

عنوان مقاله:

Anti-oxidant and anti-inflammatory potential of aqueous extracts of leaves, barks and roots of Bixa orellana L. (Bixaceae) on acetaminophen-induced liver damage in mice

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خلاصه مقاله:

Objective: Bixa orellana is a plant from the Bixaceae family, for which, limited information is available on hepatoprotective properties. This study aimed at evaluating the protective effects of this plant on sub-acute acetaminophen (APAP)-induced liver injury in mice. Materials and Methods: Various aqueous extracts were prepared from roots, leaves, and barks. Albino mice were divided into six groups: a control group, an APAP group; a silymarin group (positive control) and three test groups. Mice were treated orally with APAP (250 mg/kg) followed 3 hr later by plant extracts, silymarin (50 mg/kg) or distilled water (10 ml/kg) administration once daily, for seven days. After treatment, animals were sacrificed, the liver was collected and different biochemical parameters were measured. Histological analyses were performed using hematoxylin/eosin staining and the qualitative phytochemical content of plant extracts was evaluated using conventional methods. Results: Administration of B. orellana barks decoction (250 mg/kg) significantly reduced alanine aminotransferase levels (p<0.001), unlike leaves and roots extracts. Moreover, the bark infusion had the highest activity compared to macerate and decoction. It significantly reduced malondialdehyde levels (p<0.001) and increased the levels of glutathione, superoxide dismutase and catalase, at doses of 250 and 500 mg/kg compared to the APAP group. A significant (p<0.001) decrease of tumor necrosis factorα levels and leukocyte infiltration was found following treatment with bark infusion. The infusion content evaluation revealed the presence of polyphenols, saponins, tannins, sterols, anthraquinones, and coumarins and the absence of alkaloids. Conclusion: These results show that infusion from B. orellana barks is hepatoprotective against APAP-.induced toxicity via antioxidant and anti-inflammatory mechanisms

کلمات کلیدی:

Bixaceae, Anti-inflammatory agents, Antioxidant, Mice, Liver

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