

The Prophylactic Effect of Hydroalcoholic Extract of *Zingiber Officinale* (Ginger) on Ethanol-Induced Reproductive Toxicity in Male Rats

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Abstract

Background: Ginger is a natural dietary component with antioxidant and anti-carcinogenic properties. This study was conducted to evaluate the prophylactic effect of ginger extract on ethanol-induced reproductive toxicity in male rats by measuring the total homocysteine (tHcy), trace elements, antioxidant enzymes activity including glutathione peroxidase, superoxide dismutase (SOD) and catalase, and malondialdehyde (MDA).

Methods: Twenty-eight adult male Sprague–Dawley rats were randomly divided into four experimental groups and treated daily for 28 days as follows: control, control+ginger (1 g/kg of body weight (B.W)/day by gavage), test group (ethanol 4 g/kg of B.W/day by gavage), and treated group (ethanol+ginger). At the end of the experiment, all the rats were sacrificed and their testes were removed and used for the measurement of the above factors.

Results: The results in the test group indicated that ethanol decreased antioxidant enzymes activity and increased MDA and tHcy compared with the control groups ($P<0.05$). In the treated group, ginger extract improved antioxidant enzymes activity and reduced tHcy and MDA level compared with the test group ($P<0.05$).

Conclusion: It can be concluded that ethanol causes oxidative stress in testis and ginger extract improves the trace elements, antioxidant enzymes activity, and decreases tHcy and MDA.

Keywords • Oxidative stress • Ethanol • Testis • Ginger