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919 OBSERVATIONS ON CAPTIVE SPAWNING AND REARING OF SEA HORSE *HIPPOCAMPUS KUDA*

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Introduction

Syngnathids, comprising seahorses and pipefishes form an important group among the non-food fishes. These fishes are exploited mainly as a source of aphrodisiac and is believed to cure a wide range of diseases such as asthma, arteriosclerosis, goitre and lymphnode diseases. The low fecundity, high competition for the juvenile survival, sparse distribution, mate fidelity and irrational exploitation to meet the ever increasing international demand make the resource unsustainable. Thus propagation under captive conditions became more important and relevant since it would not only enhance the export trade and foreign exchange inflow but also rebuild and conserve the wild population from its destruction.

The seahorse *Hippocampus kuda* is one of the species of tropical seahorses which occurs sparsely in the Gulf of Mannar and Palk Bay of Tamil Nadu coast. In India successful complete rearing of seahorse was accomplished at the Regional Centre of CMFRI, Mandapam Camp. The technique developed is easy to adopt and commercial seahorse hatcheries can be established in selected centres along the Indian coasts.

Brood stock maintenance

About 50 nos. of adult seahorses *Hippocampus kuda* of size ranging from 9.5 to 11.7 cm and weight 3.0 to 3.8 g along with males with broodpouch (Fig. 1) were collected from the inshore waters of Palk Bay and were transported in aerated containers and stocked in one tonne glass aquarium tanks. Biofilters were fitted in the tanks for maintaining clear seawater. The water temperature ranged from 28-32°C and salinity 33-35 ppt in the broodstock tank. Seahorses were fed with mysids, artemia and other small crustaceans. Broodstock maintenance continued for 1-2 weeks.

Fig. 1. Adult seahorses.

Live feed culture

Successful rearing of marine finfish larvae/juvenile depends wholly on selection and culturing of right type/sized live feed and supply at the appropriate time.

Three different live feeds were cultured and used for the rearing of the baby seahorses.

Rotifers were cultured using marine *Chlorella* as feed in 5 t FRP tanks and harvested using suitable sized sieves to get the required size of feed for the baby seahorses.

Copepods were cultured by batch method. Adult copepods were filtered through 250µ sieve and the copepods collected in the sieve were inoculated into 5-8 nos/ml. *Chlorella* and *Nanochloropsis* sp. were used as feed for copepod and were maintained at a concentration of 0.1 lakh cells/ml. Continuous aeration was provided and after a period of 10 days copepod nauplii were ready for feeding the baby seahorses.

Artemia nauplii were produced from the cysts by incubating for 24 hours in the sea water medium with continuous aeration. The nauplii

thus produced were collected and fed to the baby seahorses daily.

Releasing of baby seahorses

After one week of incubation, from 17.07.1999 onwards the brooding seahorses started releasing fully developed babies measuring 9.0mm in size (Fig. 2). Baby seahorses resembled the adult in all morphological characters. Release of young ones took place during early morning hours. Baby seahorses were found actively swimming in vertical position on the surface of the water column. They had a pair of well developed and functional pectoral fin, single dorsal fin, tubular mouth and open eyes. Immediately after releasing, baby seahorses were pale green in colour, later turned to brown/black within 12-24 hours. An adult male with fully developed broodpouch released approximately 250-300 babies in one release.

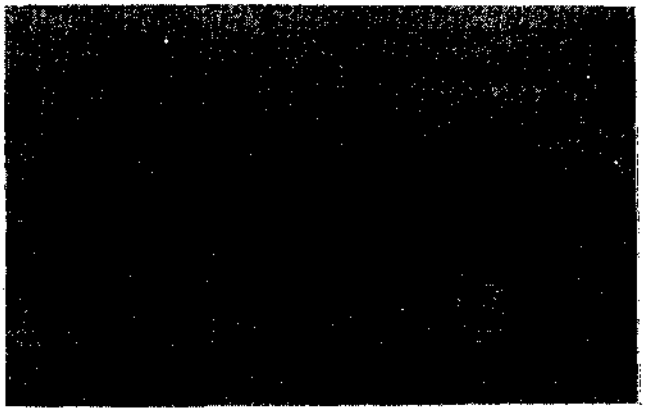

Fig. 2. Seahorse babies—1 - 2 days old.

Rearing of baby seahorses

Newly released young ones of a seahorse was collected and stocked in one tonne capacity FRP tanks containing filtered sea water for the rearing experiments. Unicelluar algae dominated by *Chlorella* were added to the tank as water conditioner along with rotifers *Branchionus plicatilis* (> 250μ) at a concentration of 10-15 nos./ml of sea water. Extreme care was taken while transfering the young ones from spawning tank to the rearing tank. The young ones were protected from exposure to bright light, air and physical injury.

Fig. 3. Juvenile seahorse— 30 days old.

On day two, baby seahorses started feeding on copepod nauplii and larger rotifers by a powerful suction of water by their tubular mouth. They grew to 12 mm at the end of 7th day. During the growth, the length increased faster than the breadth. On the 10th day, the baby seahorses started accepting the artemia larvae and attained a size of 18 mm. By 14th day they were 22 mm in size and became juveniles. At this stage, the fishes exhibited a change in the swimming pattern by going down to the bottom and clinging to the dead sea fans and other branched substratum provided in the tank with the help of its prehensile tail. On the 30th day, the fishes attained a size of 30mm (Fig.2) and started feeding on mysids, artemia and prawn post larvae.

Remarks

While rearing the tropical seahorse *(H. kuda)* larval mortality was found to be more on the 2nd day. This was due to the size and quantity of feed supplied and their nutritional insufficiency in terms of essential fatty acid (EFA) contents respectively, as seahorses are voracious feeders. The use of copepods resulted in higher survival of larvae and growth due to high level content of EFA.

Taking into note of the alarming world wide exploitation of this fish group, the findings of this study on the brood maintenance, captive spawning and juvenile rearing of seahorse has a significant impact on the conservation and management of these fishes in the Indian context.