



Comparison of protective effect of *Berberis Vulgaris* and *Citrullus colocynthis* hydroalcoholic extracts on serum level of ALP in rats with liver injury induced by Lipopolysaccharide

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Abstracts

Background and Objective: Alkaline Phosphatase (ALP) is a metalloenzyme that belongs to a family of ectonucleotidases. Abnormal levels of alkaline phosphatase in the blood could indicate issues relating to the liver and this mean increasing ALP in blood can show liver injuries. Lipopolysaccharide (LPS) is the predominant component of the Gram-negative cell wall and it has been proved that LPS can induce liver injuries. Additionally it has been proved that *Berberis Vulgaris* aqueous extract and *Citrullus Colocynthis* seeds extract have protective effect on liver. The aim of this study is to investigate the protective efficacy of *Berberis Vulgaris* hydroalcoholic extract and *Citrullus Colocynthis* seeds hydroalcoholic extract on liver and to compare them by measuring serum ALP in rats with liver injury induced by LPS.

Materials and Methods: In this experimental study, 48 Wistar rats were selected and allocated randomly to six equal groups: 1-Control, 2-Control groups receiving *Berberis Vulgaris* hydroalcoholic extracts(BV), 3-Control group receiving *Citrullus Colocynthis* hydroalcoholic extracts(CC), 4-LPS group, 5-LPS groups receiving *Berberis Vulgaris* hydroalcoholic extracts(LPS+BV), 6-LPS group receiving *Citrullus Colocynthis* hydroalcoholic extracts(LPS+CC). In the groups received the extracts(2,3,5,6), 200 mg/kg of the extracts was injected intraperitoneally daily from a week before the LPS injection. In the last day, an hour after injection of the extracts 5 mg/kg LPS was injected intraperitoneally to LPS groups(4,5,6) in order to induce liver injury. After six hours, ALP level was measured by a kit of DGKC. The comparison of the results was done by one-way ANOVA and also in order to analyse the data SPSS16 was used. A p value < 0.05 was set as significant.

Results: The comparison of the obtained data showed that The level of ALP in the LPS group significantly increased compared with control group(p<0.001). The level



of ALP also increased in LPS+BV group compared with BV group($p<0.05$) and in LPS+CC group compared with CC group($p<0.05$). Whereas the level of ALP decreased in LPS+BV group and LPS+CC group compared with LPS group($p<0.05$). However no significant changes were observed in the level of ALP between LPS+BV group and LPS+CC group.

Conclusion: our study shows that *Berberis Vulgaris* and *Citrullus colocynthis* hydroalcoholic extracts both have protective effect on serum level of ALP in liver injury induced by LPS. The protective effect of *Berberis Vulgaris* hydroalcoholic extracts is almost as same as *Citrullus colocynthis* hydroalcoholic extracts but it seems that *Berberis Vulgaris* hydroalcoholic extract is a little more effective.

Keywords

Alkaline Phosphatase , Lipopolysaccharide , Hydroalcoholic extracts, Berberis Vulgaris , Citrullus colocynthis

