

EFFECT OF DISULFIRAM/COPPER GLUCONATE COMBINATION ON OXIDATIVE STRESS MARKERS IN THE TESTIS OF RATS

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ABSTRACT

This study sought to determine the chronic toxicological effects of the disulfiram/copper gluconate drug combination in rats in a 90 day dose and time dependent study on spermatic parameters. A total of 88 rats weighing between 260-300g were used. The rats were divided into eleven groups consisting of 8 rats each with Groups 1 and 2 serving as control groups. The control groups received normal saline as placebo and 99.5% dimethyl sulfoxide (DMSO) (Solvent control). The drugs were administered as 1/5th, 1/10th and 1/20th of the LD₅₀ of 373mg/kg and 75mg/kg for disulfiram and copper gluconate respectively. Dosing was done daily with that of the combination given 12hours apart. The post mitochondria fraction of the organs of the animal were washed in ice cold 1.15% KCL solution, blotted and weighed and homogenized with 0.1M phosphate buffer (pH 7.2). The organs were blended with laboratory sand (acid washed sand). The resulting homogenate was centrifuged at 2500rpm speed for 15mins and the supernatant was decanted, stored at -20°C and used to assay the following antioxidant enzymes spectrometrically, Superoxide dismutase (SOD), catalase, reduced glutathione(GSH) and malondialdehyde(MDA). The results revealed a decrease in reduced glutathione (GSH), superoxide dismutase(SOD), catalase(CAT) and an increase in malondialdehyde(MDA) levels in the testis of test rats. These results are indicative of the development of oxidative stress.