Chlorpyrifos Induced Testicular Damage in Rats: Ameliorative Effect of Glutathione Antioxidant

Eman E. Elsharkawy, Doha Yahia, Neveen A. El-Nisr

Abstract:

This study investigated the induction of oxidative stress in the testes of adult rats exposed to chlorpyrifos (CPF). CPF was administered orally, in a dose of 30 mg/kg body weight to male rats for 90 days, twice weekly. Coadministration of water-soluble nonenzymatic antioxidant glutathione (GSH) was performed in a dose of 100 mg/kg body weight, orally, for the same period. Another two groups of male rats were administered GSH and corn oil, respectively. The activities of superoxide dismutase and GSH reductase were decreased while the levels of lipid peroxidation were increased in the testicular tissues of the exposed animals. Testosterone level in the serum was significantly decreased. A decrease in the histochemical determination of testicular alkaline phosphatase was observed in CPF-treated rats. A significant decrease in all stages of spermatogenesis in the seminiferous tubules was recorded in the exposed animals. Coadministration of GSH restored these parameters.

Keywords:

chlorpyrifos; testosterone; alkaline phosphatase; oxidative stress; spermatogenesis

Published In:

Environmental Toxicology, DOI 10.1002/tox.21831.