

**THE EFFECT OF LOCALLY AVAILABLE  
CARBON SOURCES ON WATER QUALITY  
MANAGEMENT IN GUPPY (*Poecilia reticulata*)  
GROWING SYSTEM**

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## ABSTRACT

Accumulated toxic nitrogenous waste in the culture water can be assimilated by adding external carbon sources to the culture system. This study was done to identify the effect of locally available carbon sources on water quality management in guppy (*Poecilia reticulata*) growing system. Experiment was conducted in 21 L, 27 glass tanks with indoor conditions for 60 days. Completely randomized design was followed. 10 male guppy fish were stocked in each tank (mean weight  $0.16 \pm 0.02$  g and standard length  $2.0 \pm 0.2$  cm). Three carbon sources; wheat flour, rice bran and molasses were used as biofloculating agents. Four different treatments were formed as wheat flour (WF), rice bran (RB), molasses (MOL) and rice bran and molasses mix in 1:1 ratio (MIX). These four treatments were tested in two treatment patterns; single dose (S) and split dose (D) and a control (with no carbon) with three replicates from each. C: N ratio was 15. Water quality parameters and growth parameters of fish were assessed daily and biweekly. The total ammonium nitrogen in the control ( $0.781 \pm 0.230$  mg/L) was significantly higher than the biofloc treatments ( $p < 0.05$ ). But, elevated ammonia levels were shown as  $0.5015 \pm 0.0811$  and  $0.4662 \pm 0.0698$  mg/L by WF-S and WF-D respectively. Dissolved oxygen level maintained above 8.00 mg/L in all the tanks. Higher growth increment of fish was recorded from all the biofloc treatments than from the control. Growth performance of different treatments differed significantly ( $p < 0.05$ ). In conclusion, the present study showed that there is a significant effect on different locally available carbon sources on water quality management in guppy growing system when compared to the conventional culture system.

Keywords: Biofloc technology, carbon sources, guppy