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Hexavalent chromium induces testicular dysfunction in small Indian mongoose (*Herpestes javanicus*) inhabiting tanneries areas of Kasur District, Pakistan

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Hexavalent chromium (Cr-VI), widely used in tanning industries, is a potent toxic metal whose accumulation in the animal body can adversely affect the reproductive organs. District Kasur, Pakistan, is famous for having tanneries industry where Cr (VI) is directly discharged untreated into the adjoining water nullahs. Resultantly, wildlife species reliant on these water sources are exposed to chromium toxicity, which enters the animal body through drinking water and food chain. The current study investigated toxic effects of Cr (VI) on testicular tissue of adult small Indian mongoose inhabiting the study area from February 2015 to January 2016. Average Cr-concentrations in experimental area soil and water, and the blood and tissue samples of the species were found significantly higher compared to control. Average body and testicular weights of experimental animals were found reduced. Histological analysis revealed seminiferous tubules disorganized in experimental animals, depleted germ cells and hyperplasia of the Leydig cells. Sperm counts were found reduced. Serum testosterone and LH levels were found reduced while FSH levels increased in experimental animals. The study concludes that Cr being discharged from tanneries into the environment is up taken by small Indian mongoose leading to severe testicular tissue damage and potential impairment of reproductive function of the species.

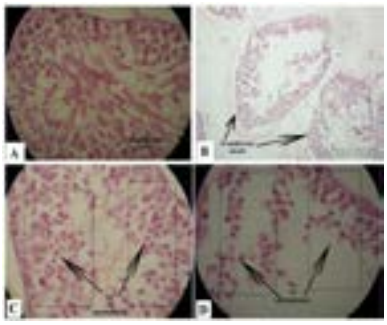

Figure.1: *Photo-micrographs of testicular sections of control (A and C) and chromium effected (B and D) small Indian mongooses from tannery area of Kasur District. Seminiferous tubules (ST), cell contents and round spermatozoa (RS) in control mongooses appear to be normal, while in mongooses from the experimental area seminiferous epithelial cells appear thin, epithelial layer ruptured and cell contents decreased, along with reduction of spermatozoa number in the lumen of ST.*

Biography

Shaista Andleeb is working as a PhD Scholar at the Department of Wildlife Management, Pir Mehr Ali Shah-Arid Agriculture University Rawalpindi, Pakistan. She has secured her MPhil degree from the same department, by conducting research work on the ecology of endangered Indian Pangolin (*Manis crassicaudata*) in the Margallah Hills National Park, Islamabad, Pakistan. Recently, she has been working on the toxic effects of chromium on the reproductive physiology of small Indian mongooses, inhabiting the tannery areas of Kasur District, Pakistan.

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