

MANAGEMENT OF LABORATORY MANUFACTURE OF PEARLS AN INNOVATIVE IDEA**Naik S. S.¹, Kalyankar V.B.^{1*}, Pagare S. D.², Pardeshi P. B.³**¹Department of Zoology, Toshiwal Arts, Commerce and Science College, Sengaon. (M.S.), India.²Department of Zoology, K. A. A. N. M. Sonawane Art, Commerce and Science College, Satana, Dist. Nashik. (M.S.), India.³Department of Zoology, M.G.V's. Arts, Science & Commerce College, Manmad Dist. Nashik, (M.S.), India.

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ABSTRACT

Culture of pearls inside the body of bivalve mussels is one of the promising and fruitful businesses carried by the freshwater and marine water culturist in many countries of the world. The pearl culture without much of attention towards operated pearl oysters is directly dumped in to sea or fresh water. In the present technique we have managed to grow the operated in the laboratory in controlled conditions. The technique includes feeding of oysters using various biological methods. The technique can prove fruitful for up-lifting of marginal farmers of world over in freshwaters as it is very economical and can be managed in comparative simpler ways.

KEY WORDS: biological methods, bivalve mussels, fresh water, marine mater, marginal farmers.**INTRODUCTION**

FAO states that pearls were known to mankind since the beginning of civilization. Pearl is a mixture of organic material and minerals formed with soft living tissues of shelled mollusks, whereas calcium carbonate is their basic component. Pearl culture started in Japan in 1893.

Several pearl oyster producing species have been noted world over some of which are: *Pteria penguin*, *Pinctata fucata* also called Akoya oyster, *Pinctada maxima*, *Pinctada margaritifera* *Halotis* and *Hyriopsis shlegeli* are used in Japan (Miyoshi T. et. al. 1987). *Hyriopsis cumingii* and *Cristaria plicata* are widely used for pearl production in China (Dan H. and Ruobo G. 2002). Freshwater mussel species *Margaritifera margaritifera* is suggested to be a freshwater cultivable species in Europe (E.A. Moorkens 1999, Beasley and Roberts 1996) and has been recorded to be declining in Northern Ireland (Beasley et. al. 1998). *Lamellidens marginalis*, *L. corrianus*, *Parreysia corrugate* are the commonly available mussel species in India (Misra and Mukhapadhyay 2008). Gradation studies for cost management based on the spectra emitted by the pearls have also been studied (Miyoshi T. et al. 1988). India has one of the highest demands for pearls which are set in jewelry.

MATERIALS AND METHODS

Denis George C. (1968) has documented efforts made by Australian scientist for pearl culture. Zweig R. D. 1986 suggested clams culture for food or pearl culture in Hydroponic can be an effective method. Culture of pearls in marine waters have also been done and compared in studies with Indian and Japanese waters by Velayudhan *et. al.* (1996). Pearl culture operations can be divided into three categories which are: collection or production in hatchery, on growing and pearl culture (Aji, 2011). Nava *et. al.* (2000) suggested that water temperature, nuclei size and overall condition of the organism are most important factors influencing the retention rate of pearl oysters *Pteria stema*. According to Naves R. 2004, to develop suitable diet is a critical for facilitation the transition from the pedal-feeding to filter-feeding stage of endangered freshwater mussels in North America.

In the present study we have used the bivalve mollusks: *Lamellidens marginalis*, *L. corrianus* and *Parreysia corrugate* for the pearl culture. The bivalve mollusks were collected from a site of Purna river at Hivarkheda. Collection from the collecting stations ensured sustenance of mollusks as they were from closest possible sampling station. The GPS location of collection site was 19.700N and 76.74E. The body sizes of the bivalves were varying and were recorded before start of experimentation. The glass tanks of transparent color, 3 feet length one feet height and one feet width were made to keep bivalve mollusks.

Acclimation of the imported mollusks was ensured by their cultivation with 500mL of water collected from the region they have been brought from. Acclimatization was ensured with few antibiotic doses with veterinary doctor consultancy. The tanks in which the mollusks were reared; were continuously ensured aeration using aerators of small size manufactured by RS Electricals, China. Water Purification columns were also made with PVC pipes, filled with

filter paper and layers of crushed stone with Zeolite, and charcoal two each which acted as water purifier (Lee *et al.*, 1999). Of those charcoal worked as detoxifier and crushed stone worked as re-mineralizer (Hassanein and El-Brossy, 2006).

Dissection Instruments

After acclimatizing bivalves for two weeks, they were then operated for insertion of nacre in the mother of pearl according to the protocols suggested by CMFRI, Kochi (Chellam, 1991).

Disinfectants and tablets (undisclosed composition):

Table 1: Expenditure incurred.

No	Name of Item	Durability	Quantity	Expenditure in Rupees
1	Glass Tanks	0-10 Years	3	1400/each
2	Water Purifiers	10-Years	3	50/each
3	Aerator	1 Year	3	150/each
4	Animals	0-2 Years	200	5/each
5	Fooder making unit	10 Years	1	200/each
6	Microscope	10 Years	1	2000/each
7	Dissection Instruments Set	10 Years	2	2000/each

RESULTS

The bivalves brought from nearest collection sites showed best acclimation, whereas those brought from distant places showed absolute mortality. The size of bivalve body also mattered as those measuring more than 60gms body weight showed survival compared to those of lesser weight.

Table 2: Showing Rate of Survival against Body weight.

No	Weight of Animal	Survival Days After Operation
1	30.05gms	5
2	35.06	25
3	37	20
4	66.09	150 (Still Constitutes)
5	64.05	150 (Still Constitutes)
6	62.003	150 (Still Constitutes)

DISCUSSION

The present technique is a cost effective method for production of pearls inside laboratory conditions. Acclimation and acclimatization of bivalves is affected by closeness of collection site geographically to the area of rearing and body weight of the animal. A small size pearl formed could be observed beginning at the experiment site. Thus the present management strategy can prove a new ray of hope for farmers as the operated pearl oysters can be reared inside controlled and in house conditions very easily.

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