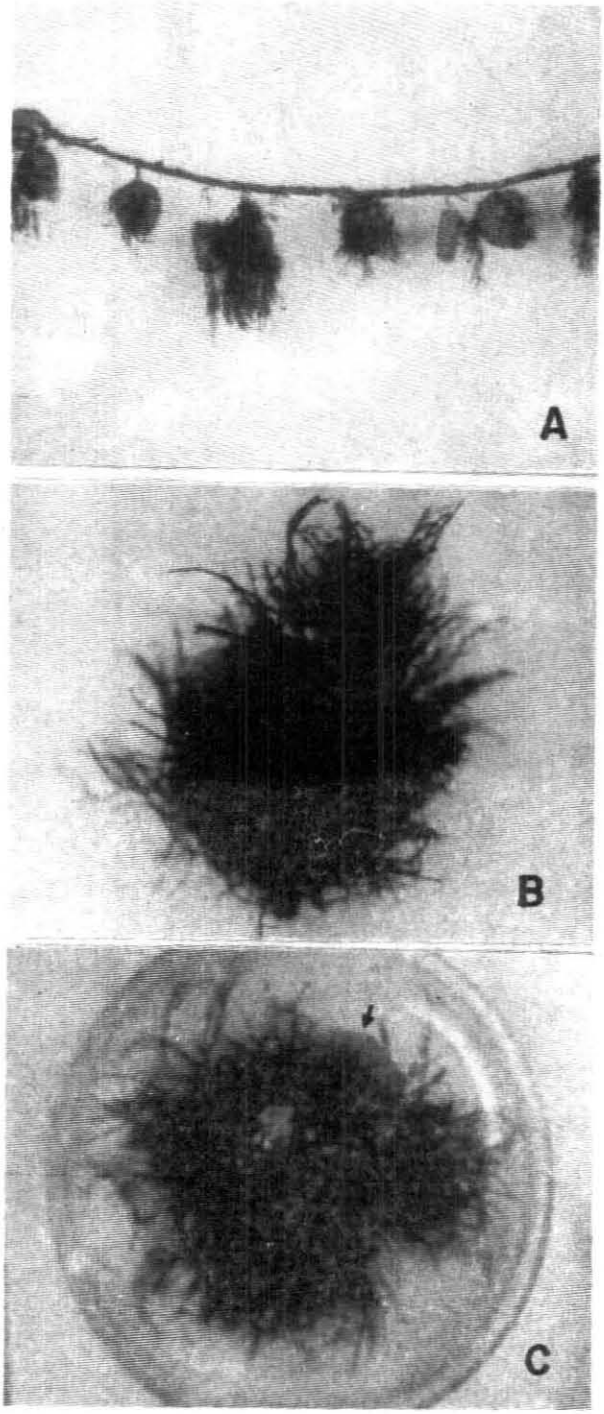
The experimental culture of *Gracilaria edulis* by spore shedding method was carried out at Mandapam on cement blocks from November to April, 1989. The spores grew to adult plants reaching a maximum length of 16 cm after four months of their output.

Introduction

With the increasing demand of agarophytes by industries and the declining trend of the wild resources of these seaweeds due to over-exploitation, suitable culture method is essential to increase their production. Two of the most important culture methods are fragment culture and spore culture. The fragment culture has been carried out successfully on an experimental scale in India in economically important seaweeds such as *Gelidiella acerosa*, *Gracilaria edulis*, *Hypnea musciformis*, *Acanthophora spicifera* and *Ulva lactuca* (Chennubhotla et al. 1987). In *G. edulis*, the fragment culture has been tried in seawater aquarium (Umamaheswara Rao, 1973) inshore waters of Gulf of Manner (Chennubhotla et al., 1978) open shore environment (Umamaheswara Rao, 1974) and sandy lagoon (Raju and Thomas, 1971). The spore culture of *G edulis* was earlier tried on nylon fabric (Krishnamurthy et al., 1969). An attempt has been made to culture *G. edulis* by spore shedding method on cement blocks and the results obtained are presented in this paper.

Materials and Methods

Healthy tetrasporic and cystocarpic plants of *G. edulis* were collected from Thonithurai (Gulf of Manner) in November 1988 and were transported to the laboratory in plastic bags containing seawater. The plants were thoroughly washed in ordinary seawater and later in filtered seawater. They were placed in a plastic trough containing 7 number of cleaned circular cement blocks (9 cm diameter). The plants were kept under continuous aeration and were removed after 24 hrs. The cement blocks were kept in stagnant water for four days to allow the spores to adhere to the substratum and germinate and then transferred to natural environment in Gulf of Mannar near CMFRI jetty by tieing them on



A. Cement blocks with young plants of *G. edulis* tied to coir rope. B. Fully grown plant of *G. edulis* from the spore on the cement block. C. *Padina boergesenii* (shown with arrow) grown on the cement block along with *G. edulis*.

a coir rope (Fig.1A). Observations on the growth of germlings were made at weekly intervals.

Results and Discussion

Very young plants of *G. edulis* (0.2 to 0.8 cm length) appeared on the cement blocks in January 1989 after 40 days of transplantation. The plants grew to a length of 0.5 to 2.0 cm in February and reached a maximum length of 16 cm (7.8 cm mean length) after 4 months of growth (Fig 1B). The other algae found attached to the cement blocks were *Ulva lactuca*, *Enteromorpha intestinalis*, *Cladophora fascicularis*, *Padina boergesenii* and *Hypnea valentiae* (Fig 1C) These are evidently due to contamination by propagules of these algae in the open sea conditions in which the culture was carried out.

The results obtained in the present investigation are in conformity with the earlier findings of Krishnamurthy et al. (1969) wherein the spores of *G.edulis* took 4 months to grow to young plants. In the present experiment, though large number of spores were transplanted to the sea, only few of them grew to young plants. If the spores are reared to germlings in the laboratory and then transferred to the sea, it may help to increase the viability of spores.

Acknowledgement

The authors are grateful to Dr.P.S.B.R. James, Director, Central Marine Fisheries Research Institute, Cochin and Dr.P.V. Vedavyasa Rao, Officer-in-charge, Regional Centre of CMFRI for providing necessary facilities in carrying out this work.

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