



Evaluation of Ibuprofen Contamination on Genetic Changes in Zebrafish (*Danio rerio*)

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Abstract

According to past and ongoing research, ibuprofen is one of those drugs that can have a devastating and sometimes irreversible effect on organisms if it enters seawater and river sewage. Many studies have shown that these effects can be due to DNA damage and genetically destructive effects in general. In the present study, changes in the expression of P53 gene in zebrafish that were exposed to lethal doses of ibuprofen were investigated, which were: 0.1, 1 and 10 mg / l. In this study, zebrafish were exposed to these concentrations for two weeks and then RNA was extracted from them. Finally, by using Real time-PCR method, the extracted RNAs were examined and the obtained results were analyzed. The results showed that the lowest drug concentration, which was 0.1 mg / L, had no effect on the expression of the p53 gene, while the other two concentrations, which were 1 and 10 mg / l ibuprofen, respectively, showed a significant difference between Control and sampling contained the drug, as a result of which the P53 gene was widely expressed. Also, for the internal control gene, which was GAPDH, no significant difference was observed between the treatment sample and control at the lowest drug concentration, while In subsequent treatments, a significant difference was observed between the control sample and the treatment.

Summarizing the final results of this study showed that p53 gene expression increased 1.09, 0.57, and 2.2 fold in sample with lowest drug concentration, mean concentration and highest drug concentration, respectively.

Keywords: Ibuprofen, Zebrafish, Real time- PCR, p53