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HATCHERY REARING OF THE SQUID, *SEPIOTEUTHIS LESSONIANA* AND THE CUTTLEFISH, *SEPIA PHARAONIS*

D. Sivalingam, K. Ramadoss, A. D. Gandhi and M. Enose

Tuticorin Research Centre of C.M.F.R.I., Tuticorin - 628 001

Introduction

At present culture of cephalopods is undertaken in some parts of the world for the limited purpose of biomedical research which involves the giant nerve axon of squids in neurophysiological and pharmacological studies, and for early life history studies by biologists. The squid, *Sepioteuthis lessoniana* and the cuttlefish *Sepia pharaonis* are two commercially important cephalopods in Indian waters. Since there is very little information on hatching, post-hatching behaviour and early growth of these cephalopods, hatchery rearing was initiated in June, 1988 at Tuticorin Research Centre of Central Marine Fisheries Research Institute and the results of these experiments are summerised below.

Egg collection

The egg capsules of *S. lessoniana* (Fig. 1) were obtained on 25-6-'88 from Pinnakkayal trench while trawling at a depth of 20m by the research vessel *Cadalmin*. The egg capsules of *Sepia pharaonis* (Fig. 2) were collected at Rameswaram and transported by road in insulated container. All the egg capsules were maintained in the hatchery.

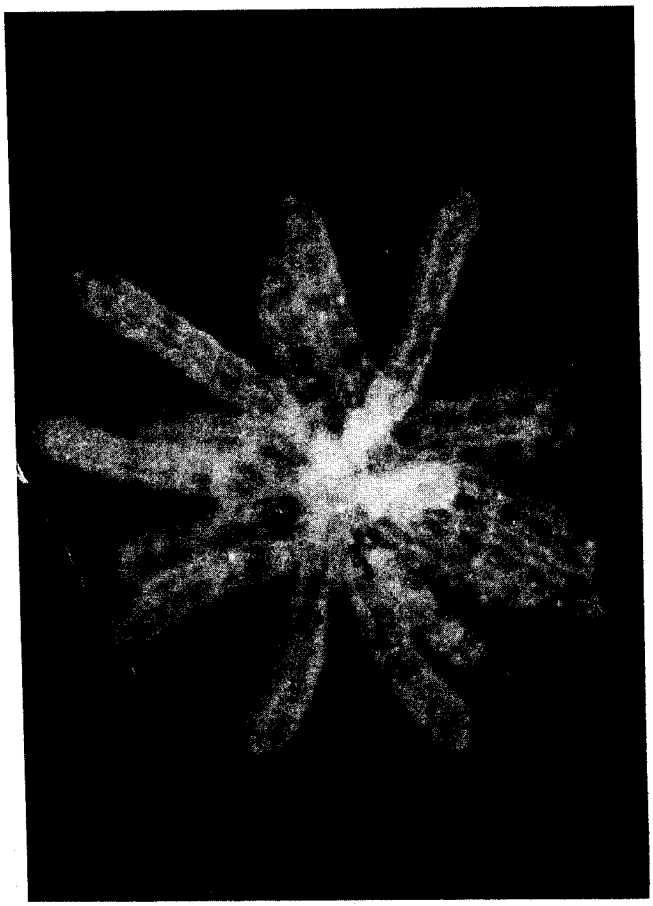

Fig. 1. Egg cluster of *Sepioteuthis lessoniana*.

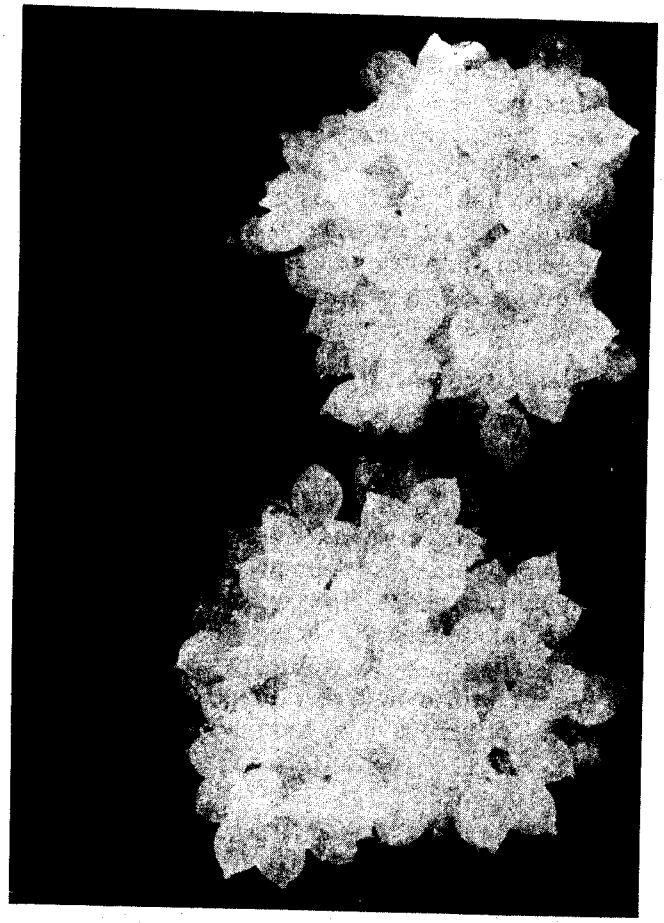

Fig. 2. Egg cluster of *Sepia pharaonis*.

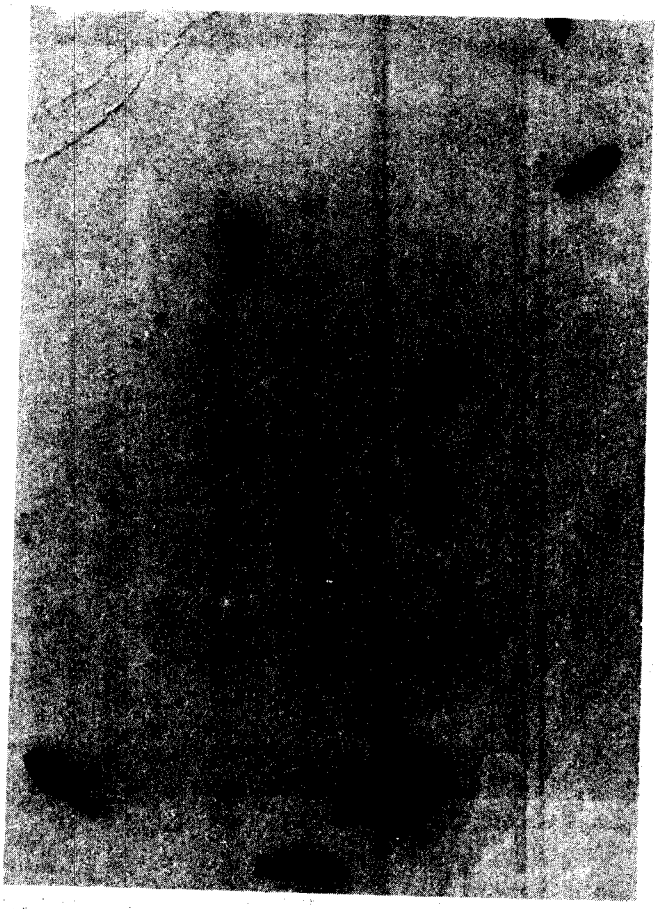

Fig. 3. Hatchlings of *S. lessoniana*.

Sepioteuthis lessoniana

Hatching: Ten clusters of egg capsules collected from the sea were in advanced stage of development. Some premature hatching was noticed on the day of collection and this was probably due to stress of transportation. A total of 1,142 hatchlings were subsequently released from the capsules kept in the hatchery within eight days (Fig. 3).

Growth: The hatchlings measured on an average 5.2 mm in mantle length and 14.1 mg in weight on hatching. The growth progressed to 19.4 mm and 822 mg when the hatchlings were 30 days old. A sharp spurt of growth during the next nine days resulted in a length of 39 mm and weight of 3.966 g. On day 57, the young squid attained an average size of 55 mm and weight of 14.7 g.

Food ration: The hatchlings were fed on the mysid, *Mesopodopsis* sp. from the 2nd day of hatching. They were fed with 5 mysids each per day. The food ration was increased to 13 mysids each on day 12. After a month, each squid was fed with 55 mysids. When the young squids were 45 days old, they readily consumed fry of the fish *Aplochilus* sp. Each squid was provided with 13 fish fry weighing 25 mg each. Due to nonavailability of sufficient fish fry, it was not possible to provide more food to the young squids which were voracious feeders.

Sepia pharaonis

Hatching: A total of 1,915 egg capsules were collected on 27-6-'88 consisting of 1,668 viable eggs and 168 unfertilised eggs. The egg capsules measured 16-20 mm in length. the hatching of the young commenced on the night of 10-7-'88 and it was completed on the night of 16-7-'88. A total of 1,156 hatchlings were released during the period (Fig. 4).

Growth: The hatchlings of *Sepia pharaonis* started capturing the mysid, *Mesopodopsis* sp. on the second day of hatching. Each hatchling was provided with 5 mysids per day. After two weeks also only this number of mysids were fed due to

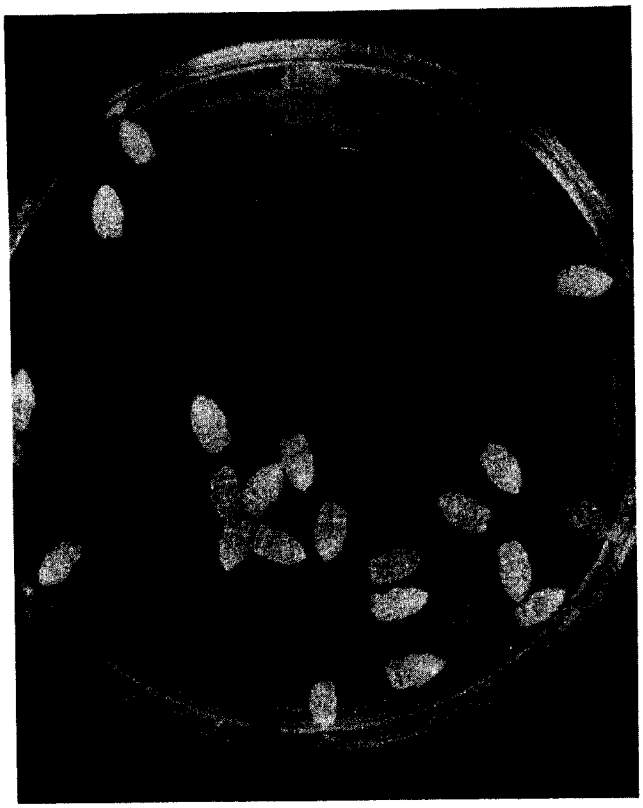

Fig. 4. Hatchlings of *S. pharaonis*.

scarcity which continued till the beginning of 4th week. Thereafter *Artemia salina* collected from salt pans were provided. The youngers readilly accepted them. In addition to 3-6 mysids, 65 *Artemia salina* were also consumed daily by each young cuttlefish. Each was given 65 mysids per day till day 50. Thereafter the daily ration was increased to 162 mysids per animal. Fry of *Aplochilus* sp. and juveniles of *P.indicus* were also tested and young ones readily consumed them.

The experiments revealed that the young ones of cephalopods need live food and were reluctant to accept dead prey. It is apparent that during very early stages of life of cephalopods after hatching, mysids hold the key for steady growth in hatchery and fish fry thereafter. Occassionally they consumed freshly dead fish kept in motion when they were strarving. The cuttlefish alone readily accepted wild *Artemia salina*. Therefore it would appear that the success of culturing cephalopods depends on consistent supply of live food organisms.