ALGINIC ACID AND MANNITOL CONTENTS IN RELATION TO GROWTH IN *STOECHOSPERMUM MARGINATUM* (C. AGARDH) KUETZING

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ABSTRACT

Results obtained on the yield of alginic acid and mannitol contents of *Stoechospermum marginatum* carried out for one year during 1976 are presented. Young plants of *S. marginatum* appeared from May and June and reached harvestable size in September. The yield of alginic acid and mannitol was found to be lower than *Sargassum* and *Turbinaria* spp. The alginic acid content was found to be high during the months September to December. Alginic acid content varied from 14.5 to 23.8% and the mannitol content varied from 1.2 to 2.7%.

Biological and chemical studies were conducted on some species of *Sargassum* (Umamaheswara Rao 1969), *Turbinaria* (Kaliaperumal and Kalimuthu 1976, Umamaheswara Rao 1969, Umamaheswara Rao and Kalimuthu 1972) and *Padina* (Chennubhotta et al 1977) to determine the optimum periods for harvesting these alginophytes of the Mandapam area. Results obtained on the changes in growth, yield of alginic acid and mannitol in *Stoechospermum marginatum* carried out for the year 1976 are dealt within this paper.

S. marginatum grows abundantly in the intertidal rocks of Pudumadam coastline which is rich in algal vegetation throughout the year. The plants were collected from a particular location every month. About 50-100 plants were collected and their lengths mesaured based on which the mean height was calculated. The plants were washed, sundried, powdered and then used for chemical analysis. The method suggested by Suzuki (1955) was followed for the extraction of alginic acid and the estimation of mannitol was done by the per-iodic acid method of Cameron et al (1948). The analysis was repeated four times and the mean values are given on the dry weight basis.

Monthly changes in growth, yield of alginic acid and mannitol are given in Fig. 1.

The plants were at their maximum size during the period January to March and the young plants of the next generation appeared in May and June.

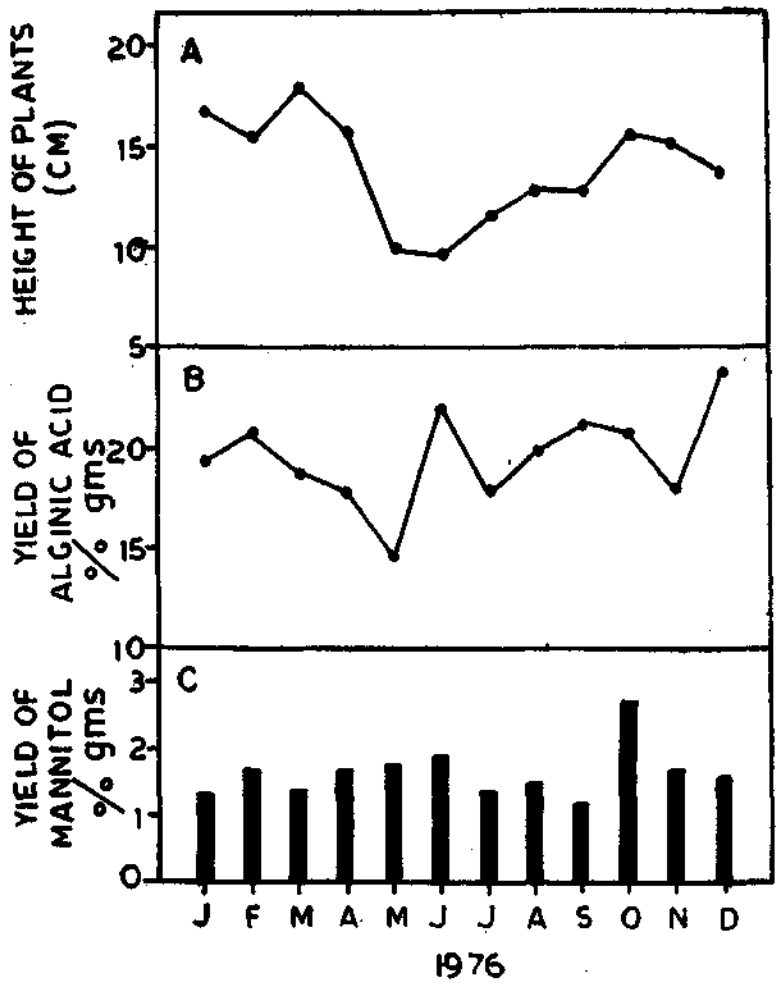

FIG. 1. Variations in growth, alginic acid and mannitol contents of *Stoechospermum marginatum*.

They grew to harvestable size from September onwards. The data collected on the mean height of plants are plotted in Figure 1A. Figure 1B shows the monthly changes observed in the yield of alginic acid in *S. marginatum*. The yield of alginic acid varied from 14.5 to 23.8% during the year 1976. Alginic acid content was high in the months from January to February and August to December when the plants were at their maximum size. Figure 1C shows the monthly changes in the mannitol content of *S. marginatum*. The amount of mannitol varied from 1.2 to 2.7%. The mannitol content was found to be highest in October and secondary peaks were noted in May and June when the plants were young. The amount of mannitol present in *S. marginatum* was very poor when compared to other alginophytes like *Sargassum* and *Turbinaria*.

From the information available on the growth, yield of alginic acid and mannitol, it may be concluded that the maximum growth period from September to February may be suitable for harvesting this alga at Pudumadam coastline.

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