

Hepatoprotective Evaluation of Potent Antioxidant Fraction from *Urtica dioica* L.: In vitro and In vivo Studies

Authors : Bhuwan C. Joshi, Atish Prakash, Ajudhia N. Kalia

Abstract : Ethnopharmacological relevance: The plant *Urtica dioica* L. (Urticaceae) is used in various diseases including hepatic ailments. Traditionally, the leaves and roots of the plant are used in jaundice. Objective: The aim of the present work was to evaluate hepatoprotective potential of potent antioxidant from *Urtica dioica* L. against CCl₄ induced hepatotoxicity in-vitro and in-vivo model. Materials and methods: Antioxidant activity of hydro alcoholic extract and its fractions petroleum ether fraction (PEF), ethyl acetate fraction (EAF), n-butanol fraction (NBF) and aqueous fraction (AF) were determined by DPPH radicals scavenging assay. Fractions were subjected to in-vitro cell line study. Further, the most potent fraction (EAF) was subjected to in-vivo study. The in-vivo hepatoprotective active fraction was chromatographed on silica column to isolate the bioactive constituent(s). Structure elucidation was done by using various spectrophotometric techniques like UV, IR, ¹H NMR, ¹³C NMR and MS spectroscopy. Results and conclusion: The ethyl acetate fraction (EAF) of *Urtica dioica* L. possessed the potent antioxidant activity viz. DPPH (IC₅₀ 78.99 ± 0.17 µg/ml). The in-vitro cell line study showed EAF prevented the cell damage. The EAF significantly attenuated the increased liver enzymes activities in serum and tissue. Column chromatography of most potent antioxidant fraction (EAF) leads to the isolation of 4-hydroxy-3-methoxy cinnamic acid which is responsible for its hepatoprotective potential. Hence, the present study suggests that EAF has significant antioxidant and hepatoprotective potential on CCl₄ induced hepatotoxicity in-vitro and in-vivo.

Keywords : *Urtica dioica* L., antioxidant, HepG2 cell line, hepatoprotective

Conference Title : ICPPNP 2016 : International Conference on Pharmacognosy, Phytochemistry and Natural Products

Conference Location : London, United Kingdom

Conference Dates : September 29-30, 2016