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Title: Effect of Honey on Testicular Functions in Rats Exposed to Octylphenol

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Abstract: Honey is traditionally consumed by the local Saudian population as a nutrient, as well as for the enhancement of fertility. The decline in male reproductive health and fertility in the last 30 years has been linked to environmental toxicants including octylphenol (OP). OP has been considered an endocrine disrupting substance causing reproductive dysfunction and increase in reactive oxygen species production in different organs including testis and honey has an antioxidant property. The aim of this study was to elucidate the protective effects of honey against reproductive toxicity induced by OP in male Sprague Dawley rats. Six experimental groups receiving a combination of OP (0.1 and 1.0 mg kg⁻¹ b.wt., corresponding to 1/100 and 1/10 LD50) and/or honey (20 mg/kg body weight/day) for 4 weeks were divided as follows: no treatment (control); low dose OP alone (Group A); high dose OP alone (Group B); low dose OP plus honey (Group C); high dose OP plus honey (Group D); and honey alone (Group E). OP caused a significantly decreased the fertility index and weight of testes. It induced testicular lesions characterized by moderate to severe degenerative changes of seminiferous tubules and incomplete arrest of spermatogenesis. Administration of Honey either alone or combined with OP ameliorated these toxic effects. Similarly, histopathological results revealed that OP caused alterations in the testes. In conclusion, Honey reduced the histopathological stress toxicity induced by OP in the reproductive system of male Sprague Dawley rats. A great attention should be taken during field application of octylphenol to avoid its deleterious effects in farm animals and occupationally exposed humans.

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