

Original Paper

Protective effect of *Carthamus tinctorius L.* extract on acetaminophen induced nephrotoxicity in mice

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Abstract

Background and Objective: Acetaminophen is a commonly used analgesic and antipyretic agent which, in high doses, causes liver and kidney necrosis in man and animals. *Carthamus tinctorius L.* (Safflower) is a colorful and cheap plant that used often instead of saffron. In this study, protective effects of *Carthamus tinctorius L.* aqueous extract on acetaminophen induced nephrotoxicity in mice were investigated.

Methods: In this experimental study, forty adult NMRI male mice were randomly divided into five groups. Group 1 (control group) received normal saline for 15 days. Group 2 received 300 mg/kg *Carthamus tinctorius L.* extract for 15 days. Group 3 received normal saline for 15 days and 500 mg/kg acetaminophen was given in 15th day. Groups 4 and 5 received daily 150 and 300 mg/kg *Carthamus tinctorius L.* extract for 15 days, respectively, and acetaminophen was also given in 15th day. In 16th day, blood samples were taken for BUN (Blood Urea Nitrogen), Cr (Creatinine) and Uric acid tests, and the mice kidneys were removed for histopathology assessments.

Results: Acute renal necrosis and BUN, Cr and Uric acid levels were significantly increased in acetaminophen treated mice ($P < 0.05$). BUN, Cr and Uric acid levels were significantly reduced in the *Carthamus tinctorius L.* treated groups in comparison to acetaminophen group ($P < 0.05$) and this reduction was greater in group 5. *Carthamus tinctorius L.* extract also reduced tubular necrosis-induced by acetaminophen.

Conclusion: *Carthamus tinctorius L.* extract have protective effects on acute renal injury induced by acetaminophen.

Keywords: Acetaminophen, Renal necrosis, *Carthamus tinctorius L.*, Mouse

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