Physiological effect of *Cynomorium Coccineum* extract on the male reproductive system of laboratory mice.

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Abstract

Background : The effect of a crude flavonide extract of *Cynomorium coccineum* on the sex hormones of male laboratory mice. Serum testosterone ,LH and FSH levels were lower in animals treated with a crude flavonide extract than controls, . **Objective**: The present study was thus intended to evaluate the effect of a crude flavonide extract on serum sex hormone levels in male mice. **Method**: the crude flavonide extract

was administered orally to male albino mice 100, 200, and 400 mg / g for 30 days. Blood was collected into eppendorf tubes from the saphenous veins of animals on day 30 .**Results and discussion**: the crude flavonide extract The reason for increasing body weight. Serum LH , FSH and testosterone levels were significantly reduced (P <0.05). **Conclusion**: The crude flavonide extract in this study caused a decrease in testosterone, LH and FSH levels hormones despite the increased body weight of mice.

Keywords: crude flavonide extract, Sex hormones. *Cynomorium coccineum* , flavonide

Introduction

Cynomorium coccineum is a parasitic plant that is perennial ' Its shape is long and tapering, like fungi, and is characterized by colors tending to purple or red, and sometimes it is yellow in color [6] . It is characterized by a thick stalk and is studded with a scaly-shaped scales, the spike is long and often dense, the advantage of this plant is that it is full of watery juices while there are no leaves in it, it may reach a height of 70 cm (figure.1), and an intruder lives on the roots of some other desert plants, such as the green plant [9]

Figure (1): Cynomorium coccineum

Cynomorium coccineum plant improves the performance of sexual functions and increases virility in men, as it is considered a general sexual stimulant [10] , and the extract of the plant *Cynomorium coccineum* contributes to enlarging the size of the testicles, which leads to enlarging the spermatic tubes and thus leads to an increase in sperm [2] .

Materials and Methods

Plant material : The study plants, Cynomorium coccineum, were obtained from the cities of Umm Qasr and Juweibdeh in Basra Governorate for the period of time from 1/12/2019 to 2/15/2020 by specialists in plant taxonomy in order to choose the plant accurately. . The sample was prepared by cleaning it from suspended impurities and micro-insects and removing unwanted coarse parts such as the stem and root

before drying. After the drying process was completed, the plant was ground with an electric grinder and stored in airtight glass containers and kept in the refrigerator at 4 ° C.

.**Extraction of flavonoids from** 25 gm of *Cynomorium coccineum* plant powder is mixed with 250 mL of 80% ethanol alcohol in a 250 mL glass beaker, and a process of reverse escalation was carried out for a period of four hours, after which the mixture was filtered by filter paper under vacuum pressure conditions. Treating the filtrate with 125 ml of 1% sodium acetate and continuing to shake for a period of five minutes. After that, the solution is left for two hours to complete the sedimentation process. The red-brown filtrate is separated from the white-yellow sediment by means of filter paper. The filtrate is placed in a glass dish and left at room temperature in the shade open, a brown or dark red color with a viscous consistency is obtained. It is washed twice with 10 ml distilled water and three times with 10 ml ethyl alcohol, and three times by 10 ml ethyl acetate. After the washing process is complete, 5 ml of hydrochloric acid 2% and 25 ml acetone are added to the reddish-brown sediment. This mixture is placed in a separating funnel and shaken for a period of five minutes and left for two hours. The white precipitate is separated from the reddish-brown filter by means of filter paper. The filtrate is placed in a glass dish at room temperature to dry.

Animals :Male laboratory mice of the albino mice were used in the current study, as they were obtained from the animal house from the Department of Life Sciences - College of Science - Dhi Qar University, their ages ranged between 10-12 weeks and weights (30-22) grams, the animals were examined by the specialist veterinarian to ensure that they were safe and free from diseases. The animals were left during the animal house under controlled conditions in terms of temperature (25-20 ° C) and a lighting cycle (12 hours of lighting - 12 hours of darkness) during the study period. The mice were placed in plastic cages for raising mice and the cages were spread with sawdust. The sawdust was changed weekly, taking care of the cleanliness of the cages and sterilizing them from time to time. Water and feed were given integral nutrition,

Experimental design: Male hamsters were divided into four groups of 7 Animals each. The first group acted as a control and were given distilled water. Groups II, III, and IV were given a crude flavonoid extract orally at a dose of 100, 200 and 400 mg / g respectively for 30 days. Blood was collected in Eppendorf tubes Siphon off the veins of animals on day 30 of treatment.

Estimation of serum , LH ,FSH and Testosterone: Serum FSH, LH and testosterone concentrations were estimated by the enzyme-linked immunosorbent assay (ELISA) using ™ assay kits Shenzhen New Industries Biomedical Engineering Co., Ltd 4/F,Wearnes Tech Bldg,Science & Industry Park,Nanshan,Shenzhen, Diagnostics The blood was centrifuged at 500 g for 15 min and serum was collected and stored at -20°C until assayed. Assays were carried out as instructed by the manufacturer.

Results

Results Several peaks are observed after loading The crude flavonoid extract indicates the presence of several compounds in the plant and this was done by the GC_MS mass spectrometry technique as shown in Fig.1.

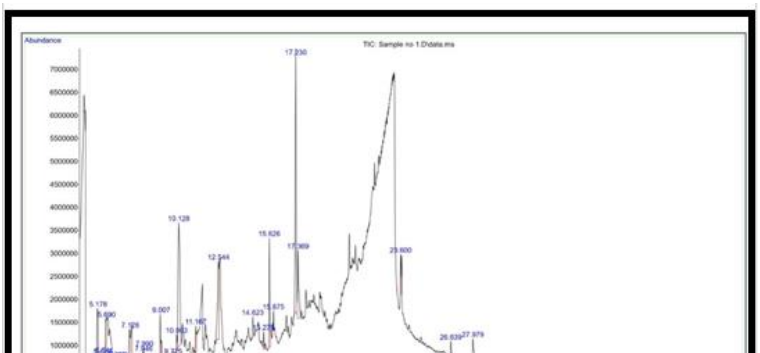

Fig (2) : Chemical compounds of the Flavonoids extract of the Cynomorium coccineum

The effect of flavonoid extract on the body weight of male mice showed a significant change in the body weight of the animal compared with the control group. Testicular weight showed a dose-dependent reduction in the treated animals (P <0.005) compared to the control animals. In Table 1.

Influence on FSH, LH and testosterone Significantly decreased (P <0.05) when mice were treated with 100, 200, and 400 mg Kg-1) compared to the control group. In table 1 and Figure (2) .

Table (1): The effect of the flavonide extract on the sex hormones values of male laboratory mice

Parameters	**FSH mIU / m**	**LH mIU / m**	**Testosteron ng / ml**	**Relation Wight**
Control	1.88 ± o.63	1.82 ± 0.59	2.93 ± 0.74	0.29 ± 0.08
CCT . Dose 100 mg\gm	0.54 ± 0.21	0.47± 0.14	0.59 ± 0.22	0.53 ± 0.05
CCT . Dose 200 mg\gm	0.60 ± 0.23	0.54 ± 0.24	0.59 ± 0.22	0.45 ± 0.01
CCT . Dose 400 mg\gm	0.59 ± 0.19	0.54 ± 0.24	0.57 ± 0.24	0.44 ± 0.02
Kruskal-wall Test				
Chi – squr	15.58	15.58	15.46	21.91
Sig.	0.001	0.001	0.001	0.0001

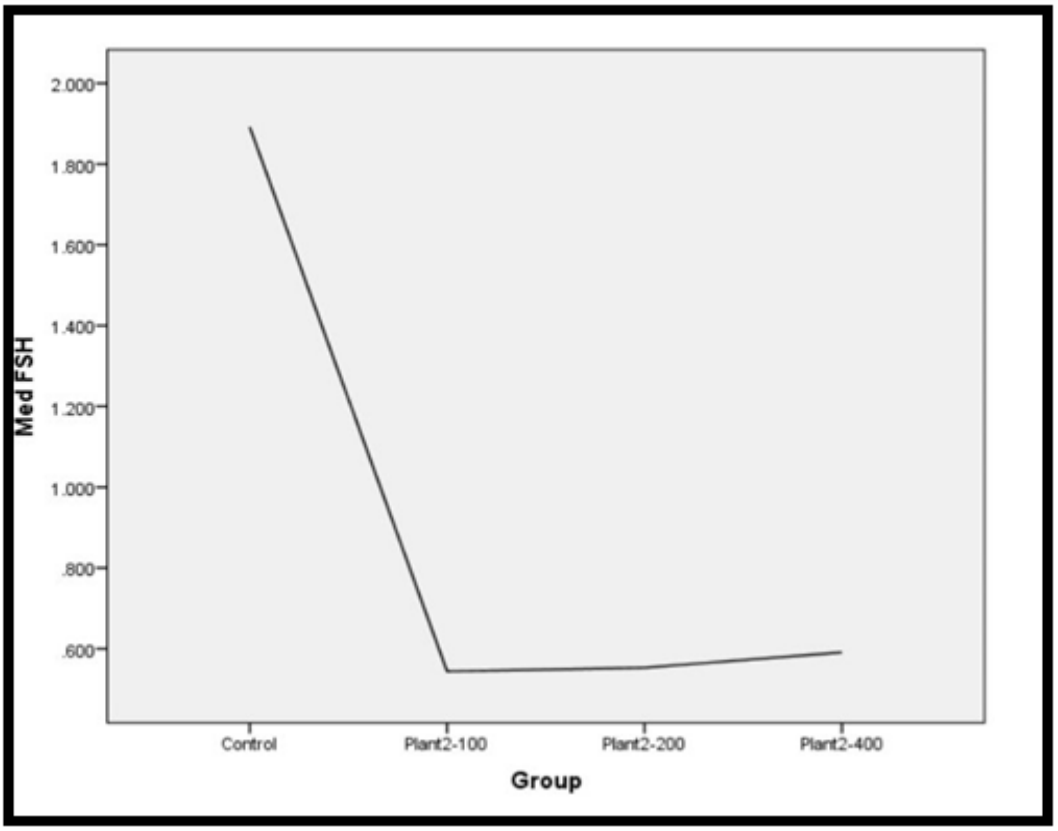

Fig (3) : The effect of the flavonide extract on the sex hormones values of male laboratory mice.

Discussion

Serum testosterone ,LH and FSH levels were lower in animals treated with flavonide extract than controls, This is in agreement with his findings Abdel-Magied and others.[1] The significant reduction in the reproductive organ weights of the rats in this study It may be attributed to the decrease in testosterone levels. It has been shown in rat that Leydig cell number per testis increases in parallel with testicular weight following birth, accompanied by increases in testosterone level [8].

Testosterone and gonadotropins are the main regulators of germ cell development. Successful and complete male germ cell growth depends on: A balanced endocrine interaction, hypothalamus and between the pituitary and testis [4]. LH It stimulates the production of testosterone in the Leydig cells, which in turn may act on FSH It binds to the receptors in Sertoli cells and stimulates spermatogenesis. Sertoli cells and the cells surrounding the tubule are stimulated from the seminiferous tubules Sperm formation [5]

. There are a number of potential mechanisms for anti-CCE activities On the gonads he could Exerts a direct inhibitory action on the testicle. Or it may infect the pituitary gland, causing it Changes in gonad concentrations and thus subsequent spermatogenesis Harm; Or they might change the focus of a

neurotransmitter. Studies have shown her This CCE exhibits cytotoxic and anti-proliferative activity of cancer cells [12]. Previous studies indicate cytotoxicity of CCE [11-12].

The crude flavonoid extract may contain toxic compounds that suppress sex hormones Or there may be an effect of hot weather conditions on the synthesis of flavonoids In conclusion, the results of the present study indicated that the crude flavonoid extract It has opposite, anti-fertility, spermotoxic, and anti-androgenic properties. Which may have a direct effect on germ cells and other cells in Testes and possible axon involvement in the pituitary and gonads. [3]

Conclusion:

The crude flavonide extract in this study caused a decrease in testosterone, LH and FSH levels despite the increased body weight of mice.

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Dear Narji Kadhim Madlool Alsraify

The manuscript "**Physiological effect of *Cynomorium Coccineum* extract on the male reproductive system of laboratory mice.**" by Narji Kadhim Madlool Alsraify, Eman Mohamed Abdul_Zahra Rubaye and Hanaa Salman Kadhum Alsudani is accepted for publication in **Indian J Ecology 48(18): 2021.**

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