

Effect of chronic toxicity of silver nitrate on biomarkers of oxidative stress of whiteleg shrimp (*Litopenaeus vannamei*) hepatopancreas

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Abstract

The aim of this study was to investigate the effects of sublethal concentrations of silver nitrate on changes in biomarkers of oxidative stress (superoxide dismutase, catalase, glutathione, total antioxidant capacity and malondialdehyde), in the hepatopancreas of white leg shrimp (*Litopenaeus vannamei*). For this purpose, whiteleg shrimp (*Litopenaeus vannamei*) post larvae shrimp were exposed to sublethal silver nitrate concentrations (equivalent to 10 % (treatment 1), 25 % (treatment 2), 50 % (treatment 3) and 75 % (treatment 4) LC₅₀ AgNO₃) for 21 days. Catalase, glutathione and total antioxidant capacity in treatments 3 and 4 compared to control treatment had a significant decrease while malondialdehyde increased significantly. Also, superoxide dismutase activity in both treatments 3 and 4, total antioxidant capacity decreased significantly only in treatment 4 compared to the control group, but malondialdehyde activity in treatment 4 increased significantly. The results of this study showed that exposure to concentrations of 0.042 and 0.063 mg/L of silver nitrate caused oxidative damage to hepatopancreas tissue of white leg shrimp (*Litopenaeus vannamei*).

Keywords: Toxicity, Silver nitrate, Oxidative stress, Whiteleg shrimp (*Litopenaeus vannamei*)

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