

Protective Effect of Thymoquinone against Nephrotoxicity Induced by Cadmium in Rats

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Abstract : The present study investigated the protective effect of thymoquinone (TQ), against cadmium-induced kidney injury in rats. Cadmium chloride (1.2 mg Cd/kg/day, s.c.), was given for nine weeks. TQ treatment (40 mg/kg/day, p.o.) started on the same day of cadmium administration and continued for nine weeks. TQ significantly decreased serum creatinine, renal malondialdehyde and nitric oxide, and significantly increased renal reduced glutathione in rats received cadmium. Histopathological examination showed that TQ markedly minimized renal tissue damage induced by cadmium. Immunohistochemical analysis revealed that TQ markedly decreased the cadmium-induced expression of inducible nitric oxide synthase, tumor necrosis factor- α , cyclooxygenase-2, and caspase-3 in renal tissue. It was concluded that TQ significantly protected against cadmium nephrotoxicity in rats, through its antioxidant, antiinflammatory, and antiapoptotic actions.

Keywords : thymoquinone, cadmium, kidney, rats

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