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The present investigation was planned to evaluate the nephroprotective activity of jaggery against acetaminophen (APAP)-induced renal damage in rats. The protective activity of jaggery at different doses (250, 500, and 750 mg/kg, orally) was evaluated against oxidative damage induced by APAP administration (2 g/kg, once orally in acute exposure; 20 mg/kg, orally for 21 days in subchronic exposure) in rats. APAP administration significantly increased the levels of serum urea, creatinine, and renal lipid peroxidation (LPO), whereas substantial decreases were observed in levels of glutathione (GSH), adenosine triphosphatase (ATPase), superoxide dismutase (SOD), catalase (CAT), glutathione reductase (GR), and glutathione peroxidase (GPx) enzymatic activities after APAP administration. Administration of jaggery significantly moved the studied parameters toward normal levels and also reversed the histopathologic alterations. Thus, jaggery can be used to reduce renal damage and may serve as an alternative medicine in the treatment of renal etiologies.

Keyword: acetaminophen, antioxidant status, histopathology, jaggery, nephroprotective apoptosis, reactive oxygen species