The Effect of Hydroalcoholic Extract of the Aerial Parts of Ruta graveolens on the Level of Alkaline Phosphatase in Serum of Rats on a High-cholesterol Diet

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Abstracts

Background and Objective: Hypercholesterolemia is one of the common problems of modern societies. Most of middle-aged people who have sedentary works have hypercholesterolemia and it`s complications like atherosclerosis, diabetes and fatty liver disease, followed by elevated liver enzymes. Alkaline phosphatase is a liver enzyme that increases in serum after rise of fat in the blood. According to the inevitable side effects of chemical drugs and traditional medicine recommendations regarding the benefits of *Ruta graveolens* in the treatment of hypercholesterolemia, in the present study the effect of R. graveolens on the serum ALP enzyme level in rats with hypercholesterolemia has been studied. Methods: 28 adult male wistar rats weighting (150-170 g) were divided randomly into 4 groups. The control group (A), The control group treated with R. graveolens (B), rats with hypercholesterolemia (C) and rats with hypercholesterolemia treated with R. graveolense (D). Groups C and D fed a hypercholesterolemic diet (1% cholesterol and 2% triglyceride) for 8 weeks. Group A and B fed normal diet. After that, the diet of group A and B was followed like before and groups B and D received hydroalcoholic extract of aerial parts of R. graveolens (100 mg/kg) for 3 weeks intraperitonealy. At the end, ALP level was measured. Results: Findings showed that rats receiving high-fat diet had a significant increase in ALP enzyme level compared with the control group (P<0.01). Extract administered to groups of high-fat diet led to a significant reduction in alkaline phosphatase enzyme level compared to the group receiving the high-fat diet (P<0.05). Hydroalcoholic extract of R. graveolens administered to the control group treated with R. graveolens did not cause a significant change in ALP level compared to the control group. Conclusion: It appears that R. graveolens extract is able to decrease the

level of serum ALP in the group receiving high-fat diet. So, this extract can be recommended to improve liver function in patients with hypercholesterolemia.

Keywords

Ruta graveolens, Hypercholesterolemia, Alkaline phosphates (ALP)