Effect of Trachyspermum ammi hydroalcoholic extract on serum ALT enzyme activity in hypercholesterolemic rats

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Abstracts

Background and Objective: Hypercholesterolemia which is defined as high fat in blood is a widespread problem among communities today. Lots of middle-aged people with low-activity jobs get involved with hypercholesterolemia and its disorders such as atherosclerosis, diabetes, and steatohepatitis followed by increase in hepatic enzymes. Alanine transaminase (ALT) is a hepatic enzyme that rises in the serum following blood fat increase. Due to the catastrophic consequences of chemical drugs and tendency in the community to herbal medication and the traditional medicine suggesting positive effects for Trachyspermum ammi on treating hypercholesterolemia, this study was designed to investigate the effects of Trachyspermum ammi on ALT activity in serum of rats suffering from hypercholesterolemia.

Materials and Methods: In current study, adult male Wistar rats (150-170 g; n = 28) were randomly allocated to 4 groups. 1- Control group, 2- Trachyspermum ammi-treated control group, 3- Hypercholesterolemia group, 4- Trachyspermum ammi-treated hypercholesterolemia group. For 8 weeks groups 3 and 4 were fed with high fat diet (1% cholesterol and 2% triglyceride) though the groups 1 and 2 were fed with normal diet. Afterwards, the 1st and the 3rd groups kept on getting fed as usual. However, the 2nd and 4th groups were treated with 100mg/kg hydro alcoholic extract of aboveground parts of Trachyspermum ammi by intraperitoneal injection for 3 weeks. Finally eye blood was collected and after serum sample centrifuge, ALT activity was measured and the data was analyzed utilizing ANOVA method.

Results: Findings indicated that administration of *Trachyspermum ammi* hydroalcoholic extract to *Trachyspermum ammi*-treated control group caused significant reduction and prominent change in serum ALT activity in comparison with the control group. Rats fed with the high fat diet showed significant increase in ALT activity compared to the control group ($p<0.01$). Administration of the extract

to the high fat group caused meaningful decrease in ALT activity in comparison to the group with the high fat diet ($p<0.05$).

Conclusion: Due to the hypolipidemic capacity of the *Trachyspermum ammi* extract and its effect on reducing hepatic enzymes, extract of this plant can be a good suggestion in order to improve the liver function.

Keywords

Trachyspermum ammi, Hyperlipidemia, Alanine transaminase (ALT), Rats