

EFFECTS OF ACUTE EXPOSURE TO PARAQUAT ON SPERM STRUCTURE AND FUNCTION IN RATS

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Paraquat, a broad-spectrum plant killer is widely used in Sri Lanka despite its harmful effects on living organisms. The aim of the present study was to investigate effects of Paraquat on epididymal sperm structure and function of male rats. Mature rats (maintained in standard animal house conditions) were gavaged either with 10, 20 & 40 mg /kg body weight of Paraquat (n=10 / group) or with the vehicle (distilled water, n= 10), for 3 successive days. Treated males were paired individuals with pro-oestrous females on day 6 and total sperm counts in epididymis were determined on day 7. Nuclear integrity of sperm DNA and abnormalities in sperm morphology (using separate sperm smears) were determined on the day 7 using Acridine orange test. Pregnant females were laprotomised on day 14 and assessed the pre-implantation loss. Live number of pups and their weights were determined at the end of gestation period. Treatment caused a significant ($P<0.05$) reduction in total epididymal sperm count and sperm motility (reduction was marked in the lowest dose). In addition, results also showed a significant increase in pre implantation loss in all the treated groups. A significant ($P<0.05$) damage to DNA integrity of sperm from caput region of rats treated with 20 mg Paraquat/kg was significant and prominent in all the treatments. Sperm abnormalities were mainly concentrated on sperm tail. The data suggest that low acute concentrations of parquat can affect the sperm structure and function of male rats. Sperm retains in cauda epididymis for at least 7 days in the rat and since the animals were killed on day 7, observed pre-implantation loss possibly may due to any damage mediated through the epididymis. Present study confirms that acute exposure of Paraquat can alter epididymal sperm function of male rats.

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