

Effect of Probiotic Incorporated Feed on Growth Performances and Survival Rate of *Oreochromis Niloticus*

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Abstract

Probiotics are living microorganisms that confer positive effects on the health of the digestive system when incorporated with feed in a defined dosage and help to stimulate the immune response in fish against virulent fish bacterial pathogens. Therefore, focusing on the gastrointestinal health of fish is quintessential. This study was carried out to evaluate the effect of probiotic isolated from the intestine of healthy Nile tilapia (*Oreochromis niloticus*) on the growth performance and survival of Nile tilapia. A total of 180 healthy juvenile Nile tilapia (5.61±0.14g, 4.09±0.24cm) were randomly divided into five experimental variants. Five experimental diets were supplemented with different concentrations of *Lactobacillus* namely, Control diet (no probiotic, d0), High dose gut *Lactobacillus* (1.5×10⁹ CFU/g, d1), Medium dose gut *Lactobacillus* (1.5×10⁸ CFU/g, d2), Low dose gut *Lactobacillus* (1.5×10⁷ CFU/g, d3), and Yoghurt *Lactobacillus* (1.5×10⁸ CFU/g, d4). Fish were fed 3% of their body weight for 8 weeks and subjected to a 5 days *Aeromonas hydrophilla* challenge test. Results showed that the fish fed with diet d1 had the best growth performance. Weight gain, length gain and specific growth rate were significantly higher in fish fed with d1 (p < 0.05), while feed conversion ratio was not significantly different (p>0.05) among the experimental groups. The challenge test result revealed that fish fed with d1 had a high survival rate against *Aeromonas hydrophilla* than other treatments. Therefore, it is concluded that using fish gut probiotic as supplementary feed on *Oreochromis niloticus* showed positive effects on growth parameters and health status. Furthermore, this study indicates the feasibility of using isolated probiotics as a feed additive and as an immune enhancer in aquaculture.

Keywords: Probiotics, *Lactobacillus* spp., Nile Tilapia, Growth Performance, Survival Rate