

## EFFECT OF DIFFERENT DOSES OF SACCHARIN ON SOME PHYSIOLOGICAL PARAMETERS OF KIDNEY IN MALE RATS

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**ABSTRACT :** This study aims to know the effects of different doses of saccharin on kidney function. In the present study, it was observed that significant increase of serum blood urea, creatinine, and erythropoietin and a significant decrease of serum uric acid and total protein in a different dose of saccharin injected in male rats groups when compared with the control group. The present results showed a significant increase of serum blood urea, creatinine, and erythropoietin in male rats were injected with saccharin in dose 1000 mg/ kg b.w daily compared with male rats group injected with saccharin in dose 250 mg/ kg b.w daily and dose 500 mg/ kg b.w. Moreover, significantly decrease of serum uric acid and total protein in male rats were injected with saccharin in dose 1000 mg/ kg b.w daily compared with male rats group injected with saccharin in dose 250 mg/ kg b.w daily and dose 500 mg/ kg b.w daily.

**Key words :** Saccharin, kidney function, blood urea concentration, erythropoietin.

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### INTRODUCTION

Saccharin was produced first in 1879, by Constantin Fahlberg, a chemist working on coal tar derivatives in Ira Remsen's laboratory at Johns Hopkins University (Warner, 2008). Fahlberg noticed a sweet taste on his hand one evening and connected this with the compound benzoic sulfimide on which he had been working that day (Prasad, 2018). Fahlberg and Remsen published articles on benzoic sulfimide in 1879 and 1880 (Guillem-Llobat, 2011). In 1884, then working on his own in New York city, Fahlberg applied for patents in several countries, describing methods of producing this substance that he named saccharin (Warner, 2008). Saccharin is heat stable, it does not react chemically with other food ingredients; as such, it stores well. Blends of saccharin with other sweeteners are often used to compensate for each sweetener's weaknesses and faults (O'Donnell and Kearsley, 2012). Saccharin is often used with aspartame in diet carbonated soft drinks, so some sweetness remains should the fountain syrup be stored beyond aspartame's relatively short shelf life. In its acid form, saccharin is not water-soluble. The form used as an artificial

sweetener is usually its sodium salt (Elkatry, 2011). Saccharin is used in numerous foods worldwide and is marketed under several brands such as Natreen and Canderel, in addition to NutraSweet, and corresponds to the E 951 code in Europe (Baker *et al*, 2020). Saccharin is metabolized into its original amino acids and has a low energy content (Murovets *et al*, 2020).

### MATERIALS AND METHODS

The study has been conducted on adult male rats at the department of physiology, College of Veterinary Medicine, Al-Qasim Green University during the period extended from October, 2019 to July, 2020. Sixty clinically healthy adult male rats will used in the experiment. The rats was randomly divided into four groups, each group contained fifteen rats, these groups: control group rats (C) were injected with distal water daily for 90 days, group one (T<sub>1</sub>) rats were injected with saccharin (250 mg/ kg b.w) daily for 90 days. Group two (T<sub>2</sub>) rats were injected with saccharin (500 mg/ kg b.w) daily for 90 days. Group three (T<sub>3</sub>) rats were injected with saccharin (1000 mg/ kg b.w) daily for 90 days. After that, at the end of each treated and control group period, males were