



University of Zabol
Faculty of veterinary medicine
Department of Pathobiology
**The Thesis Submitted for the Degree in professional
(In the Field of veterinary medicine)**

**Effect of caffeine nanoemulsion on
thioacetamide-induced damage in testicular
tissue of New Zealand white rabbits**

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Abstract

The aim of this study was to investigate the effect of caffeine nanoemulsion on thioacetamide-induced damage in testicular tissue of New Zealand white rabbits and also to compare their effect on oxidative stress indices. Nanoemulsion synthesis was performed in the laboratory of the Physics Department of Zabol University. In this study, 32 male rabbits were used and the rabbits were divided into 4 groups of eight. Group 1 rabbits were considered as the control group (control) and 1 ml of physiological serum was injected daily by intraperitoneal injection for 2 weeks. Group 2 rabbits were injected with thioacetamide at a dose of 100 mg / kg. They received peritoneal for 2 weeks and after injecting thioacetamide, they were injected with physiological serum for two weeks. Group 3 rabbits received caffeine nanoemulsion at a dose of 1 mg / kg by intraperitoneal injection, followed by thioacetamide at a dose of 100 mg / kg by intraperitoneal injection for two weeks. Group 4 nanoemulsion rabbits Caffeine was received at a dose of 10 mg / kg by intraperitoneal injection, followed by thioacetamide at a dose of 100 mg / kg by intraperitoneal injection for two weeks. The volume of injections was half a milliliter for thioacetamide and half a milliliter for physiological serum and caffeine nanoemulsion, in which rabbits received one milliliter in total. To prepare the blood serum, the tubes in which the blood was sampled were placed at normal room temperature for half an hour to perform a good blood clotting operation, and then a serum sample was taken and the amount of catalase, superoxide dismutase and malone was collected. Dialdehyde was measured. In the study of tissue samples in the thioacetamide group, the process of spermatogenesis was affected, so the production of spermatozoa was reduced. The interstitial tissue around the seminiferous tubules was also damaged, and Leydig cells underwent changes in cell reduction and necrosis. The results showed that thioacetamide significantly reduced the activity of catalase and superoxide dismutase and on the other hand increased the level of malondialdehyde in the serum of samples. In contrast, the use of caffeine nanoemulsion improved the activity of antioxidant enzymes (increased activity). Catalase and superoxide dismutase and decreased malondialdehyde levels). According to the results, consumption of caffeine nanoemulsion in the amount of 1 mg / kg and 10 mg / kg improves the damage caused by thioacetamide in testicular tissue.

Keywords: Infertility, Caffeine, Thioacetamide, Nanoemulsion, Oxidative stress