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Haematological response of Common carp (*Cyprinus carpio*) exposed to nano silver after feeding with food supplements

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Abstract

Due to the emergence of nanotechnology and the lack of awareness of the potential risks of these particles and the beneficial effects of probiotics on aquatic animals on the other hand, the present study examined the effects of nano silver contamination on the physiological indices of common carp fed with probiotics (bactocel bacteria), and probiotic (button mushroom) and synbiotic. The whole period of the experiment was 60 days. Fish were subjected to four experimental treatments of feeding with probiotic, probiotic and synbiotic after 6 weeks for 3-4% of body weight, then were exposed to 1 ppm of silver nanoparticles. The results of the data analysis showed that M.C.H, M.C.H.C, MCV and hemoglobin had a significant difference with the control group ($P<0.05$). Probiotics have led to a reduction in these indices. Hemoglobin increased in probiotic and synbiotic treatments and decreased in prebiotic treatment, which showed a significant difference with the control group ($P<0.05$). The amount of lymphocytes and eosinophils in probiotic treatment increased and the highest neutrophil content was observed in synbiotic treatment. Also, regarding monocytes, the results showed that monocytes have the highest levels in the treatment of prebiotics. The nutritional supplements used in this study greatly contribute to improving the resistance performance of common carp in exposure to silver nanoparticles.

Keywords: Common carp, Probiotics, Resistance improvement, Silver nanoparticles