



Article

Ameliorative Effect of *Artemisia absinthium* Ethanolic Extract Against Sodium Fluoride Toxicity in Rat Testes: Histological and Physiological Study

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Simple Summary: This study examined the ameliorative effect of an ethanolic extract of *Artemisia absinthium* against sodium fluoride toxicity in rat testes through histological and physiological testing. The results showed that the administration of *Artemisia absinthium* confers positive effects on male reproductive function by inhibiting fluoride, maybe via ameliorative testicular function.

Abstract: This study aimed to investigate the effect of *Artemisia absinthium* extract on testicular dysfunction in rats and explain the involvement of the androgen receptor signaling pathway as a biomarker in maintaining fertility during sodium fluoride (NaF) treatment. Thirty-two male rats were divided equally into four groups and received treatment for 60 days. The control group (I) received normal saline; group II received *Artemisia* extract at 100 mg/kg b.w.; group III received NaF at 12 mg/kg b.w. orally; and group IV received NaF (12 mg/kg b.w.) and *Artemisia* extract (100 mg/kg b.w.). The testis weights and the lipid peroxidation, luteinizing hormone (LH), follicle-stimulating hormone (FSH), and testosterone levels were estimated. The genital organs were prepared and immunoreacted with a receptor. Histomorphometric analyses were performed to obtain the diameter of the seminiferous tubules and the height of the germinal epithelia in the testes. The results showed that exposure to NaF caused a significant increase in testis weight and malondialdehyde (MDA) and a decrease in serum LH, FSH, and testosterone concentrations compared to the control group, while extract administration induced an increase in the levels of these hormones in group IV. Testicular histological and histomorphometric changes were observed in group III: degenerative seminiferous tubules with vascular congestion, disorganization of the germinal layer, and decreased seminiferous tubule diameter and germinal epithelium height. The expression of androgen receptors in the testes of the NaF-treated rats was significantly reduced. In contrast, these testicular histological changes were ameliorated in rats treated with the extract. The results allow us to conclude that the administration of *Artemisia absinthium* confers positive effects on male reproductive function by inhibiting fluoride, maybe via ameliorative testicular function.

Keywords: fluoride; *Artemisia absinthium*; rat testis; androgen receptor; antioxidant



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