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COMPARATIVE STUDY OF SOME FEEDS FOR MAGUR *(CLARIAS BATRACHUS)* LINN. FRY

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Magur *(Clarias batrachus)* fry were reared for a period of twelve days in plastic bowl to determine the effect of different feeds (live plankton, frozen plankton, dried plankton and Tubifex) on survival rate and growth. Survival was found to be comparatively higher with live Tubifex and live plankton. Greatest length (13.0 mm) was obtained with Tubifex and least (11.0 mm) with dried plankton.

Key words: Feed effect, Survivility, Comparison.

Introduction

Clarias batrachus is a widely distributed freshwater catfish in many countries of the world. There is increasing interest in farming this species in Bangladesh. The dependence on natural sources for the supply of fry is one of the limiting factors towards catfish farming. *Clarias batrachus* has been successfully induced to reproduce using hormones [1-3]. However, successful large scale rearing of fry remains a major constraint for the development and expansion of farming this species. Rearing of *Clarias batrachus* larvae with live feed (Tubifex sp.) has been reported earlier [3-5]. No suitable culture technology of live feed organisms has been established for this species. The collection of live prey items from natural habits is laborious, time consuming and unpredictable. Emphasis should, therefore, be placed on developing cost effective artificial feed for fish larvae. In this paper we compare the suitability of four different diets as food for rearing the larvae of *C. batrachus* in captivity.

Materials and Methods

The present work was undertaken for a period of twelve days in laboratory from Oct. 2 to Oct.13, 1990 with five day old catfish *(Clarias batrachus)* fry (9.3 ± 0.2 mm; 0.009 ± 0.0012 mgm) from induced spawning.

Fifteen equal size (47.5 cm dia, 20.5 cm h) bowls were filled with conditioned tap water and one hundred fry were stocked in each bowl. Four feeds were tested each with three replicates. Treatment 1 was fed with live plankton, treatment 2 with frozen plankton, treatment 3 with dried plankton, treatment 4 with Tubifex and treatment 5 acted as a control where no feed was given.

Live phytoplankton and zooplankton were collected from a nearby pond with a plankton net (mesh size 100 micrometer). Some of the collected plankton were frozen in a refrigerator for at least 7 days in the cool chamber, other plankton were dried for 2 days in an oven drier at 70°C. live Tubifex were collected from drains in and around Fisheries Research Institute. Food was given once daily in the morning at the time of water change. The bowls were aerated throughout the period of experiment kept at room temperature (25-29°C) in the laboratory. The dead fishes were removed as soon as they were seen. Twenty percent of stocked fishes in each bowl were sampled at 3 days interval. The length and number of dead fishes were recorded. The pH, temperature and the dissolved oxygen of the water were measured by pH meter and oxygen meter daily before changing water. The effects of feed were measured in terms of mean fish weight and the percentage of survival. The experimental data were then analyzed in completely randomized design and ANOVA were computed. Duncan's New Multiple Range Test (DNMRT) at $\gamma = 0.05$ was also employed for further analysis of the results.

Results and Discussion

The survival and mean length of catfish fry fed with different diets are presented in Table 1. Initially, fish mortality was high in all the treatments but with the continuation of experiment the mortality decreased appreciably. Statistical analysis indicated that feed had very significant effect on survival (Table 2). It was evident that live plankton resulted in a better survival rate up to 11 days of age but Tubifex worm gave better survival from 11th day to the end of the experiment. Highest mortality was observed in controls throughout the experiment. It is already similar with the findings of various other workers [6-11]; they also indicated that upto the age of 15 days the stomach of *Clarias lazera* comprised of entirely zooplankton. This is in conformity with the Hogendoorn [6] who found that the dry feeds were not suitable for rearing of African catfish *(Clarias lazera)* fry.

All the fry died in the control bowls at 15th day, which suggested that the water used for the experiment contained

TABLE 1. THE MEAN LENGTH AND SURVIVAL OF FISH AT DIFFERENT AGES OF THE FISH FRY.

Treatment	Mean length (mm)				Survival (%)			
	8 days	11 days	14 days	17 days	8 days	11 days	14 days	17 days
T_1 Live plankton	9.48^{b}	10.02^{b}	10.97^{b}	11.75^{b}	77	73^{a}	66^{b}	63^{b}
T_2 Frozen plankton	9.31^{c}	10.14^{ab}	10.07^{bc}	11.07^{bc}	79	53^{b}	22^{b}	15^{d}
T_3 Dried plankton	9.19^{c}	9.68^{b}	10.5^{bc}	11.0^{c}	81	47^{b}	45^{c}	45^{c}
T_4 Tubifex	10.60^{a}	11.8^{2a}	11.7^{a}	13.0^{a}	83	81^{a}	76^{a}	75^{a}
T_5 Control	9.3^{d}	2.31^{c}	9.33^{d}	0^{*d}	75	26^{c}	3^{d}	0^{*d}

*All fish died after 15 days of age. Different letters are significantly different for each other where compared with DNMRT.

TABLE 2. THE COMPUTED F-VALUE OF ANOVA AT DIFFERENT AGES OF FRY.

	Age	F-values	Tabulated F-value
Length	8 days	159.5^{**}	3.84-1 %
			7.01-5 %
	11 days	192.54^{**}	
	14 days	302.8^{**}	
	17 days	584.24^{**}	
Survival	8 days	1.02^{NS}	
	11 days	42.75^{*}	
	14 days	102.95^{**}	
	17 days	138.0^{**}	

N.S = Not significant. ** = Significant at 1 % level. * = Significant at 5 % level.

very few extrenious feed which were sufficient for certain larvae to survive a considerable number of days.

Nurullah and Mollah [12] found better survival rates of catfish, *Clarias batrachus,* larvae in laboratory conditions with live food Tubifex sp. The catfish grew better in live tubifex (13.0 mm) and live plankton (11.75 mm) than any other feed.

It is evident from the present experiment that *Clarias batrachus* fry survive better in live feed. The best feed was observed as live Tubifex which was closely followed by live plankton. Live plankton were used as feed for *C. batrachus* larvae up to 11 days. The plankton in other forms did not give better results. Hence, it was concluded that live Tubifex and live plankton can be used as larvae feed during the initial 17 days of the age of fry.

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