

The Effect of Hydroalcoholic Extract of *Pimpinella anisum* Seed on the Level of Alkaline phosphatase (ALP) in Serum of Hypercholesterolemic Rats

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Abstracts

Background and Objectives: Hypercholesterolemia is one of the most common problems of modern societies. Its long-term impacts causes many problems including narrowing and blockage of blood vessels, especially the heart, atherosclerosis, fatty liver, elevated liver enzymes. Alkaline phosphatase level increases after eating fatty foods. *Pimpinella anisum* has antimicrobial, sedative, analgesic, properties that its liver fat burning is emphasized. Because achieving to drugs with better effects and less side effects, especially with plant origin is the goal of many researchers, we decided to investigate the effect of *Pimpinella anisum* seed extract on the level of ALP enzyme in serum of hypercholesteromic rats.

Materials and Methods: In this study, 28 adult male Wistar rats weighing 150-170 g were randomly assigned into 4 groups (n = 7 per group). The control group, the control group treated with *Pimpinella anisum*, rats with hypercholesterolemia, and rats with hypercholesterolemia treated with *Pimpinella anisum*. The first and second groups was given normal diet for 8 weeks and during this time the high-fat diet containing 1% cholesterol and 2% triglyceride was given to the third and fourth groups. After that, feeding of the first and third groups continued like before, and the second and fourth groups were injected with the extract at a dose of 250 mg/kg intraperitoneally for 3 weeks. At the end, blood samples were centrifuged and serum samples were taken from the rats.

Results: Findings showed that the administration of extract to control group did not significantly change ALP level in the serum as compared with the control group. Rats with high-fat diet significantly showed increased ALP level compared with the control group. Extract administered to groups of high-fat diet led to a significant reduction in ALP level compared with the group receiving the high-fat diet.

Conclusion: *Pimpinella anisum* hydroalcoholic extract reduces serum ALP level in the group that received high-fat diet and lowered liver enzyme activity. So, this extract can be recommended to improve liver function in patients with hypercholesterolemia.

Keywords

Pimpinella anisum, Hypercholesterolemia, Alkaline phosphates (ALP), Rat