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The Protective role of resveratrol against sulfoxaflor-induced toxicity in testis of adult male rats

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Published in: *Environmental toxicology*

Impact Factor: 4.11

ISSN: 1522-7278

This work was designed to explore the protective role of resveratrol (RES) against sulfoxaflor (Sulfx)-induced reproductive toxicity in adult male rats. The animals were divided into six groups: Control group, Sulfx treated groups (79.5 and 205 mg/kg /day), RES treated group (20 mg/kg/day), RES + Sulfx treated groups (20 mg /kg Res + 79.5 or 205mg/kg Sulfx) orally for 28 consecutive days. Testicular samples were collected from all groups at the end of the treatment period. Tissue supernatants were isolated for oxidative stress and cellular energy parameters; tissue samples were prepared for histopathological examination. In addition, caspase-3 activity was calculated to assess spermatogenesis. Finally, DNA laddering assay was performed to detect DNA fragmentation as a hallmark of apoptosis.

Our results showed that Sulfx treatment induced a significant increase in testicular levels of MDA, NOx, GSSG and reduced GSH level and cellular energy parameters in a dose-dependent manner compared to the control group. The results were confirmed by histopathological study which showed pathological changes in Sulfx treated groups. A significant increase in caspase 3 and DNA fragmentation was also observed. However, concomitant administration of RES to Sulfx -treated rats showed significant modulation against Sulfx-induced reproductive toxicity and attenuated the biochemical, apoptotic and histopathological changes .

In conclusion, our results suggest that exposure to Sulfx at the two selected doses induces testicular toxicity and these effects can be ameliorated by supplementation of RES.

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