Testicular dysfunction induced by penconazole fungicide on male albino rats

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Abstract:

Abstract In the present study, penconazole fungicide was examined for its affect on the morphology and function of testes in rats. Male rats were orally administered penconazole at a dose of 50 or 100 mg/kg, three times/week, for 9 months. Testosterone hormone level was measured using enzyme-linked immunosorbent assay (ELISA). Testicles were submitted for histopathological examination using light microscope. Testicles were exposed for more investigation using transmission electron microscope. Quantitative analysis of seminiferous epithelial cycle and Leydig cells were obtained. The results revealed that a significant decrease in testosterone hormone level than the control group. Light microscope examination showed necrotic and degenerative changes in testes at the level of seminiferous tubules. Sertoli, Leydig, and germ cell numbers showed significant depletion. Ultrastructural investigation showed Sertoli and Leydig cells had several morphological alterations. Spermatogonic cells showed multiple features of apoptosis. From the previous findings, we concluded that penconazole fungicide induced structural and functional testicular impairment. The use of penconazole as a fungicide must be restricted and regularly monitored in the environment.

Keywords:


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