عنوان مقاله:

Effect of dietary chitosan on immune response and diseaseresistance in Cyprinus carpio

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خلاصه مقاله:

BACKGROUND: Occurrence of resistance against antibiotics and inadequate efficacy of some vaccines necessitates studies of natural immunostimulators in aquaculture. Shrimps shell derived from Chitosan can be used as immune stimulators in fish. OBJECTIVES: In this study, the effects of oral administration of chitosan, derived from shrimp shell, on some immune responses and disease resistance in Cyprinus carpio were studied. METHODS: Three hundred healthy fish weighing 42.4+8.1 g were divided into 4 equal groups: the first group (G10) was fed with food supplemented with 10 mg kg-1 chitosan, the second (G5) and third groups (G2.5) were fed with food supplemented with 5 mg kg-1 and 2.5 mg kg-1, respectively. The control group was fed with basal feed (without chitosan). All groups were treated for 60 days. Bloodsamples were taken on 0, 20, 40, and 60 days post- experiment; In addition, some immunological indices, including serum lysozyme activity, serum bactericidal activity, Nitro Blue Tetrazolium (NBT) reduction activity, serum proteins, white blood cell count (WBC), and differentiated count were measured. At the end of the treatment,fish were challenged with live Aeromonas hydrophila and mortality rate was recorded for 14 days. RESULTS: Oral administration of chitosan (0.5 and 1%) significantly enhanced NBT reduction activity and resistance to A. hydrophila infection (p=0.012). Serum lysozyme and bactericidal activity, serum total protein and globulin, WBC and leukocytes ratio showed no significant change among the groups (p>0.05). CONCLUSIONS: This study indicates that oral administration of shrimp shell chitosan may have a positive effect on some immune parameters and .resistance against bacterial infection in Cyprinus carpio

کلمات کلیدی:

Aeromonas hydrophila, chitosan,Cyprinus carpio, immune response