



Investigation the effects of *Bifidobacterium Bifidum* as a probiotic on Liver function enzymes due to exposure to *E.coli* O157H7 in Koi fish (*Cyprinus Rubrofuscu*) as an animal model

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Abstract

Under intensive aquaculture conditions fish are exposed to many pathogens, due to that strengthening their immune system is an alternative significant way to reduce mortality rate and disease-related complications. Probiotics are the valuable oral nutrition supplements for this purpose. In present investigation, there were used Koi fish (n=120) with the characteristics of 10 ± 3 Cm in length and average of 20 ± 1 g in weight classified in 4 groups under 2 replication. The classification of groups were as follow: T1; 24-day treated with probiotic diet of *Bifidobacterium bifidum* (1.5×10^8 CFU / ml), T2; 24-day treated with probiotic diet of *Bifidobacterium bifidum* and 72 hours of exposure to *E.coli* O157H7 pathogen (1.5×10^8 CFU / ml), Sham group; 24-day probiotic-free commercial feed treatment and 72 hours of exposure to *E.coli* O157H7, and control group (C); which had fed neither the probiotics nor any pathogens. In present scientific investigation, the feeding processes were done twice a day at 10:00 a.m and 14:00 p.m. where the samples stored at 12:12 cycle of dark and light. ALT, AST and ALP serum level were examined to determine the symptoms of disease caused by the pathogen. These liver function tests (LFT) were examined on days 24 and 27. As a conclusion, it is found that probiotic complements feeding cause to decrease the LFT level compared with the control group on days of 24 and 27 ($P < 0.05$). Also, in the probiotic-fed group, after exposure to the pathogen, the level of serum LFT increased compared with the control group ($P < 0.05$), the probiotic utilization as a supplement reveals the better efficiency of liver during aging, as well ($P < 0.05$).

Keywords: *Bifidobacterium bifidum*, *E.coli* O157H7, Koi fish, *Cyprinus Rubrofuscu* Alanin aminotransferase, Aspartate aminotransferase, alkaline phosphatase.