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Evaluation of Protective Effect on Liver and Kidney of Gamma-Irradiated Purslane (*Portulaca oleracea*) against Paracetamol-Induced Toxicity in Rats

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The present study was aimed to evaluate the effect of using gamma (gamma)-radiation on the active contents of dried purslane and also to assess the effect of gamma-irradiated purslane against paracetamol-induced liver and kidney toxicity in rats. The results indicated that gamma-irradiation (10kGy) induced fluctuating change in the value of phenolic fractions with significant increase in the level of total phenolic and total flavonoids of purslane dried powder. Exposure of rats to over dose of paracetamol (PC) (2 g/kg b. wt. /day/15 days) resulted in significant hepato-nephrotoxicity evidenced by elevation of the activity of some liver enzymes, kidney function, inflammatory factors and lipid oxidation with inhibition of antioxidant status when compared to control group. By contrast, Co-administration of PC with either raw (RPP) or gamma-irradiated purslane powder (GPP) (50mg/kg/day/15 days) reduced the activity of liver enzymes, urea and creatinine levels, serum tumor necrotic factor-alpha (TNF-a), interleukin-6 (IL-6), level of malondialdehyde and activity of xanthine oxidase (XO) accompanied by significant elevation in the activities of xanthine dehydrogenase (XDH), superoxide dismutase (SOD) and catalase (CAT) and glutathione content (GSH) relative to PC-intoxicated rats. In conclusion, the results indicated that gamma-radiation food processing can be used as effective technique that can increased the active contents of purslane. Also, the results revealed that the protective effects of GPP against PC-induced hepato-nephrotoxicity may be related to its antioxidant properties.

Keywords: Paracetamol; Gamma-radiation; Purslane; Antioxidants