

M.S.44. AMMINI JOSEPH—Culture and growth Kinetics of Selected Manoplankters—1984—Dr. P.V. Ramachandran Nair

The present study on nanoplankton is based on the isolation and development of unialgal cultures from the inshore waters of Cochin, characterization of their growth, assimilation products, eco-physiology and evaluation of nutritional quality.

Taxonomic description of thirteen species of nanoplankters in the Cochin estuarine and coastal regions have been given. Of these two were isolated during the period of this investigation. They are *Chromulina freiburgensis* Doflein and *Isochrysis galbana* Parke *forma nova* (referred as *I. galbana* (C.s.) and these are new records for the Indian waters.

The amount of protein, carbohydrate and lipid of *C. freiburgensis*, *I. galbana* (C.s.), *S. salina* and *I. gracilis* was estimated at different phases of growth in culture.

The rate of carbon fixation by the nanoplankters was found to be affected by the density of culture. The flagellates had a lower optimal saturation density i.e. $6-10 \times 10^5$ cells/ml compared to cultures of *Synechocystis salina* for which the rate of ^{14}C uptake increased with cell concentration upto 175×10^5 cells/ml after which there was decline. This difference could be related to the relative volume of the two species.

The rate of growth of *C. freiburgensis*, *I. galbana* (C.s.) and *S. salina* was studied with respect to varying concentrations of nitrate and phosphate in the culture medium and the nutrient requirement of these species were defined in terms of half-saturation constants for growth.

From the nutrients kinetic studies of the flagellates it was evident that *C. freiburgensis* has better chances of survival than *I. galbana* (C.s.) in culture.

The acceptability of the two species *C. freiburgensis* Doflein and *I. galbana* (C.s.) to the molluscan larvae was tested. Newly hatched larvae of *Crassostrea madrasensis* fed separately with *C. freiburgensis* and *I. galbana* (C.s.) settled as spat in 17 and 19 days respectively. The results of the experiment showed that these flagellates were not only acceptable to the larve but also induced higher growth rate and larvel survival compared to control feed i.e. *I. galbana* Parke, the temperate water strain that is widely in use in hatcheries. *C. freiburgensis* seems to be the more potent species for development as live-food in oyster hatcheries.