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Study of the effect of hydroalcoholic extract of ginger and lemon juice on IL-6 inflammatory factor in thioacetamide treated male rats

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Abstract

Aim and Background: The characteristic of inflammation in the liver is the invasion of inflammatory cells. These cells, with the secretion of inflammatory cytokines such as IL-6 and the alpha-induced tumor necrosis factor, contribute to the disease and damage to the liver. In this study, the anti-inflammatory effect of ginger and lemon juice on an inflammatory factor of IL-6 in liver toxicity induced by thioacetamide in rats was investigated.

Material and Methods: In order to perform the experiment, 55 mouse with an approximately weight of 250-200 grams collected from Isfahan University were used. The samples were randomly divided into 9 treatment groups, one control group and one thioacetamide control group (positive control) (each group with 5 mice). After treatment, each group received different doses of ginger extract and lemon juice, blood samples were taken from the heart under anesthetized conditions and ELISA technique was used to measure the inflammatory factor of IL-6. Finally, the statistical comparison of mean serum IL-6 levels in different groups was performed using SPSS V.20 software and one-way ANOVA test.

Results: The results showed that consumption of ginger extract and lemon juice significantly decreased serum IL-6 levels. The highest reduction of IL-6 serum levels after thioacetamide treatment was shown in 500 mg/kg ginger and 100% lemon juice combination treatment. This reduction was dose-dependent ($P < 0.001$).

Conclusion: Thioacetamide causes poisoning and ultimately inflammation of the liver. Extract of ginger and lemon juice in combination with ginger and flavonoids that have anti-inflammatory properties can improve liver parameters in liver inflammation. Ginger extract and sour lemon juice have anti-inflammatory properties and can improve liver parameters in liver inflammation and decrease inflammation by decreasing serum levels of IL-6.

Keywords: IL-6 inflammatory factor, Lemon juice, Ginger, Thioacetamide.

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