

Effect of Aqueous Extract of Mangrove Leaves (Avicennia marina) on Antioxidant Enzyme Activities of Ovarian Tissue in Diabetic Rats

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Abstract

Background & Aim: Diabetes mellitus increases oxidative stress and result in weakening of the antioxidant defense system. Leaves of mangrove (*Avicennia marina*) are rich in antioxidant compounds which have been less studied. This study was conducted to determine the effect of aqueous extract of mangrove leaves (*Avicennia marina*) on antioxidant enzyme activities of ovarian tissue in diabetic rats.

Methods: 32 female Wistar rats were divided into equal groups (n=8) of control, diabetic non-treated, and diabetic treated with 100 and 200 mg/kg of aqueous extract of mangrove leaves. Diabetes was induced in the diabetic non-treated group and diabetic treated groups with mangrove extract using an intraperitoneal (IP) injection of alloxan. Estrous cycle in rats was made identical by sex hormones. Aqueous extract of mangrove leaves injected into diabetic groups undergoing treatment every other day for one month. Saline solution was injected into the animals of control and non-treated diabetic groups. At the end of the treatment, antioxidant enzymes activity of ovarian tissue was measured.

Results: Dose-dependent administration of aqueous extract of mangrove leaves with concentrations of 100 and 200 mg/kg to diabetic rats significantly increased enzymes activity of superoxide dismutase, glutathione peroxidase and catalase, while significantly decreased malondialdehyde compared to the non-treated diabetic group ($p<0.05$).

Conclusion: The results show the dose-dependent effect of *Avicennia marina* in increase of the activity of antioxidant enzymes and decrease of the lipid peroxidation in diabetic rat's ovarian tissue.

Keywords: Diabetes, *Avicennia marina*, Ovary, Antioxidant enzymes, Rat