Diet-induced Dyslipidemia Improved by Saffron Stigmas in Obese Rats

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Background: Obesity is one of common diseases worldwide and increases adverse cardiac events. The aim of the present study was to investigate the protective effects of saffron stigmas on dyslipidemia induced by high fat diet in rats.

Methods and materials: In present research, 25 male *Wistar Albino* rats were purchased from animal house of Birjand University of Medical Sciences (5 rats per each cage). One group received normal food and others high fat diet (100 gr normal food + 100 gr sugar + 200 gr corn oil) for 8 weeks. Then two groups of rats were gavaged with saffron stigmas (40 and 80 mg/Kg) daily for 3 weeks. End of study the blood samples were collected from heart of rats in sterile vial without anticoagulant for serum separation. Sera samples were analyzed for biochemical parameters such as total cholesterol (TC), total triglyceride (TG), low density lipoprotein (LDL), high density lipoprotein (HDL), and adiponectin using standard commercial kits.

Results: the serum level of HDL-C and adiponectin significantly decreased in obese rats while the serum levels of TC, TG and LDL-C increased ($p<0.05$). After treating obese rats by saffron stigmas (80 mg/kg) HDL-C serum levels 58 ±3.2 and adiponectin 95 ± 3.6 increased while TC, TG and LDL-C decreased (95 ±11, 105 ±11.2, 30 ±2 respectively).

Discussion and conclusion: Our results showed saffron stigmas modulated serum TC, TG, LDL, HDL and adiponectin levels in high-fat diet-induced obesity. The stigmas with dose 80 mg/kg showed more effective impact on lipid profile. On the other hand adiponectin is a cardio-protective hormone. In conclusion, saffron stigmas may consider as a novel therapy for obesity and cardiac diseases.

Keywords: Obesity, Saffron Stigma, Dyslipidemia, *In vivo*