

Effects of different levels of commercial food supplement, Biotronic® Top3 on biochemical and immune parameters of *Litopenaeus vannamei*

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Abstract

The effect of different dietary levels of Biotronic® Top3 (Biomim, Austria) on hemolymph biochemical parameters, hemolymph enzymes and immune parameters of white leg shrimp (*Litopenaeus vannamei*) was investigated. 375 Shrimps (mean initial weight: 4.28±0.05g) collected from the commercial farm and stocked randomly in 300L polyethylene tanks in triplicates. The shrimps were fed with commercial diet (4005, Faradaneh Company) supplemented with different levels of Biotronic® Top3 (0: Control, 0.5%, 1%, 2%, and 4%) for 56 days (8 weeks). At the end of the experiment, the biochemical indices, levels of hemolymph enzymes (AST, ALT, ALP and LDH), hemolymph immune parameters (Lysozyme and Phenoloxidase), and cellular hemolymph parameters of experimental shrimps were compared. The dietary inclusion of 2% and 4% of Biotronic® Top3 led to an increase in hemolymph enzymes. Shrimp were fed with supplemented diets also had lower levels of glucose, cholesterol and triglyceride and higher levels of protein, calcium and creatinine. Addition of Biotronic® Top3 in the feed had a positive effect on the cellular and humoral immune responses of shrimps. The results of this study showed that the best performance of dietary supplementation of Biotronic® Top3 on *L. vannamei* was observed at level of 1%.

Key words: Organic acids, *Litopenaeus vannamei*, Immune parameters, Hemolymph enzymes, Biochemical parameters

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