The effect of intraperitoneal injection of *Salvia sclarea* L. on serum glucose, triglyceride and cholesterol parameters in male Wistar rats

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Abstract

Background and Purpose: Essential oils derived from plants represent a significant category of botanical products that are extensively utilized in contemporary medicine for the treatment of various ailments. The sage species known scientifically as *Salvia sclarea* L., which is a member of the Lamiaceae family, has its essential oil recognized for its crucial role in the regulation of biochemical parameters in the blood, including glucose, triglycerides, and cholesterol levels. Therefore, a comprehensive and scientific assessment of the effects associated with this medicinal plant is of great importance. This study aims to explore the impact of essential oil extracted from the leaves and flowers of *Salvia sclarea* L. on serum levels of glucose, cholesterol, and triglycerides in male Wistar rats.

Materials and Methods: In this research, 72 male Wistar rats were divided into four experimental groups. The plant essential oil was injected intraperitoneally. The injection amount was calculated 307 mg/kg based on the LD50 dose. At the end of each week, blood samples from the control and treatment groups were drawn from six rats. The collected blood samples were taken to the pathobiology laboratory for biochemical tests including glucose, triglyceride and cholesterol measurements.

Results: According to the results of blood glucose measurement, a significant difference was observed between the control group with dose 1 in the second and third week. In the first week, a significant difference was seen between the control group and dose 2. Moreover, biochemical parameters of Wistar rat blood (glucose, triglyceride, cholesterol) were altered and decreased due to intraperitoneal injection of *Salvia sclarea* L. plant essence.

Conclusion: The results showed that the essential oil of *Salvia sclarea* L. native to Semnan province reduces blood cholesterol levels. It can be used as an effective treatment for high cholesterol-related diseases. This essential oil works by preventing LDL oxidation and reducing endothelial damage, with positive effects on ameliorating arteriosclerosis.

Keywords: Cholesterol; Triglycerides; Glucose; Volatile oils; LDL Cholesterol

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