



Effect of Flaxseed on Lipid Profile, Antioxidants and PPAR- α Gene Expression in Rabbit Fed Hypercholesterolemic Diet

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Abstract:

Background and Objective: The molecular explanation of hypocholesterolemic effect of flaxseed is not enough and needed further investigations. Therefore, the current study aimed to investigate its effect on lipid profile, antioxidants and peroxisome proliferator activated receptor alpha (PPAR- α) gene expression in hypercholesterolemic rabbits. **Materials and Methods:** One hundred rabbits were divided into 4 equal groups. Rabbits in the first group fed basal diet only and served as negative control. Rabbits in the second group fed basal diet mixed with 1% cholesterol and served as positive control. Rabbits in the third group fed basal diet mixed with 10% full fat flaxseed. Rabbits in the fourth group received a combination of second and third groups. Beside the estimated growth performance parameters, blood, liver and aorta samples were collected from each group at the end of the experiment (8 weeks) for determination of serum lipid profile, serum and hepatic oxidative stress bio-markers, gene expression of hepatic PPAR- α and histopathology of liver and aorta. **Results:** Flaxseed improved the disrupted growth performance parameters and histopathology picture of rabbits fed high cholesterol diet. Flaxseed induced significant decrease in the levels of total cholesterol (TC), triacylglycerol (TAG), low-density lipoprotein cholesterol (LDL-C) and expression of PPAR- α gene and antioxidant biomarkers in rabbits fed high cholesterol diet. **Conclusion:** These results suggested that the studied dose of flaxseed might be a potential protective therapy against hypercholesterolemia in rabbits.

Keywords:

Flaxseed, PPAR- α gene, hypercholesterolemia, cholesterol diet, basal diet

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