

Effect of Background Color on the Growth Pattern, Breeding Performance and Coloration of Guppy Fish (*Poecilia reticulata*)

**Aditi Barua**

Roll No.: 0119/06 Registration No. : 724 Session: 2019-2020

**A thesis submitted in the partial fulfillment of the requirements for the degree of Master of Science in Fisheries Resource Management**

**Department of Fisheries Resource Management**

**Faculty of Fisheries**

**Chattogram Veterinary and Animal Sciences University Chattogram-4225, Bangladesh**

**JUNE 2020**

**Authorization**

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**This is to certify that we have examined the above Master’s thesis and have found that is complete and satisfactory in all respects, and that all revisions required by the thesis examination committee have been made**

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|  |  |
| --- | --- |
| **--------------------------------------------****Sk. Istiaque Ahmed** | **-------------------------------------------------------****Dr. Sk. Ahmad Al Nahid**  |
| **Supervisor** | **Co-supervisor** |

**-----------------------------------------------**

**Dr. SK. Ahmad Al Nahid**

**Chairman of the Examination Committee**

**Department of Fisheries Resource Management**

**Faculty of Fisheries**

**Chattogram Veterinary and Animal Sciences University**

**Chattogram-4225, Bangladesh**

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**LIST OF ABBREVIATIONS**

|  |  |
| --- | --- |
| MCH | Melanin Concentrating Hormone |
| DO | Dissolved Oxygen |
| V | Volume |
| W | Weight |
| FAO | Food and Agriculture Organization |
| SGR | Specific Growth Rate |
| SD | Standard Deviation |
| ANOVA | Analysis of Variance |
| Abs | Absorbance rate |
| L | Liter |
| ml | Milliliter |
| cm | Centimeter |
| nm | Nanometer |
| G | Gram |
| Mg | Milligram |
| µg | Microgram |

**Abstract**

This study was conducted to investigate the effect of tank background color on the growth pattern, breeding performance and coloration of Guppy fish (*Poecilia reticulata*). Fish were reared in tanks with four different background colors (transparent, red, blue and green) to observe the effect. The outside walls and bottoms of each aquarium were covered with color paper to achieve the colors (red, blue and green), while transparent glass aquarium served as a control. The experiment was conducted in 8-L rectangular glass aquarium with three replicates. Six fish were stocked in each tank and three fish were randomly sampled from the tank after every 15 days. The fish were fed a commercial diet at a daily rate of 5% of their body weight twice a day for 150 days. The best growth and breeding performance was significantly attained in transparent background compare to the other treatments. Among the colored tanks, fish reared in blue tank showed better performance in growth, breeding and survivability. Fish performance was significantly (*P*<0.05) lowered in larvae reared in aquarium with red background. Tank background color also affected in skin pigmentation significantly, fish in transparent tanks having the highest values of carotenoid (0.00175±0.00004mg/g) and the lowest in red tanks (0.00092±0.000035 mg/g). Green background enhanced red orange color on fish skin and provide high amount of carotenoid value (0.00143±0.000046 mg/g) than blue (0.00095±0.000025 mg/g). These results clearly suggest that, transparent background could be best for *P. reticulata* growth and coloration. However, the use of red background should be avoided. But if anyone interested to rear fish in colorful background, one should give proper attention on one’s interest. In case of growth, it could be much better to select blue background however it could be more astute to choose green background whether the interest is pigmentation.

Keywords: Background color, *Poecilia reticulata,* Growth performance, Carotenoid.