



Hepatoprotective, Therapeutic and *in vivo* anti-oxidant activities of *Tagetes lucida* leaves alcoholic extract against paracetamol-induced hepatotoxicity rats

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Abstract : Objective: Current study was carried out to evaluate the potential therapeutic, hepatoprotective and antioxidant effect of *Tagetes lucida* leaves alcoholic 70% extract using paracetamol-induced liver injury Wistar albino rats.

Methods: Over seven days therapeutic, hepatoprotective and antioxidant effect of *T. lucida* extract at dose 500 mg/kg was tested on Wistar albino rats after or before paracetamol force fed, compared with recommended dose of silymarin standard drug. *T. lucida* hepatoprotective effect evaluated by recommended standard drug; silymarin at recommended dose (25 mg/kg/day).

Results: Force feeding with single dose of paracetamol (800 mg/kg) after or before extract caused liver disorders represented as an elevation on AST and ALT activities and lipid peroxidation. On the other hand, paracetamol decreased all antioxidant defense system; reduced L. glutathione (GSH), glutathione reductase (GR), glutathione -S- transferase (GST), glutathione peroxidase (GPx), superoxide dismutase (SOD) and catalase (CAT) of rats compared to normal levels. Administration *T. lucida* extract after or before paracetamol significantly reduced liver enzymes activities; AST and ALT as well as lipid peroxidation with respect of normal status. As well as, Antioxidants defense non-enzymatic (GSH) or enzymatic; GR, GST, GPx, CAT and SOD activities were significantly improved compared with paracetamol controls. *T. lucida* extract caused protective effect like that of silymarin effect. *T. lucida* extract improved liver histology and reduced interstitial hemorrhage and hyaline degeneration of hepatocytes in damaged liver tissue by paracetamol.

Conclusion: *T. lucida* leaves alcoholic extract has a hepatoprotective, therapeutic and antioxidants characters against paracetamol-induced hepatotoxicity with a good safety margin. The possible mechanisms of therapeutic and hepatoprotective properties of *T. lucida* leaves extract are; inhibition of lipid peroxidation, amelioration oxidative stress and increase of enzymatic defense system. This *T. lucida* extract action is evidently originating from relatively high contents of polyphenolic and flavonoids.

Key words: Hepatoprotective, Therapeutic, Antioxidant, *Tagetes lucida* leaves alcoholic extract, Paracetamol, liver functions, histopathology.