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Check of effects of sub-lethal concentrations of multi walled carbon nanotube on serum biochemical parameters in common carp (*Cyprinus carpio*)

Kh. Azari[1], J. Allahbeygi Chamjangali[1], A. Ghasemi[1], *S.H. Hosseinifar[2], A. Shabani[3] and H. Paknezhad[2]

[1]M.Sc., Dept. of Fisheries, Gorgan University of Agricultural Sciences and Natural Resources,
[2]Assistant Prof., Dept. of Fisheries, Gorgan University of Agricultural Sciences and Natural Resources,
[3]Associate Prof., Dept. of Fisheries, Gorgan University of Agricultural Sciences and Natural Resources
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Abstract

There is increasing concerns over consumption of nano material in industries and factories and subsequent entrance to aquatic ecosystems. The present study was performed to investigate the effects of different levels of multi walled carbon nanotube on serum biochemical parameters in common carp. 150 common carps with average weight of 20.12±2.10 g were supplied and stocked in 120 l tanks for adaptation for 2 weeks. After adaptation, fish were exposed to sub-lethal concentrations of multi walled carbon nanotube (0, 1, 10 and 32 mg/l) (3 treatment and a control group repeated in triplicates) for four days. At the end of 4th day, fish were randomly sampled, blood was obtained and serum biochemical parameters were studied. The results revealed significant increase of total protein in exposed group compared to control ($P<0.05$). Also serum albumin in exposed groups were higher than control ($P<0.05$). The highest amount was noticed in 10 mg treatment and the lowest amount was noticed in control. Fish exposed to 10 mg MWCN showed significant decrease in serum globulin level ($P<0.05$). No significant differences were noticed between glucose and alkaline phosphatase levels of different treatments and control ($P>0.05$). Based on these results, it can be concluded that multi walled carbon nanotube entry to fish body will be caused toxic effect and adverse effects on biological functions.

Keywords: Albumin, Carbon nanotube, Common carp, Globulin, Glucose

*Corresponding author: hossein.hoseinifar@gmail.com