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Effects of long term and continuous magnetic field exposure on the water properties, growth performance, Plasma biochemistry and body composition of Tilapia in a recirculating aquaculture system

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Abstract

A 70-day study was conducted to determine the effects of continuous exposure of magnetized water on red hybrid tilapia (*Oreochromis sp.*). Triplicate groups of tilapia (7.16 ± 0.05 g) were tested with increasing amounts of magnetized water intensity (0.00, 0.10, 0.15 and 0.20 Tesla). At the end of the experiment, the growth, feeding efficiency, whole-body proximate composition, water quality, and plasma parameters were measured. Although the survival was unaffected by the magnetised water level, the weight gain and specific growth rate significantly increased ($P < 0.05$) as magnetised water intensity increases from 0.00T to 0.15T, then dropped ($P < 0.05$) with increasing magnetised water at 0.20T. The best feed conversion ratio (1.14) was achieved at 0.15T level. The whole body proximate content, hepatosomatic index (HSI) and viscerosomatic index (VSI) were unaffected by the magnetised water intensity. However, serum electrolyte decreased with increasing tesla intensity. A similar pattern was found for the blood glucose content which was significantly lower in the 0.20T group, serum aspartate aminotransferase (AST) and calcium ions show an opposite trend while no differences were detected for serum triglyceride, phosphate and total protein. Based on the growth, water properties and

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