Study of Growth Performance of *Oreochromis niloticus* (Nile Tilapia) Fed by Formulated Diet Incorporated with Phytase Enzyme

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Fish is highly enriched with nutrients and serve as a valuable source of protein. Major constraints faced by inland aquaculture industry of Sri Lanka are higher feed cost and less growth performance of fish. Nile Tilapia *(Oreochroinis niloticus)* significantly contributes to the inland aquaculture due to its high adaptability to different environmental conditions and high growth rate. Phytase enzyme incorporated feed increases the release of phosphorus from plant meals and enhance the digestion in fish. Present study was focused to determine the effect of Phytase enzyme incorporated artificial feed on growth performance of Nile Tilapia. Two treatments, Treatment 1 artificial feed with Phytase enzyme and treatment 2 without phytase enzyme were conducted in fiberglass tanks (3.14 m^3) with 3 replicates. Artificial feeds were formulated with 39% of protein and 0.2 g kg^{-1} of Phytase enzyme. Nile Tilapia fingerlings (mean weight 5g±1) were stocked with a stocking density of 5 fish per tank and reared for 10 weeks. They were fed three times per day at 5% of body weight. The live weight and total length of fish were measured within two weeks intervals. The weight gain of treatment 1 (17.25g±4.65) and treatment 2 (15.31g±4.10) were significantly different ($p<0.05$). Feed Conversion Ratio (FCR) for treatment 1 and 2 were 1.87±0.046 and 2.20+0.241 respectively with no significant difference. There was no significant difference of Specific Growth Rate (SGR) of fish between two treatments. Survival rate of both treatments were 100%. Since Treatment 1 revealed the highest weight gain, Phytase enzyme incorporated feed could be recommended to obtain the high growth performance of Nile tilapia in aquaculture industry.

Keywords: *Oreochromis niloticus*, Phytase Enzyme, Fish feed, Growth performance