THE PROTECTIVE EFFECT OF CINNAMON AGAINST MICRONUCLEI

AND OXIDATIVE STRESS IN DIABETIC RATS

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ABSTRACT

This study was designed to evaluate the effect of cinnamon on the levels of micronuclei and antioxidant enzymes in alloxan-induced diabetic rats. Hyperglycemia was induced in rats by a single injection of alloxan at 150 mg/kg body weight intraperitonealy. Twenty four adult male rats were divided equally into four groups: Group I: control; Group II: diabetic rats; Group III: rats treated with cinnamon; Group IV diabetic rats treated with cinnamon. Rats were sacrificed after 2 weeks of cinnamon treatment and samples from bone marrow and liver prepared for the determination of micronucleus and antioxidant enzymes assays, respectively. Antioxidant enzymes such as superoxide dismutase (SOD), glutathione (GSH) and malondialdehyde (MDA) were examined.

In rats bone marrow cells, no significant increases of the frequencies of cells with micronuclei were observed at dose of 150 mg alloxan/kg b. w. Combined treatment with alloxan and cinnamon failed to induce micronuclei in bone marrow cells.

In the present work, antioxidant parameters, superoxide dismutase and malondialdehyde were significantly increased in the liver tissue with a concomitant decrease in GSH in diabetic group. Treatment with cinnamon restored the activities of antioxidant enzymes of the diabetic rats. The present investigation suggest that cinnamon has a protective effect on the bone marrow and liver cells in experimental diabetes mellitus.

KEYWORDS: Alloxan (All), Cinnamon, Micronuclei (MN), Super Oxide Dismutase (SOD), Glutathione (GSH), Malondialdehyde (MDA)