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The Effects of Thallium Acetate on Hepatopancreatic Cells of *Gammarus pulex* (Crustacea: Amphipoda)

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ABSTRACT

In our study, the toxic effects of thallium on *Gammarus pulex* a sensitive indicator organism for environmental pollution was studied for cytological changes. According to studies carried out with thallium acetate, this chemical was observed to lead to cellular changes in the hepatopancreas of the *Gammarus pulex*. In our studies, by using EPA acute toxicity tests, the LC50 value was found to be 0.244 mg/L. The LC50 value was calculated using the EPA Probit Analysis Program. The cytological changes to *Gammarus pulex* when exposed to thallium was examined with the Transmission Electron Microscope. Due to thallium intoxication, degenerative changes were frequently present in the cellular membranes; there were changes in the mitochondria as partial or total loss of cristae, there was an increase in the number of lipid droplets, lysosomes and autophagic vacuoles were found to have increased in the hepatocytes and the nucleus showed significant shrinkage and deformation. We also observed fragmentation and dilation of the rough endoplasmic reticulum (RER) and the number of lesions also increased in the inner and outer mitochondrial membranes and in the RER. A lot of lipid droplets were also observed in the hepatocytes.



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