



World Scientific News

An International Scientific Journal

WSN 71 (2017) 139-143

EISSN 2392-2192

Food diversity and feeding preference of Black Molly (*Poecilla sphenops* (Valenciennes, 1846)), a common ornamental fish - A preliminary study

**Mandakranta Dasgupta¹, Gargi Sarkar¹, Ankur Bhowal¹, Gautam Kundu¹,
Gobinda Chandra Sadhukhan², Debasish Karmakar^{3,*}**

¹Department of Zoology (UG+PG) Vidyasagar College,
39 Sankar Ghosh Lane, Kolkata – 700006, India

²UGC-HRDC, Jadavpur University, LB-8, Sector-III, Salt Lake City, Kolkata – 700098, India

³Department of Zoology, City College, 102/1 Raja Rammohan Sarani, Kolkata – 700009, India

*E-mail address: neeldebasish@gmail.com

ABSTRACT

Black mollies are one of the most popular ornamental fishes in the aquarium hobby. Most People have had at one time at least one of these gentle and attractive fishes in their fish tank. They are one of the most popular feeder fishes due to high growth rate, birth size, reproduction and brood number. During fish development, supply of suitable food during culture period is the most vital factor to achieve good growth ratio. Present study aims at unfolding the feeding preference of Black Molly for which eggs of Pomfret, Carp and *Tenuulosa* sp. and semolina and poppy seeds were provided as food of animal and plant sources respectively. It was observed that food with more protein contents (i.e. food from animal sources) were mostly preferred by Black Molly. It is concluded that food from animal sources could be beneficial to get good growth and survival of Black Molly.

Keywords: Ornamental fish, Black Molly, Fish egg, Food preference, Feeding behavior, *Poecilla sphenops*, *Tenuulosa*

1. INTRODUCTION

Ornamental fish keeping is one of the most popular hobbies in the world including India (Nayar, 1996). Ornamental fishes are the important part of aquaculture providing aesthetic requirement and up keeping of the environment. Ornamental fish industry also has made an amazing progress in the areas of spawning and breeding, larval nutrition and health management which is directly related to fish-food production (Hardy, 2003). Among the various ornamental fishes, Black Molly (*Poecilia sphenops*) is the most popular one throughout the world and also frequently considered to be the first species reared by many ornamental fish enthusiasts because of its hardness.

Taste preferences in ornamental fishes are highly species specific and even vary between the individuals of the same species (Carlberg *et al.*, 2015). The knowledge of nutritional requirements along with their acceptability is important for improving the productive development. Therefore, attempt is made to study the feeding preference of Black Molly (*Poecilia sphenops*) between foods from animal sources and plant sources.

2. MATERIALS AND METHODS

2. 1. Collection and Acclimatization of Fish

Black Mollies of 6 months age group (35-40 mm) were collected from local pet store in Calcutta and were brought to the laboratory with oxygen packs. At first the fishes were kept in rearing tanks (18”X10”X10”) at a density of 5 fishes per tank with proper aeration and temperature (27 ± 2 °C). They were then acclimatized to laboratory condition for one week and were supplied commercial feed.

2. 2. Experimental Set up

The experiment was set up to know the food preference of Black Molly for individual food items when both animal and plant food items were given separately. For this experiment 5 Black Mollies were taken from the rearing tank and each was kept in 5 separate 5L tanks. The fishes were allowed to starve for 24 hours prior to the commencement of the experiment to standardize hunger level (Gupta and Banerjee 2009). Each fish was then provided with 50 Pomfret eggs, 50 carp eggs, 50 *Tenualosa* sp. eggs, 50 Poppy seeds, and 50 *Semolina* seeds for 20 days respectively. After 30 minutes, the number of left over unit food was recorded to calculate the intake number by the Black Molly.

2. 3. Statistical Analysis

Table 1. The table shows the average food consumed as unit (Pomfret Egg, Carp Egg, *Tenualosa* Egg, Poppy Seed and *Semolina* Seed) by the Black Molly fishes.

	Pomfret Egg	Carp Egg	<i>Tenualosa</i> Egg	Poppy Seed	<i>Semolina</i> Seed
Average food unit consumed \pm SE	34.4 \pm 1.47	29.7 \pm 0.94	33.1 \pm 0.87	21.65 \pm 1.00	19.65 \pm 1.02

Table 2:A

P value	P<0.0001		
P value summary	***		
Are means significantly Different? (P < 0.05)	Yes		
Number of groups	5		
F	25.46		
R.squared	0.5174		
ANOVA Table	SS	df	MIS
between columns)	3589	4	897.3
within columns	3348	95	35.24
Total	6937	99	

Table 2:B

Tukey's Multiple Comparison	Test Diff.	Mean	q	Significant? P < 0.05?	Summary
Pomfret Egg vs Poppy Seed	12.75	9.605	9.605	Yes	***
Pomfret Egg vs Semolina Seed	14.75	11.11	11.11	Yes	***
Carp Egg vs Poppy Seed	8.050	6.064	6.064	Yes	***
Carp Egg vs Semolina Seed	10.05	7.571	7.571	Yes	***
Tenuatosa Egg vs Poppy Seed	11.45	8.626	8.626	Yes	***
Tenuatosa Egg vs Semolina Seed	13.45	10.13	10.13	Yes	***
Pomfret Egg vs Carp Egg	4.700	3.541	3.541	No	ns
Pomfret Egg vs Tenuatosa Egg	1.300	0.9793	0.9793	No	ns
Carp Egg vs Tenuatosa Egg	-3.400	2.561	2.561	No	ns

Table 2A. Table shows the result of one way ANOVA to compare different food consumed by the molly. The mean unit food consumption are significantly different ($P < 0.0001$) for the different food types **Table 2B:** Tukey's Multiple Comparison Test performed to compare the food items in all possible pair.

Feeding preference was calculated by counting the food unit (Number of fish egg/Number of plant seed) left in the aquarium after each experiment and subtracting the number from the introduced food units (i.e 50 units/experiment). The number was averaged and SE was calculated. (Table 1). One way ANOVA (Table 2:A) was performed to find out the significant difference in food preference among the different food types. Tukey's multiple comparison test (Table 2:B) was also performed to compare the food items in all possible pair with the help of Graph Pad Prism software.

3. RESULTS AND DISCUSSION

Data obtained from one way ANOVA leads to infer that food acceptance of Black Molly differs significantly among the food types ($P < 0.0001$). Tukey's multiple comparison test is suggestive of the fact that all the fish eggs (Pomfret, Carp and *Tenuialosa* sp.) were consumed more frequently than all the food materials from the plant sources ($P < 0.05$). No significant difference was found when comparing the feeding preference among different fish egg type. A vertical Box and Whisker plot summarizes the outcome of the entire study (Fig. 1).

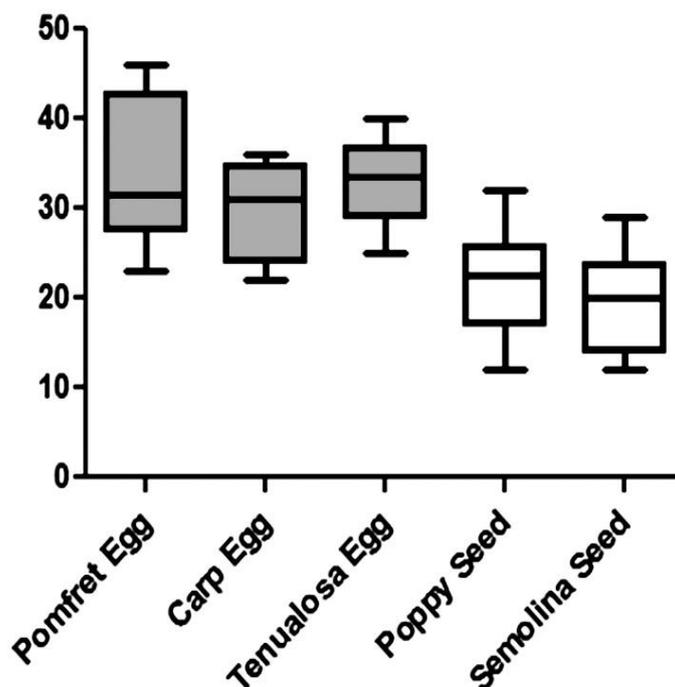


Figure 1. Vertical box and whiskers plot showing the minimum and maximum feeding of each food type by the molly. The pair-wise significant differences are shown as ($P < 0.0001$)

ACKNOWLEDGEMENTS

Authors are thankful to Dr. Indrani Sarkar, Mr. Prantik Ghosh, Dr. Minakshi Mazumdar, Dr. Sajal Dey and Mr. Arijit De, faculties of Department of Zoology, Vidyasagar College, Kolkata, for their enormous support and necessary arrangements to conduct the work properly and Mr. Jay Mondal, student of M. Sc. in Zoology (IIIrd Semester), Vidyasagar College, Kolkata, for the collection and maintenance of fishes and food in proper time.

References

- [1] Carlberg, H. Cheng, K. Lundh, T. & Brannas, E. 2015. Using Self-selection to evaluate the acceptance of a new diet formulation by fished fish. *Applied Animal Behaviour Science*, 171: 226-232
- [2] Hardy, R. 2003. Introduction to the special issue on 'Ornamental fish'. *Aquaculture Research* 34(11): 903-974
- [3] Gupta, S. & Banerjee, S. 2009. Food preference of Goldfish (*Carassius auratus* (Linnaeus, 1758)) and its potential in mosquito control. *Electronic Journal of Ichthyology*, 2: 47-58
- [4] Nayar, S. 1996. Ornamental fishes - A booming trade. *Fishing Chimes*. 16(9): 17