THE EFFECTS OF COLEMANITE ON TESTICULAR IN RATS

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Borate minerals are one of the most important and strategic minerals for their use as antiknock agents in gasoline, medicine, antiseptic, preservative agent and as a washing cleansing. Borate mine operations are very important to facilitate the development of a predictive capability for the environmental behavior of borate and similar mineral deposits and landfills for future use. Colemanite is one of the most important boron minerals used for production of boric acid. In some studies, it was reported that high dose of boric acid exposure produces testicular lesions in adult rats.The aim of this study is to investigate whether the effect of colemanite on testicular in rats. Sixteen male wistar rats (body weight 200-250 g) were used in the experiments. They were randomly divided into four groups. The first group was used as a control. The other groups were high-dose colemanite, lowdose colemanite, and high boron dose. High-dose colemanite (164.8 mg/kg day), low-dose colemanite (4.12 mg/kg day), and high boron dose (80 mg/kg day) were given through oral gavage once daily for 4 weeks. The control group was given distilled water. The first blood samples were taken before beginning the study and the second samples obtained 4 weeks later. Serum FSH, LH, inhibin B, and SHBG levels were measured by ELISA in all groups. Testis tissues were examined by light microscope. The rat apoptosis RT² profiler PCR array (SA Biosciences TM) was used to evaluate the expression profiles of 84 key genes which are strongly related with programmed cell death. There were no notable changes of seminiferous tubules, basal laminas, and leydig cells of the rats in all groups. There is no significant difference between the values of basal FSH, LH, inhibin B and 4 weeks after colemanite administration. There is also no significant difference apoptotic genes expression levels in testes tissue of rats between groups. This study is found that the colemanite has not formed testicular damage dependent on dose and duration. More comprehensive studies are needed on this subject.

Keywords: boron, reproductive disorders, colemanite miners