Original Paper

Protective effect of hydro-alcoholic extract of *Aloe Vera* gel on enzymes and liver tissue structure of high-fat diet rats

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Abstract

Background and Objective: *Aloe Vera* is considered as one of herbs causes oxidative indexes modification due to antioxidant properties. On the other hands, High-fat diets (HFD) cause liver disorders prevalence. This study was done to evaluate the protective effect of hydro-alcoholic extract of *Aloe Vera* gel on enzymes and liver tissue structure of high-fat diet rats.

Methods: In this experimental study, 40 adult male rats were allocated in five groups including control, sham (HFD 10 ml/kg) and three experimental groups receiving HFD with doses of 150, 300 and 600 mg/kg/bw of *Aloe Vera* gel extract. Prescriptions were conducted by gavage and for 60 days. Blood samples were collected to measure AST, ALT and ALP enzymes. Liver removed subsequently and following preparing tissue sections liver cells were counted.

Results: High-fat diet significantly increased ALP and ALT enzymes ($P<0.05$). High-fat diet significantly increased the number of Kupffer cells and reduced of hepatocytes in compared to control group ($P<0.05$). High-fat diet caused liver tissue alterations including blood congestion, inflmation; Vacuole breakdown, apoptosis, and ballooning of hepatocytes. On the other hand, the consumption of *Aloe Vera* with high-fat diet caused reduction in tissue changes and a significant decrease in the serum levels of ALP and ALT enzymes in compared to control group ($P<0.05$).

Conclusion: High-fat diet by damaging the liver tissue increased the serum levels of ALP and ALT enzymes and *Aloe Vera* extract with its anti-oxidant characteristic prevent the effect of a high-fat diet on the liver tissue and reduced the ALP and ALT enzymes.

Keywords: *Aloe Vera*, Kupffer, Hepatocyte, Liver, ALT, AST, ALP, High-fat diet

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