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Abstract

Sodium Benzoate Affects Hepatic Function in Female Swiss Albino Mice

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Abstract

Background and Aim: Sodium benzoate is a chemical preservative widely used in food, cosmetic, and pharmaceutical industry. The present study investigates the effect of sub-chronic consumption of sodium benzoate on hepatic function in female Swiss mice.

Method: Twenty-four Swiss female mice were randomly divided into four groups of 6 mice each. Control group was given drinking water, and treated groups were given sodium benzoate at doses of 0.1, 0.5 and 1%. After 13 weeks, the mice were sacrificed. blood samples and liver were collected for biochemical and histological studies.

Results: The result showed an increase in bilirubin and alkaline phosphatase levels in mice treated with 0.5 and 1%, as well as increases in transaminases in 0.5 and 1% treated groups. Also, an increase in γ-GT level was noted in mice treated with 1%. Our results show the existence of a positive correlation between Sodium benzoate consumption and the presence of liver oxidative stress-related damage. This correlation was reflected by an increased level of TBARS in the liver in mice treated with 0.1, 0.5 and 1%.

The histological study of the liver reveals hydropic and fatty degeneration, dilatation of the sinusoids and degenerative and necrotic changes with distortion of the hepatic architecture, in the experimental groups treated with 0.5 and 1% sodium benzoate.

Conclusion: The obtained results suggest that beyond the Acceptable Daily Intake (ADI), sodium benzoate has a very important toxic potential on the hepatic function in female Swiss mice.

Keywords: *Sodium benzoate, Subchronic toxicity, Liver function, Oxidative stress*

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