MARINE FISHERIES INFORMATION SERVICE

No. 82
APRIL 1988

Technical and Extension Series

CENTRAL MARINE FISHERIES RESEARCH INSTITUTE

COCHIN, INDIA

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

PRELIMINARY OBSERVATIONS ON THE EFFICIENCY OF SOME MICROALGAL FOODS ON THE GROWTH OF GREEN MUSSEL LARVAE*

For the mass production of seed of bivalves in hatchery system, production, maintenance and supply of suitable microalgal food are important part of the operation. A knowledge about the efficiency of different algal species on the growth of the bivalve larvae will be helpful in developing suitable food for achieving faster growth, early spat settlement, higher percentage of survival and healthy individuals. An attempt was made in this direction on the larvae of the green mussel *Perna viridis* (Linnaeus) at the Kovalam Field laboratory of Madras Research Centre of Central Marine Fisheries Research Institute.

The larvae of the green mussel, reared from the spawning on 18th July, 1987 in laboratory were utilised for conducting the experiment. Four sets of larvae were maintained in duplicate in the laboratory, feeding them separately with pure cultures of *Isochrysis* sp., *Chromulina* sp., *Dicrateria* sp. and *Pavlova* sp. Though spat settlement was completed in 24 days, growth data was maintained till 35th day. Water temperature ranged between 26.9 and 27.6°C and salinity between 36.6 and 37.8‰ during the period. The cell concentration of the microalgal food was maintained uniformly for all the sets of larvae at the rate of 3,000 cells/larva initially and was raised gradually to 6,000 cells at later stages.

The details regarding the initial stocking density, water level maintained, total number of spat settled and the percentage in the initial strength of the larvae are given in Table 1. Of the four algal species experimented with, maximum settlement was noticed for the larvae fed with *Isochrysis* sp. followed by *Dicrateria* sp. and *Chromulina* sp. and the minimum with *Pavlova* sp. However, when the growth and progress of metamorphosis were considered (Table 2), *Chromulina* sp. and *Dicrateria* sp. were observed to give better results than the other two species. Therefore, it is suggested that *Dicrateria* sp. and *Chromulina* sp. can be utilised as the microalgal food in the green mussel hatchery to get better results.

Table 1. *Details of larvae stocked, volume of water maintained, number of spats settled and their percentage with different microalgal food*

Microalgal food	Total larvae stocked	Volume of water maintained (l)	No. of spat settled (as on 24th day)	Density of spat settled (%)
Isochrysis sp.	1,98,000	150	23,000	11.6
Chromulina sp.	80,000	80	6,700	8.4
Dicrateria sp.	92,000	80	9,000	9.8
Pavlova sp.	40,000	40	2,200	5.5

Table 2. *Length and stages of development of green mussel larvae fed with different microalgal food*

Day after Spawning	Mean length (mm)				Stages of metamorphosis			
	Isochrysis	*Chromulina*	*Dicrateria*	*Pavlova*	*Isochrysis*	*Chromulina*	*Dicrateria*	*Pavlova*
5th	0.090	0.090	0.090	0.090	D-shaped	D-shaped	D-shaped	D-shaped
9th	0.141	0.136	0.133	0.136	D & umbo	D & umbo	D & umbo	D & umbo
12th	0.190	0.268	0.264	0.182	Umbo & eyed	Eyed	Eyed	Umbo
16th	0.210	0.362	0.378	0.246	Umbo, eyed & spat	Eyed & spat	Eyed & spat	Umbo, eyed & spat
20th	0.328	0.520	0.544	0.352	Eyed & spat	Spat	Spat	Eyed & spat
24th	0.692	0.792	0.880	0.828	Spat	Spat	Spat	Spat
30th	1.293	1.701	1.314	1.322	Spat	Spat	Spat	Spat
35th	1.765	2.508	2.209	2.101	Spat	Spat	Spat	Spat

*Prepared by P. V. Sreenivasan, K. Satyanarayana Rao, P. Poovannan and R. Thangavelu, Madras Research Centre of CMFRI, Madras.

Edited by Dr. K. J. Mathew, Mr. I. David Raj and Mr. G. S. D. Selvaraj. Published by Dr. K. J. Mathew on behalf of the Director Central Marine Fisheries Research Institute, Cochin-682 031. Printed at PAICO, Cochin-31