

GROWTH AND SURVIVAL OF FINGERLINGS OF MOLLY WITH DIFFERENT DIETS

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Abstract: The efficacy of fingerlings of Molly, *Poecilia sphenops* to four types of formulated feeds containing different proportions of animal protein (fish & prawn meal, Bloodworm meal and Homemade protein feed) was evaluated in comparison with a commercially available pellet feed. Diet I was prepared in combination with fish meal and prawn meal, Diet II was prepared in combination with Blood worm meal. Diet III was prepared only with homemade protein feed respectively. In 25 days feeding experiment, length gain and healthy growth of fries observed, the development of *P.sphenops* suggest all the diets supported normal growth, nevertheless variation in the growth performance with different diets might be due to the difference in the composition of the macronutrient of these diets.

Keywords: Fingerling, Molly, Protein, Pellet, Diet

Introduction:

The Molly fish is known as a Livebearer and they are omnivores. Even though you will see these fish eating algae constantly in the fish aquarium, they actually love other foods too. Basic tropical flakes are going to be the core to your Mollies diet but adding an alternative “treat” is a great idea to make your fish more healthy and happy. The feed requirements of fish vary in quantity and quality according to their feeding habits and digestive anatomy as well as their size and reproductive state. Feed requirements are also affected by environmental variations such as temperature and the amount and type of natural food available (Gonzalez and Allan, 2007). It is important to highlight that the food intake in fish is closely related to its energy requirements, e.g. a decrease in feeding was observed in *Cichla* sp. at higher digestible energy (DE):brute protein (BP) ratios due to the fact that high dietary energy induce satiety (Sampaio et al., 2000).

The success in the development of fries and fingerlings is largely dependent on the availability of suitable live food organisms. The present study evaluates the growth and survival of fries and fingerlings of *P. sphenops* using live feed and pelletized feed

Materials and methods: One of the most popular Aquarium Fish viz., Molly (*Poecilia latipinna*) was utilized in the present experiment.

Experiments were conducted to study growth and survival of fingerlings of *P. sphenops* using formulated & homemade food diets. Two batches of fingerlings having 8 numbers in each glass tank were provided with 3 different types of feed. Two different types of formulated feeds were prepared using different proportions of fish meal, prawn meal and bloodworm meal.

Length, weight and survival of fingerlings from all the tanks were measured and recorded in the beginning of experiment, followed by once in seven days and then at the end of the experiment. The length gain, weight gain, survival rate, mortality rate was calculated following standard procedure.

Length gain (mm) = Final length – initial length
Weight gain (g) = Final live weight – initial live weight

$$\text{Growth rate} = \frac{\text{final no.of.fishes}}{\text{Initial no.of fishes}} \times 100$$

RESULTS:

The results pertaining to the feeding trials of the wisps of *Poecilia sphenops* show that the fries that were fed with diet 3 had gained extreme length, more weight compared to other fingerlings(of different diet) and the survival rate was higher than others.

When the young fishes were fed with control pellet food followed by diet 2 and diet 3 one at a time, the growth of the fishes lengthwise and the weight gain was similar. Similarly, when the fishes were fed with control feed and then with diet 3, the length and weight gain was maximum.

The survival rate of the fishes when fed with diet 2 was almost identical to when they were fed with diet 3. Whereas there was a low survivability in case of the fishes fed with diet 1.

The mortality rate was seen to be higher in the fishes fed with diet 1, while it was minimum in case of the fishes feeding on diet 3.

MOLLIES	DIET 1 (FISH MEAL AND PRAWN MEAL)	DIET 2 (BLOOD WORM MEAL)	DIET 3 (HOMEMADE PROTEIN FEED)
LENGTH	NORMAL	NORMAL	MAXIMUM
WEIGHT GAIN	NORMAL	NORMAL	MAXIMUM
SPECIFIC GROWTH RATE	NORMAL	NORMAL	MAXIMUM
SURVIVAL RATE	LOW	NORMAL	NORMAL
MORTALITY RATE	HIGHEST	NORMAL	LOW

Table showing the growth and survival pattern of Molly fish fries



Fig. Showing fries of Molly fish

Discussion:

Fish meal is known for its high essential Amino acid a Fatty acids contents, high digestibility, low Carbohydrates, etc., Lipid is known to be one of the important nutrient next to protein, which plays a major role in optimum utilization of dietary Protein for growth. Lipids are almost completely digestible by fish and seem to be favoured over Carbohydrates as an energy source. Fishes are also known for utilizing protein preferentially over lipid or Carbohydrate as an energy source. Therefore, it is important from nutritional, environmental and economic point of view to improve protein utilization for tissue synthesis, rather than energy purposes.

Fish requires two to four times more dietary protein compared to warm-blooded animals, due to relatively higher need of essential amino acids in fish. Further, there exists a difference in optimum level of protein requirement between carnivorous and omnivorous fishes.

When mollies were fed with commercial pellet feed the mortality rate of fishes was the highest and the survival rate of fishes was less compared to the animal protein feed diet.

Conclusion:

The experiment proved that the commercial pellet diet of fishes shows high mortality and less survival rate and the fishes fed with protein diet like soft insides of cucumber, egg yolk and spinach improves in a healthy growth of fingerlings. Also the fishes fed with blood worm meal diet shows a constant growth of fries and good survival rate.

In view of higher cost and mortality rate of imported commercial pellet feed compared to experimental diets. Experimental diets formulated with locally available and homemade animal protein sources could be used in commercial production of molly fishes.

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