

**THE EFFECT OF DIFFERENT CARBON SOURCES ON WATER QUALITY AND GROWTH PERFORMANCES OF MALE GUPPY (*Poecilia reticulata*) JUVENILES**

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This study was conducted to identify the effect of biofloc systems formed with different carbon sources on water quality and growth performance of male guppy (*Poecilia reticulata*) juveniles. Seven treatments were arranged with added carbon sources; rice bran (RB), molasses (MOL), wheat flour (WF), rice bran-molasses (RB-MOL), molasses-wheat flour (MOL-WF) and rice bran-wheat flour (RB-WF) and without carbon source (control) and managed in 24 indoor tanks with each volume of 200 L. Thirty male guppy fish (mean weight =  $0.16 \pm 0.02$  g) were stocked in each tank and they were cultured for 82 days. Water quality parameters, body weight, and length were measured and specific growth rate (SGR), weight gain (WG), feed conversion ratio (FCR), mortality, and survival were calculated. Growth parameters were significantly ( $p < 0.05$ ) higher in fish reared in different carbon sources compared to the control. Water temperature was not significantly ( $p > 0.05$ ) changed with the treatments. The pH was significantly ( $p < 0.05$ ) higher and dissolved oxygen was lower after adding different carbon sources compared to the control. Total ammonia nitrogen ( $2.35 \pm 0.19$  mgL<sup>-1</sup>) in the control was significantly higher ( $p < 0.05$ ) compared to water supplied with other carbon sources ( $0.41 \pm 0.19 - 1.68 \pm 0.19$  mgL<sup>-1</sup>). The total suspended solid was significantly higher ( $p < 0.05$ ) in MOL ( $165.53 \pm 22.0$  mgL<sup>-1</sup>) compared to other treatments. The significantly lowest ( $p < 0.05$ ) flock volume was observed in WF ( $0.96 \pm 12.94$  mgL<sup>-1</sup>) compared to water supplied with other carbon sources ( $19.17 \pm 12.94 - 165 \pm 12.94$  mgL<sup>-1</sup>). The significantly lower ( $p > 0.05$ ) survival rate of fish was recorded with RPP treatment (31.14%) compared to other treatments (53 – 95%). Therefore, the results revealed that addition of MOL and WFMOL positively affected growth parameters while maintaining better water quality with higher survival rates in the male guppy juveniles.

**Keywords:** Biofloc, Carbon sources, Growth, Male guppy, Water quality