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EFFECTS OF BASIL AND BIO-GEN COMPOUND ON IMMUNITY AND RESISTANCE OF NILE TILAPIA, *OREOCHROMIS NILOTICUS*

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ABSTRACT

This study aimed to investigate the stimulatory effects of basil herb (*Ocimum basilicum*) and Bio-gen compound as probiotics on the immunity of Nile tilapia (*Oreochromis niloticus*). Feeding trials on Nile tilapia (45±5 g) were conducted to examine three feeding regimes, basil, Bio-gen compound, or their combination incorporated diets as well as control diet (free of any feed additives) in replicates. After 30 and 60 days of successive feeding, several cellular and humoral immunity parameters were investigated to assess the stimulation of the fish immune system and the ability to resist bacterial infection. Results showed significant increase in phagocytic activity and indices, total protein, globulin and nitric oxide levels in fish fed on additive-incorporated feed. Likewise, significant up-regulation of the expression of cytokine genes, interleukin-1 (IL-1) and tumor necrosis factor alpha (TNF α) estimated at 30 day and 60 day by using quantitative RT-PCR were noticed over the control. The ability of fish to resist bacterial infection was investigated by intraperitoneal injection of 5×10^7 cfu/ml of pathogenic *Aeromonas veronii* by the end of the feeding trial (60 days). Also, the immune parameters were investigated after challenge. The relative survival rate of fish fed on combination diet were significantly higher than that of fish fed basic diet. Dietary supplementation of basil herb or Bio-gen compound probiotics improves immune status and disease resistance in Nile tilapia.