

Renoprotective effect of *Chlorella pyrenoidosa* a microalgae in streptozotocin induced diabetic rats exposed to cadmium

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Our aim was to investigate the renoprotective effect of *Chlorella pyrenoidosa* microalgae in Streptozotocin induced diabetic rats exposed to cadmium. Rats were divided into four groups. Group 1 and 2 were control rats, group 2 received *C.pyrenoidosa* (100mg/kg body weight p.o) every day, rats in groups 3 & 4 rats received single injection of streptozotocin (40mg/kg bw) and cadmium (0.6mg/kg bw) as cadmium chloride on alternate days for a total period of 90 days. In addition, group 4 rats were given *C.pyrenoidosa* as in group 2. At the end of 90 days tissue oxidative stress was assessed by measuring the formation of thiobarbituric acid reactive substances (TBARS), lipid hydroperoxides (LOOH) and conjugated dienes (CD), and the antioxidant status by measuring superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPX), glutathione-S-transferase (GST), glutathione reductase (GR), reduced glutathione (GSH). Vitamins C and E concentrations. In addition immunohistochemical analysis was performed to study the expression of transforming growth factor beta 1 as a marker of fibrosis and inflammation. Increased lipid peroxidation markers and decreased antioxidant were observed in unsupplemented STZ AND Cd treated rats as compared to control rats. STZ and Cd treated rats supplemented with *C.pyrenoidosa* showed a significant alteration in the oxidative stress markers favouring renoprotection. Decreased expression of TGF- β in chlorella supplemented diabetic rats as compared to unsupplemented diabetic rats substantiates its beneficial effect. The results of our study suggest the *C.pyrenoidosa* could be a promising candidate for the prevention of diabetic nephropathy.

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