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HISTOLOGICAL AND BIOCHEMICAL CHANGES IN KIDNEY OF RATS INDUCED BY *SALVIA OFFICINALIS* L.

Hawraa H. Naji[1], Mays Uday Hashim[1], H. H. Nahi[2] and M. D. Sabreen

[1]Department of physiology, biochemical and pharmacy, Veterinary Medicine College, University ofAl- Qasim Green, Iraq
[2]Department of Surgical and Obstetric, Veterinary Medicine College, University ofAl- Qasim Green, Iraq
e-mail : hawraa.alsultany83@gmail.com, maysudayhashim@gmail.com, husseinhadi815@gmail.com

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ABSTRACT : The current study was conducted to investigate the physiological-protective effect of sage tea (*Salvia officinalis* L.) by their roles in controlling on lipid profile in laboratory male rats. In this study, 60 albino male laboratory rats (100-160 g) and aged (4-7 weeks) were used. The animals were randomly divided into three main groups (six rats per group) according to the experimental design of the study, the first group fed on a standard diet was considered as a control group and the group that fed on atherogenic diet for 28 days as a second group (A). While, the other group(B) (including sub groups), fed previously on atherogenic diet for 28 days were given orally administrated as following: The third group (B) include sub-groups (B1) and (B2) were given sage tea (*S. officinalis*) (0.086 mg/kg body weight) for 14 and 28 days respectively, The current study included the measurement of variations in body weight,andboth kidney function parameters (creatinine and urea) in serum. As well as, the histopathological study of kidney organ. The results of the study was showed a significant increase (p d" 0.05) in the body weight of rats that fed with high fat diet (HFD) (group A) when compared with the control group fed on a standard diet. While, the body weights in other groups were decreased in sage tea treated group (group B), The results of the kidney function tests showed a significant increase (p d" 0.05) of serum creatinine and urea levels in animals that fed on high fat diet (group A) when compared with control group. While, the serum levels of creatinine and serum urea were significantly decreased (p d" 0.05) and all treated groups with sage tea, (group B) respectively, for both periods 14 and 28 days. Besides that, the histopathological examinations of the current study revealed histological changes in the liver and kidney organs due to feeding on high fat diet (group A) compared with the control group. These changes including a congestion in the blood vessels, and steatosis in the kidney tissue. Whereas, the animals were treated with sage tea the photo microscopic examination of the kidney organ showed normal histological characters of less fat deposition and improvement in histo-structural features compared with animals group treated with atherogenic diet (group A). This indicate that improvement was associated with long-term treatment (28 days). Concludes from the current work, the administration of sage tea have an effective synergistic protective role on reducing the functional performance and normal histological characters of kidney organ that associated with long-term treatment (28 days).

Key words : *Salvia officinalis,* atherogenic diet, rats.

INTRODUCTION

S. officinalis was a plant in the family of Labiatae/ Lamiaceaeor mintfamily containing contains more than 900 kinds all over the world. It is home to the Middle East and Mediterranean regions, but today, it has been naturalized worldwide Rodrigues *et al*, 2012. In folk medicine, *S. officinalis* has been used to treat various types of disorders including seizures, ulcers, gout, rheumatism, dizziness, tremor, paralysis, diarrhea, hypercholesterolemia and hyperglycemia Ghorbani & Esmaeilizadeh, 2017. It was found that the administrationof extract S. officinalis activates memory in rats and has positive effect inthe treatment of Alzheimer disease, also in relation to primary andsecondary prevention against cardiovascular disease Eidi *et al*, 2005. A useful procedure for S. officinalis on dyslipidemia may be associated with flavonoids present in the plant. This flavonoid increases the volume of mitochondria, the mitochondrial DNA content, and the gene expression related to mitochondria. Seo *et al,* 2015. The present study confirm on some biochemical tests such as kidney functional parameters included.

Urea plays an important role in the metabolism of compounds containing nitrogen by animals and is the main substance containing nitrogen in Decaux *et al,* 2010. Uremic toxins are any biologically active compounds that are retained due to kidney damage, such as many uremic salts Almeras & Argiles, 2009.