



## Periphyton Technology Enhances Growth Performance and Delays Prolific Breeding of Nile Tilapia, *Oreochromis niloticus* (Linnaeus, 1758), Juveniles

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### Abstract

This study evaluated the effect of periphyton technology (PPT) on the growth performance and breeding schedule of *Oreochromis niloticus* (Linnaeus, 1758) juveniles. Six ponds, each measuring 81 m<sup>2</sup> were used for the study. The ponds were applied with agricultural lime at a rate of 4 gm<sup>-2</sup>, and fertilized using chicken manure to facilitate primary productivity. The PPT ponds were fitted with two-metre-long eucalyptus poles of 5 cm diameter placed at 50 cm intervals with the regular addition of molasses as a carbon source. Tilapia juveniles were stocked at a density of 3 fish. m<sup>-2</sup> in all ponds and fed on a commercial diet of 20% crude protein (CP) twice daily at 3% body weight. Fish were sampled weekly for growth and survival data and bi-weekly for fecundity estimates. The PPT-ponds registered a significantly higher survival rate (97.50±0.35%), mean weight (150.69±0.99 g), specific growth rate (SGR)(2.75±0.01), and feed conversion ratio (FCR)(1.29±0.01), than the control ponds, which registered survival (91.15±0.88%), mean weight (99.23±0.96 g), SGR (2.29±0.00), and FCR (1.58±0.01). There was significantly higher fecundity in the PPT-ponds (2.28±0.09 g. fish<sup>-1</sup>) than control (1.74±0.06 g. fish<sup>-1</sup>), with prolific spawning starting 4 weeks earlier in the control ponds than in the PPT-ponds. This study demonstrated the potential of PPT for enhancing tilapia growth while delaying prolific breeding behaviour. Further studies should explore PPT in replacing synthetic hormones for sex-reversal of tilapia fry in hatcheries.

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