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Mitigating effect of cow's urine against oxidative stress and acetylcholinestrase in rat brain and blood exposed to Chlorpyrifos

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Humans are exposed to pesticides and insecticides either directly or indirectly. Exposure to these pesticides may lead to acute toxicity to mammals and non-target organisms. Chlorpyrifos (CPF) is a broad spectrum insecticide widely used in various countries of the world. The aim of the present study was to assess the toxicity associated with chlorpyrifos exposure and possible mitigating effect of cow urine against oxidative stress, activity changes in antioxidant enzymes and inhibition in activity of cholinesterase in rat brain and blood induced by chlorpyrifos. For this purpose LD50 was determined and rats were orally administered with 1/8th of LD50 (19 mg/kg b.wt). Brain and blood samples were taken after 24 hrs, 48 hrs and 72 hrs of treatment. A significant decrease in the activity of AcHE, CAT, SOD and GST was observed along with the increase in MDA levels of both brain and blood in chlorpyrifos treated groups as compared to control. Cow urine treated groups show increase in AChE while decrease in MDA level groups as compared to CPF treated group. The study indicates that cow urine has mitigating effect against toxicity induced by CPF. Thus, it can be used as an antioxidant supplement. Cow urine is considered rich in vitamin A, E and volatile fatty acids which provide antioxidant potential to it.

Biography

Sharma S is a research fellow pursuing Doctorate from Guru Nanak Dev University, Amritsar, India. She has specialization in the field of Cytogenetics, which includes genotoxicity and toxicity of pesticides. She has won Young Scientist Award in an international conference.

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