

Short Communication

PRELIMINARY DATA ON LARVAL SURVIVAL OF SOUTH AMERICAN CATFISH, *RHAMDIA SAPO*¹

L. LUCHINI and T. AVENDAÑO SALAS

Instituto Nacional de Investigación y Desarrollo Pesquero. Playa Grande, 7600 Mar del Plata (Argentina)

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ABSTRACT

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Larvae of *Rhamdia sapo* were fed four test diets or *Artemia* nauplii; a balanced diet formula; boiled egg yolk, coagulated blood and liver homogenate; and live zooplankton. The homogenized mixture was the most effective for growth. Highest survival was recorded with the *Artemia* diet. Larger trials performed in indoor raceways, using the homogenate diet for 10 days followed by a balanced ration, were successful before transfer to grow-out ponds.

INTRODUCTION

The black, or South American catfish, *R. sapo*, is a native species in Argentina (Ringuelet et al., 1967). It is widely acceptable for human consumption.

Warm-water fish culture research started in Argentina in 1979 with the development of techniques for culturing this species at the Centro de Investigaciones Pesqueras de Salto Grande. Data have been obtained on artificial spawning. (Luchini and Cruz, 1981, 1983), outdoor fry rearing (Luchini and Avendaño S., 1983), and fattening fingerlings (Luchini and Avendaño S., 1982) in ponds and cages. Black catfish are also being cultured in Uruguay (Varela, 1982; Varela et al., 1982a, b).

At the present time, efforts are being made to increase survival of the young catfish fry which are usually stocked at 4 days old in outdoor ponds. Longer retention in the hatchery and improved larval nutrition will increase survival. A number of feeding trials with test diets were carried out in hatchery rearing units.

MATERIALS AND METHODS

The adults were spawned in an aquarium with human chorionic gonadotropin (Luchini and Cruz, 1983). Several spawnings were made.

Larval densities in the experimental tanks were established accurately. Each initial density was between 100 and 200 fry/l. The 3-day-old larvae, 5 mm average length, have well developed sensitive barbels. They exhibit an active feeding behavior and seek food. At this stage, the absorption of the yolk sac is nearly complete.

The four test diets were *Artemia* nauplii; balanced dry food with 40% finely pulverized protein; live zooplankton (mainly *Moina*); and a filtered homogenate of boiled egg yolk, coagulated blood and liver in equal amounts. In all tests, feeding commenced on the fourth day after hatching.

Oxygen and ammonia levels in the water were recorded during the experiments. Survival rates were calculated accurately by total fry counts at the end of the experiments; no intermediate counts were made.

Eleven tests were performed in suspended net bags within aquaria. The bags measured 20 X 40 X 19 cm and were maintained with a depth of 13 cm of water. Each was provided with a continuous flow of 1.5 l/min. The tests lasted 10 days.

Once the preliminary data from the 10-day culture in suspended bags were obtained, two experiments were performed in indoor raceways using initially the diet which had the best results with respect to growth. The raceways had a capacity of 88 l, and the water was changed 3.4 times an hour. Two different experiments were made lasting 17 and 37 days using the homogenate for the first 10 days followed by the balanced ration in increasing quantities.

RESULTS

The highest larval survival (80%) was obtained on the *Artemia* diet. The best growth (1.07 cm on average length) was obtained on the diet of yolk, liver and blood mixture. The survival was 64%. No statistical analyses were performed for these preliminary trials.

The results obtained for growth in indoor raceways with homogenate and balanced ration were an average 1.57 cm of total length in 17 days, and 3.1 cm in 37 days. About 60% survival was obtained in each trial. The larvae in the raceways accepted the homogenate and the change to a balanced ration. The probable cause of mortality was handling and cleaning disturbances.

DISCUSSION

The yolk, coagulated blood and liver mixture is an adequate diet to start feeding *Rhamdia sapo* fry. Subsequent weaning to a dry finely pulverized feed after 10 days is acceptable if the change is gradual.

An average length of 1.56 cm after 17 days culture in the hatchery is adequate for stocking fry in outdoor ponds. Hatchery production can therefore be limited to two-and-a-half weeks.

The survival of about 60% is acceptable and can probably be increased by improved techniques. Subsequent improvements will attempt to reduce the stress of handling, and using net bags in the raceways.

The fry reared in these experiments were transferred to plankton-rich ponds from the raceways, and data are being collected on production and growth.

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