

Abstract

With the industrialization of nanotechnology, nanoparticles public exposure will increase in the future. So study the effects of different doses of nanoparticles and their effects on health is important. Therefore, in this study the effects of zinc oxide nanoparticles and the new composition zinc oxide nanocomposite graft based on chitosan on membrane lipid peroxidation in rats was examined. In this study of 7 groups of 8 Wistar rats including control and 6 groups treated were used. Experimental groups containing solution, 10, 20 and 40 Mmole of Nan-composite Chitosan / ZnO and ZnO nanoparticles injected as intraperitoneal injection for four weeks. After the end of the period, rats were anesthetized and blood samples were taken from the heart. Then the tbars as an index of lipid peroxidation using TBA method were analyzed. In the end, tbars concentration changes between the groups with one way ANOVA and post-hoc Tukey tests (Tukey) was being compared. A significant decrease in mean tbars concentration changes in the groups treated with 20 mmol of zinc oxide nanoparticle and and 40 mmol of zinc oxide nanoparticles compared to the control group ($p < 0/05$) observed and Tbars concentration in the groups treated with nanocomposite Chitosan / ZnO compared to the control group showed no statistically significant difference. The results of this study suggest zno nanoparticles can prevent lipid peroxidation and helps protect the cells from oxidative damage caused by free radicals. It seems adding chitosan to nanoparticle structure have no effect on zno antioxidant activity.

Keywords: zinc oxide nanoparticles, Zinc nanocomposites, lipid peroxidation, Rat



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The Thesis Submitted for the Degree of Doctor of Professionals
(in the Field of veterinary medicine)

Title:

*Effect of ZnO/ Chitosan Nanochomposites and ZnO Nanoparticles on
lipid proxidation in Rat*

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Octobre 2016