Protective role of black tea and vitamin C during sub-acute toxicity of carbofuran in rats

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ABSTRACT

Purpose: Carbofuran toxicity on rats was studied during sub-acute exposure. This work was undertaken to evaluate the protective effect of aqueous black tea extract and vitamin C against a rat model of oxidative stress induced by treatment with carbofuran, an organocarbamate insecticide.

Materials and methods: The levels of lipid peroxidation, reduced glutathione and ascorbic acid were assessed by determining the extent of oxidative stress in the erythrocytes of rats.

Results: The results clearly demonstrated that the treatment of rats with sub-acute concentration of carbofuran caused significant elevation in the levels of oxidative stress and decrease in the contents of glutathione and ascorbic acid. The introduction of black tea extract and vitamin C augmented the antioxidant defense mechanism in alleviating the carbofuran induced oxidative stress.

Conclusion: The findings that the pretreatment with black tea and vitamin C can mitigate carbofuran induced toxicity lend evidence that supplementation with either black tea extract and/or vitamin C have a therapeutic potential in amelioration of oxidative stress in mammalian systems.

Key words: Carbofuran, erythrocytes, black tea, vitamin C, oxidative stress

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