

Short Communication

ANGEL FISH (*PTEROPHYLLUM SCALARE*) - STUNTED GROWTH AND SWIMMING ABNORMALITIES - A REPORT

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ABSTRACT

*Abnormalities in size and growth has been observed in the young ones of angel fish (*Pterophyllum scalare*) of the same brood. Morphological measurements confirm the abnormalities in the affected specimens. As per the reports available, methylene blue treatment during the early life stages may have a teratogenic effect which led to such conditions in angel fish.*

Key words :Swimming abnormalities, Swim bladder, Methylene blue, morphological features

Angel fish (*Pterophyllum scalare*) are not only popular, but also considered as one of the most beautiful specimens of tropical freshwater aquarium fish. Native environment for Angel fish is Amazon River in South America. The ideal pH for growth is 6.0- 7.0 and water temperature around 25°C with water hardness of 4-12 mg/l. They need a large tank, preferably 40 litres per specimen. They swim vertically and fins would degenerate in case the height of the tank does not exceed 40 cm (15.74 inches). Minimum height required for the angel fish tank is 50 cm (19.68 inches).

At Fisheries Training and Research Centre (FTRC), Parakkai, angel fish (*Pterophyllum scalare*) were bred in the laboratory and maintained in confined conditions. The eggs laid by the breeders were collected in porcelain tiles and kept in separate glass tanks for hatching. To prevent fungal growth on the eggs and post hatched larvae, 5ppm methylene blue is dissolved in the water. The young ones were fed with micro pellet feed of 45 % protein. One batch of young ones after 45 days of rearing showed abnormal behavior and their growth was very slow when compared

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to their counterparts of the same batch. About 47 % of the young ones were showing such behavior.

Morphological features of the normal and abnormal specimens were studied as per Gatz (1979), and the details of the measurements were recorded as shown in table 1.

In the abnormal specimens, very slow growth was reported as shown in the Figure 1. The young ones were unable to swim straight and they could not maintain equilibrium. They swim upside down at regular intervals. It has been reported that in Angel fish (Perlberg *et al.*, 2008), abnormal swim bladder was apparent from the fourth day post hatch and Methylene Blue (MB) at a concentration of 5 ppm significantly increased the prevalence of Swim Bladder Non -inflation (SBN). Failure

to inflate the swim bladder is regarded as a major obstacle in the rearing of many fish species. A normal developing primordial swim bladder was first discernable at the end of the first day of the post hatch of the larvae. Initial inflation occurred on the fourth day of the post hatch. Prior to inflation, the swim bladder epithelium consisted of an outer squamous and inner columnar layer (Zilberg *et al.*, 2004). Cells of the inner layer were filled at their basal region with an amorphous material, which disappeared upon inflation. The amorphous material helps in the initial inflation of the swim bladder.

Hence, it is concluded that high concentration of methylene blue (5ppm) may have a teratogenic effect which led to such abnormal conditions in angel fish. Reducing the concentration of methylene blue may minimize such abnormalities in angel fish.

Table 1. : The morphological features of normal and abnormal Angel fish reared in the laboratory.

S.No	Morphological Measurement	Angel fish (<i>Peterophyllum scalare</i>)		
		Normal(cm) (Mean±SD)	Abnormal(cm) (Mean±SD)	
1	Total length	5.30±0.16	3.2 ±0.08	
2	Standard length	3.00± 0.08	1.7 ±0.08	
3	Relative head length	1.43±0.04	0.94 ±0.01	
4	Flatness index	2.06±0.008	0.49±0.004	
5	Relative body depth	0.63± 0.06	0.3 ±0.08	
6	Pectoral fin length	1.16± 0.12	0.53±0.12	
7	Pelvic fin length	2.50 ±0.16	0.53±0.12	
8	Pectoral fin shape	Intermediate	Intermediate	
9	Relative eye size	0.80 ±0.0	0.3 ±0.0	
10	Eye position	Slightly dorso-lateral	Slightly dorso-lateral	
11	Mouth position	Sub terminal	Sub terminal	
12	Number of barbels	No	No	
13	Body weight	1.01 ±0.06	0.08 ±0.009	
14	Dorsal fin	No. of spines	9	5
		No. of rays	19	9
15	Pectoral fin	No. of spines	0	0
		No. of rays	7	4
16	Pelvic fin	No. of spines	1	1
		No. of rays	11	8
17	Number of caudal fin rays	11	7	
18	Caudal fin length	2.23 ±0.18	0.4± 0.08	
19	Eye diameter	0.03 ±0.00	0.01 ±0.00	
20	Length of dorsal fin	2.10 ±0.16	0.36 ±0.12	

Fig.1 Photograph showing normal and abnormal angel fish



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