

ABSTRACT

Continuously expanding aquaculture sector demands to explore the novel components to ensure the product of healthy fish with enhanced immunity. The current research was undertaken to study the effect of dietary supplementation of Turmeric powder (*Curcuma longa*) on growth performance, hematological and immunological parameters of Nile Tilapia (*Oreochromis niloticus*) fingerlings. An experimental trial of two months was conducted using different inclusion levels of *Curcuma longa* at 0g, 10g, 20g and 30g labeled as T1 (control), and treatments T2, T3, and T4. An experimental trial consisting of 15 fishes in each treatment was conducted. After completion of feeding trial blood samples from each group were collected for serum analysis and organs were collected and preserved in fixative solutions for histological examination. At the end of feeding trial different parameters of growth, hematology and immune response of fish were evaluated. The results indicated significantly ($P < 0.05$) higher growth performance in T3 dietary group (containing 20g *Curcuma longa* powder) as compared to other groups. Likewise, the immunological and hematological parameters, such as level of immunoglobulins IgM, serum proteins, number of RBCs, WBCs and hemoglobin were also observed to be significantly higher ($P < 0.05$) in the T3 experimental group (containing 20g *Curcuma longa*) as compared to the other groups while decrease in glucose level was seen in all groups of fishes fed with different levels of turmeric containing diets. Findings of this study suggests that inclusion of turmeric (*Curcuma longa*) as a feed additive may be effective for enhanced growth and immunity of fish; hence reducing the vulnerability to several diseases.