VARIATIONS IN GBOWTH AND MANNITOL AND ALGINIC ACID CONTENTS OF *SARGASSUM MYRIOCYSTUM* J. AGARDH

S. KALIMUTHU

Central Marine Fisheries Research Institute, Regional Centre, Mandapam Camp.

ABSTRACT

Studies on the changes in growth and mannitol and alginic acid contents of *Sargassum myriocystum* carried out for one year, 1969, are presented. Young plants appeared from December to March and reached a maximum size during the period, May to August. The estimated mannitol content was 1.8 to 5.0% and the yield of alginic acid was 14.26 to 26.07%.

Alginic acid content of many Indian brown algae has been estimated (Valson 1955, Kappanna et al 1962). Studies have also been made on the seasonal changes in the growth, alginic acid and mannitol contents of *Sargassum wightii* and *Turbinaria conoides* (Umamaheswara Rao 1969), *T. ornata* (Umamaheswara Rao and Kalimuthu 1972) and *T. decurrens* (Kaliaperumal and Kalimuthu, unpublished). The present paper deals with the variations in growth and mannitol and alginic acid contents of *Sargassum myriocystum* observed during the year 1969.

S. myriocystum was collected from the lower part of the littoral zone, at Pudumadam on the Gulf of Mannar side. Samples consisting of 100 or more plants were collected once in a month from the same spot. Length of the plants was measured and the mean height was calculated. Alginic acid was extracted by the analytical method suggested by Suzuki (1955) and mannitol was estimated by per-iodie acid method of Cameron et al (1948). Estimations were repeated four times and the mean values have been expressed on dry-weight basis.

Seasonal variations observed in growth, mannitol and alginic acid contents of *S. myriocystum* are shown in Fig. 1. Only small plants of this alga were observed, as scattered patches in the interidal region. Young plants occurred in the population from December to March. Fully grown plants of this alga were seen during the period, May to August, unlike in the other members of Fucales studied from Mandapam area (Umamheswara Rao 1969, Umamaheswara Rao and Kalimuthu 1972, Kaliaperumal and Kalimuthu, unpublished) and the mean height of the plants during the peak growth period was less than that observed in *S. wightii*. One or two fruiting plants with receptacles were observed during the maximum growth period and in general sterile plants were seen in the population of tthis alga during the period of this study.

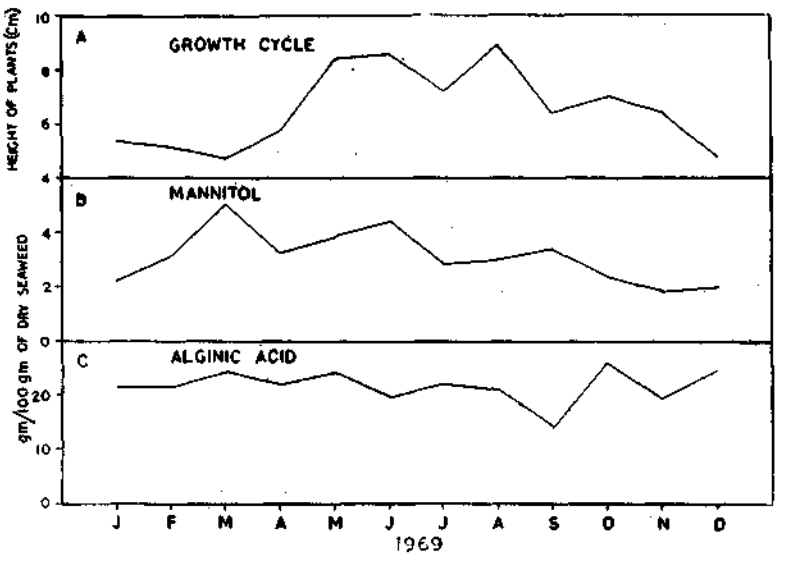

FIG. 1. (A) Monthly changes in the mean height of the plants; (B) Monthly changes in the yield of mannitol and (C) monthly changes in the yield of alginic acid.

Mannitol content varied from 1.8 to 5.0%. Alginic acid content varied from 14.26 to 26.07%. Yield of mannitol and alginic acid was irregular throughout the period of investigation. The corresponding increase or decrease in the yield of mannitol and alginic acid in relation to growth and fruiting as observed in *S. wightii* and *Turbinaria conoides* (Umamaheswara Rao 1969) and *T. ornata* (Umamaheswara Rao and Kalimuthu, 1972) was not clearly observed in *S. myriocystum* and this may be due to the less conspicuous changes in the growth and fruiting behaviour of this alga.

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