Uttar Pradesh J. Zool. 24(1) : 103-104, 2004 ISSN 0256-971X

MORPHOMETRICAL STUDY OF LARVAL DEVELOPMENT OF *CIRRHINA MRIGALA* (HAM.) REARED IN LABORATORY

RITA RANI, K.K. GAUR AND VISHAL TIWARI
DEPARTMENT OF ZOOLOGY
R.B.S. COLLEGE, AGRA-282 002, INDIA

The present investigation aimed at to study the morphological data of larval development reared to laboratory conditions. Though larvae were reared in laboratory conditions but a one month's observation made to evaluate the morphological readings of its larval development.

India is blessed with vast and varied fisheries resources and regarded as one of the richest in the world both in marine and inland sectors. *Cirrhina mrigala* is one of the commonest carps in India and greatly prized as a food fish. Presently 56% of the population in our country is considered to include fish in their diet (GOI, 1996). The proportion of fish consuming population is expected to increase up to 70% in the next two decades.

A reasonably complete knowledge of life histories and habits of fishes is needed ass a basis for the adoption of adequate measures for conservation of our fisheries and for the production of maximum quantity through proper propagation. Embryonic and larval developmental studies besides providing interesting information in itself are imperative and consequential to the successful rearing of larvae for seed production. Its larval development in the laboratory condition is detailed in the present communication, together with data on growth. Some of the important studies on the said field are from Pillai (1975), Banerjee *et al.* (1976), Ibrahim *et al.* (1980), Gupta & Subla (1985), Chesalina & Chesalin (2000), Mcfarlane *et al.* (2000) and Gnyubkina *et al.* (2001).

The hatchlings (1-2 days old) of *C. mrigala* were collected from farm in the close vicinity of Agra, and thereafter-consecutive development stages were brought to laboratory and transferred to plastic trough (10 lit. capacity) under observation. Twenty specimens were placed on the basis of proper stocking density (approximately 2 fish/lit.). The physico-chemical conditions of the experimental troughs were maintained nearly natural by the use of sand particles, hydrilla plants, zoo-and phytoplankton. Hitachi ready made food pallets along with natural diets of rotifers and young crustaceans in equal quantity were also given at regular intervals to all the reared larvae. Four specimens were taken out for derivation of mean standard under studies on morphometrical larval development at a successive time period viz. 5, 7 and 15 days. The same course was applied after lapses of 21 and 30 days in order to study later developmental stages. Morphometrical parameters of the larvae were recorded with the help of Vernier calipers. The optimum conditions of the physico-chemical parameters such as temperature (28-35°C) and pH (6.5 to 7.5) were monitored periodically. The morphometrical data of larval development reared to laboratory conditions upto one month period was indicated as :

5th day : The standard length was calculated 05.967±0.062 mm, body length 03.782±1.481 mm, head length 01.312±0.030 mm; distance between snout and anal pore 04.295±1.584 mm, distance between snout and anal fin base 05.332±1.565 mm, distance between snout and dorsal fin base 03.912±1.578 mm, height of the body at anal fin base 01.515±0.017 mm and height of the body at dorsal fin base 01.822±0.078 mm.

7th day : The standard length was calculated 06.422±1.432 mm, body length 04.312±1.390 mm, head length 02.087±0.728 mm, distance between snout and anal pore 05.230±1.572 mm, distance between snout and anal fin base 06.057±1.619 mm, distance between snout and dorsal fin base 04.730±0.735 mm, height of the body at anal fin base 01.695±0.371 mm and height of the body at dorsal fin base 02.062±0.682 mm.

15th day : The standard length was calculated 09.175±1.598 mm, body length 05.167± 1.945 mm, head length 02.217±0.704 mm; distance between snout and anal pore 06.275±1.560 mm, distance between snout and anal fin base 06.565±1.606 mm, distance between snout and dorsal fin base 05.132+1.441 mm, height of the body at anal fin base 02.645±1.259 mm and height of the body at dorsal fin base 02.490±0.710 mm.

21st day : The standard length was calculated 12.247±1.512 mm, body length 07.532± 0.732 mm, head length 03.955±1.123 mm, distance between snout and anal pore 07.415±1.136 mm, distance between snout and anal fin base 07.855±0.698 mm, distance between snout and dorsal fin base 06.552±0.836 mm, height of the body at anal fin base 02.725±1.123 mm and height of the body at dorsal fin base 03.432±0.723 mm.

30th day : The standard length was calculated 21.897±0.048 mm, body length 13.397± 0.010 mm, head length 06.307±0.036 mm, distance between snout and anal pore 14.892±0.061 mm, distance between snout and anal fin base 16.677±0.090 mm, distance between snout and dorsal fin base 13.552±0.068 mm, height of the body at anal fin base 04.887±0.109 mm and height of the body at dorsal fin base 06.747±0.074 mm.

Thus a continuous morphometrical development has been seen in larvae of *C. mrigala* upto one-month period, which would certainly be helpful in studying the developmental course alongwith growth of fish.

ACKNOWLEDGEMENTS

The authors are thankful to Dr. A.G. Ponniah, Director, National Bureau of Fish Genetic Resource, Lucknow for invaluable co-operation, procurement of literature.

REFERENCES

BANERJI, S.R., SINGH, M.L. & THAKUR, N.K. 1976. Observations on natural breeding and larval development of the common mudeel, *Amphipnous cuchia* (Ham.). *Aquacult.* **79**(2) : 147-155.

CHESALINA, T.H. & CHESALIN, M.V. 2000. Embryonic and post-embryonic development of mullet, *Mugil soiuy* (Mugilidae) in the black sea. *Voprosy. Ikhtiologii.* **40**(5) : 668-674.

GUPTA, S.S. & SUBLA, B.A. 1985. Embryonic and larval developments of *Schizothorax curvifroms* (Heckel) as observed in the laboratory. *Ind. J. Fish.* **32**(1) : 101-111.

IBRAHIM, K.H., KOWTAL, G.H. & GUPTA, S.D. 1980. Embryonic and larval development among *Catla catla* (Ham.) and *Hypopthythalmichthys molitrix* (Val.) hybrid. *J. Inl. Fish. Soc. Ind.* **12**(2) : 69-73.

MCFARLANE, M.B., CRIPE, D.J. & THOMPSON, S.H. 2000. Larval growth and development of cultured *Pacific bonita. J. Fish. Biol.* **57**(1) : 134-144.

PILLAI, N.N. 1975. Larval development of *Cariding pseudogracilirostris* reared in the laboraotry. *J. Mar. Biol. Asssoci. Ind.* **17**(2) : 1-26.