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DEVELOPMENTAL STUDIES THROUGH LABORATORY REARING OF THE SLENDER LIZARD FISH *SAURIDA GRACILIS* (QUOY AND GAIMARD, 1824) (PISCES : SYNODONTIDAE)

ABSTRACT

The egg, prolarvae and postlarvae of the slender lizardfish *Saurida gracilis* are described and figured from material reared in the laboratory. Comparisons are made with published descriptions of other lizard fishes.

A FEW LARVAE and juveniles of the slender lizard fish *Saurida gracilis* have been recorded from the Indo-Australian Archipelago (Weber and Beaufort, 1922). Sanzo (1915) illustrated a series of larvae of *Synodus saurus* of the Atlantic region. Takayukikamma (1916, 1925 as cited by Delsman, 1938) has given an account of larvae of some lizard fishes. Delsman (1938) described two types of myctophid eggs with the suggestion that they might belong to *Saurus* or *Saurida*. Mito (1961, 1967) studied the eggs and larvae of *S. tumbil* and *Trachynocephalus myops* respectively from the Japan waters. Gopinath (1946) has given an account of the larvae of *S. tumbil* and *T. myops* from the west coast of India. Nair (1952) described an egg and a few stages of *S. tumbil* from the east coast of India. Bapat (1955) obtained an egg from the gulf of Mannar with hexagonal markings without mentioning the species. Vijayaraghavan (1957) and Kuthalingam (1959) traded the life history and feeding habits of *S. tumbil* from the Madras waters, east coast of India. From the foregoing account it is evident that except for the description of the larvae of *S. gracilis* by Weber and Beaufort (1922), the development of this fish has not been studied in the Indian waters. Hence an attempt has been made to describe the development of *S. gracilis*.

Procedures used to obtain eggs and to culture larvae are given elsewhere (Venkataramanujam and Ramamoorthi 1981).

Whole measurements and drawings were based on specimens preserved ia 5% neutral formalin. Drawings were made with the aid of *camera lucida*. All measurements were made microscopically with the aid of ocular micrometer.

Terminology of eggs and larvae is based on that used by Jones (1950).

Egg (Fig. 1 a) : The eggs are perfectly spherical and transparent with an oil globule. They made their appearance in the inshore plankton samples of Tuticorin (Lat. 08° 44' N, Long. 78° 14" E) during Jan-May, 1985. The eggs have an average diameter of 1.00 mm. The yolk is clear and unsegmented and fills practically the entire surface inside the egg membrane.

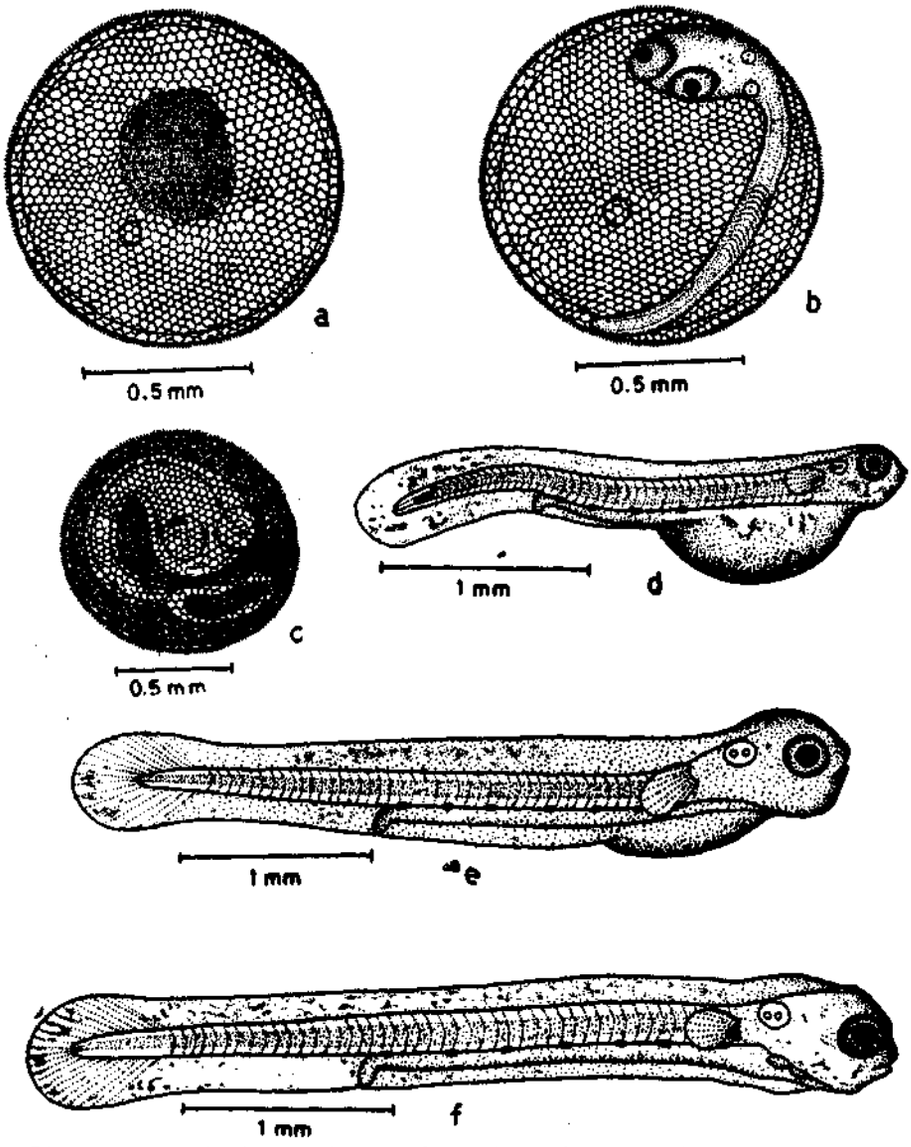

Fig. 1. Egg and developmental stages of *Saurida gracilis* : a. egg, b. Egg - 48 hours after collection, c. Egg - 55 hours after collection, d. just hatched larva, e. 39 hours after hatching and f. 79 hours after hatching.

A fine network of hexagonal meshes are found on the surface of the egg membrane, the average mesh size being 0.03 mm. The fine net work of ridges on the egg membrane afford additional protection to the egg which is necessitated by the longer time taken for the development of the embryo. In the eggs collected at 2.00 a. m. during a diurnal tidal cycle, the blastoderm has already spread,over the surface of the yolk indicating that spawning might have taken place during night.

Egg-48 hours after collection (Fig. 1 b) : The embryo is fairly large in size and occupies the whole of the egg. The eyes and auditory vesicles are clearly seen. The heart has begun to beat very slowly and myotomes are faintly discernible.

Egg-55 hours after collection (Fig. 1 c): The embryo has grown larger in size and lies curled up inside the egg membrane. A few myotomes are distinct and the heart is well developed and pulsating. Near the eye and caudal region a few black spots are noted. Movements due to muscular contraction take place at intervals of a minute, becoming more frequent and marked as development progressed. Within 6-7 hours the egg membrane bulged nearest to the head of the embryo and in a few minutes burst out. The prolarva comes out head first and freed itself of the egg membrane through vigorous movements of its tail.

Just hatched larva (Fig. 1 d) : The larva measured 2.65 mm in length, elongate and perfectly transparent in nature. The newly hatched larva has 31 preanal and 16 postanal myotomes. All the larvae have seven pigment cells starting from the pectoral to anus. The larva is observed usually to float with the yolk side turned up and occasionally swims in a serpentine fashion. Fins are present as fin folds and they are continuous and entire around the caudal region.

39 *hours after hatching* (Fig. 1 e): The increase in size of the prolarvae are marked because they are now 4.01 mm long. The head is very prominent and the iridocytes are responsible for the lusture of eyes. The pectoral fin is large and semicircular. The branchiostegals are faintly developed and the gut is in partial communication with the mouth. The anus has shifted from the 31st myotome to 30th and there are 17 postanal myotomes. The finfolds are continuous and entire as before. Developing rays are faintly visible in the caudal fin alone. Excepting for the seven black pigments starting from the pectoral to anus, there is no other pigmentation on any parts of the larva.

Postlarva-79 hours after hatching (Fig. 1 f): The yolk is completely absorbed and the postlarva has grown to a size of 4.20 mm. The mouth is prominent and there is no change in pigmentation. It was not possible to keep the larvae alive in the laboratory beyond this stage.

Food: A total of 17 prolarvae and 22 postlarvae were supplied with diatoms like *Coscinodiscus* sp., *Asterionella japonica, Chaetoceros* spp. and eggs, nauplii and adults of copepods and of *Artemia* nauplii and assorted plankton. The larvae did not feed on any of the plankton supplied above. Attempts to feed them on egg yolk was also not fruitful.

There are very few pelagic eggs with hexagonal meshes on the surface of the egg membrane, examples being *Callionymus lyra, Synodus* spp. *etc.* The absence of pigments other than black, distinguishes the present from the above mentioned ones. The present egg resembles Delsman's (1938) egg 'B' in diameter being about 1.00 mm and in having fine hexagonal meshes but is different from his description in the incubation time, number of myotomes and pigmentation of embryo. Further, it also differs from the descriptions of Nair (1952), Bapat (1955), Vijayaraghavan (1957) and Kuthalingam (1959) in colour, season of occurrence and total number of myotomes.

Post larvae of Synodontidae are characterised by elongate shape and transparent body

with a series of large black spots lying in pairs along the ventral surface. According to Weber and Beaufort (1922), *S. gracilis* has two pairs of pigments between pectoral and ventral and five pairs between ventral and anal fins.

The total number of vertebrae found in adult *S. gracilis* are 47 of which 17 are post anal. In the larvae 30 + 17 myotomes are noted. Thus, the finer hexagonal meshes of the egg membrane, seven pairs of black pigment spots in front of anus and the total number of myotomes found in the larvae enables the eggs and larvae dealt with here as that of *S. gracilis*. Partly spawned *S. gracilis* were also obtained in large numbers in trawl catches in the inshore waters of Tuticorin coast when planktonic eggs were recorded.

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Fisheries College,
Tamil Nadu Agricultural University,
Tuticorin - 628 008, *India*

K. VENKATARAMANUJAM
N. RAMANATHAN
V. K. VENKATARAMANI

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DEFORMED SPECIMEN OF *MEGALASPIS CORDYLA* (LINNAEUS) FROM VERAVAL WATER

ABSTRACT

A distinctly abnormal specimen of horse mackerel *Megalaspis cordyla* without third dorsal finlet and a prominent hunch, measuring 312 mm total length is reported from Saurashtra waters.

VARIOUS deformities particularly at the tail region have been reported by George *et al.* (1979), Jones and Silas (1962), Noble (1972) and Kulkarni (1976) in marine fishes. This is the first report of distinct deformity at the tail portion in *Megalaspis cordyla* (Linnaeus).