

Antioxydant Properties and Gastroprotective Effect of Rosa canina Aqueous Extract against Alcohol-Induced Ulceration and Oxidative Stress in Rat Model

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Abstract : We aimed in the present study to investigate the protective effects of Tunisian Rosa canina aqueous extract (RCAE) against ethanol-induced gastric ulceration and oxidative stress in a rat model. In this respect, adult male Wistar rats were used and divided into six groups of ten each: control, EtOH, EtOH plus various doses of RCAE, EtOH plus famotidine and EtOH + gallic acid. Phytochemical and biochemical analysis were performed using colorimetric methods. We found that RCAE is rich in total polyphenols, total flavonoids, and condensed tannins, and exhibited an importance in vitro antioxidant activity on 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical. In vivo, the results showed that oral administration of EtOH caused macroscopic and histological changes in gastric mucosa. These injuries are accompanied by an oxidative stress status as assessed by an increase of lipid peroxidation as well as a decrease of antioxidant enzyme activities such as superoxide dismutase (SOD), catalase (CAT) and glutathione peroxidase (GPx). Alcohol intoxication also induced intracellular mediators deregulation as assessed by an increase of hydrogen peroxide (H₂O₂), calcium and free iron levels in gastric mucosa. More, importantly, RCAE pretreatment reversed all macroscopic, histological and biochemical changes induced by EtOH administration. In conclusion, we suggest that RCAE has potent protective effects on acute ethanol-induced gastric ulceration related in part in part its antioxidant properties and its opposite effect on intracellular mediators. Indeed, Rosa canina can be offered as a food additive to protect against alcohol consumption-induced gastric and oxidative damage.

Keywords : alcohol, antioxidant properties, food additive, gastric ulceration, rat model, Rosa canina

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