

Comparing the Effect of Natural Bee Honey with That of Viagra (Sildenafil) in Domestic Male Rabbits in Samarra City/Iraq

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Abstract

The goal of this experiment is to see how Viagra and raw honey from local bees affect pet rabbits. The rabbits will receive a daily oral dose of 0.003 mg/kg of Viagra and a daily oral dose of 0.42 mg/kg of natural honey from 6/12/2021 to 6/1/2022. At the end of the dosage period, blood samples are collected using the heart stab method. The levels of blood hormones and components, as well as the effects of the two drugs, are all monitored. The study's findings revealed that when it comes to increasing testosterone and follicle-stimulating hormone levels, Viagra clearly outperforms honey. While Viagra can increase LH levels, natural honey can increase them even more effectively.

Keywords: FSH (*Tribolium castaneum*) Nettle plant (*Urtica dioica*), LH, Testosterone

1. Introduction

Honey: It is a super saturated solution secreted by the bee bug, consisting primarily of fructose and glucose with trace amounts of proteins, amino acids, vitamins, enzymes, minerals, and other compounds. [1]. Components of bee honey: honey mainly consists of several types of sugary substances in particular, it consists of fructose, honey's extraction process yields glucose and other substances like organic acids, enzymes, and solid particles. Or partially, and the flavor and taste differ, but they are caused by the source of the plants [2]. The origin of honey is recognized in two ways: Through chemical analyzes and the development of analytical methodologies combined with multivariate analyses. Where chemical analyzes have been applied to chemical compositions and to physical, microscopic and spectral parameters and have proven to be valuable methods for authenticating manna honey [3].

The drug Viagra: The name of the drug is derived from two syllables, the first is venus, which is the god of love for the Greeks, and the other is (Iagra-Niagra), which is waterfalls in the North American continent. and with high success rates [4].

In 74 persons, the clinical efficacy and safety of the combination (Dikastayn / Sildenafil) were evaluated. has shown that Sildenafil is effective in treating premature ejaculation. Its effectiveness is proven despite the mild side effects as it does not change the parameters of the fluid. In fact, it may positively affect semen parameters and undesirable side effects of Sildenafil include headache, flushing (due to the expansion of blood vessels) and indigestion (due to relaxation of the smooth muscles of the visible sphincter with reflux [5]. The Research aims at

comparing the effect of the sexual stimulant (Sildenafil) on the concentration of cholesterol compounds, and comparing it with honey and the control group also, investigating the role of these steroids whether they affect the concentrations of some sex hormones LH, FCH, Testosterone.

2. Materials and Methods

Animals used in the study

This study is conducted for the period from the beginning of December 2021 to the beginning of January of the year 2022 in the animal house of the Department of Life Sciences, University of Samarra. In this study, male rabbits were used. Cages made of iron with metal tops were used for the animals. with a floor furnished with sawdust, and the hygiene aspect was taken into account. For the cages in terms of changing sawdust three times during the week, and sterilizing the cages with disinfectants (ethanol alcohol 70%) weekly, the weights of the animals used ranged between (900-1200) grams. All animals were subjected to identical laboratory conditions of natural light, ventilation, and a temperature between (26-24) degrees Celsius that provided water and food continuously throughout the study period.

Drug administration

The drug was used in the form of 500 mg/mg pills supplied by Hong Kong sun Biological Company. The whole pill of the drug was crushed in the process of grinding and turning the pill into a ground powder, then taking .0030 mg/kg and orally administered to each animal. Honey prepared from one of the local apiaries distributed in the city of Samarra was used in a concentration, then 0.42 mg / kg was taken and dosed orally to each animal.

Experiment Design

Using (9) rabbits after ensuring their safety from apparent diseases and dividing them into three main groups, and each main group includes (3) rabbits. Divide the animals into (9) groups, each group includes (3) animals with close weights, and they are distributed as follows:

The first group: (the healthy control group) 3 animals are used in this experiment that fed distilled water only, the sound control.

The second group: (herbal Viagra group) used in this experiment (3) animals dosed (0.003) mg/kg once every 24 hours.

The third group: (natural honey group).

In this experiment, (3) animals are used, dosed (0.42) mg/kg once every 24 hours.

Collection of blood samples

The animals fast for twelve (12) hours after the completion of the dosing session. Blood samples are taken directly from the heart by means of a stab from the heart, using a medical syringe used for one time. Approximately (10-8) cm³ of blood is collected and emptied into test tubes. Test Tubes are clean, dry (one-time use) free of anticoagulants. They are left for about a quarter of an hour at room temperature (25) degrees Celsius, after which the serum is separated by centrifugation of samples at a speed of 3000 revolutions / minute for a period of 15 minutes, and the serum is divided into nine parts in tubes. Small Eppendorf tube and stored at (-20) degrees Celsius until conducting the biochemical tests included in the study.

Estimation of the level of hormones in the serum

Determination of Luteinizing Hormones in the Blood Serum:

concentration of LH was estimated using the ELISA technique, which was performed in accordance with the manufacturer's protocol and the steps included in the ready-made assay kit. [6].

Estimation of follicle-stimulating hormone (FSH) in the blood serum:

Estimation of the FSH hormone by following the steps attached with the ready-made analysis kit of the hormone manufacturer and using the ELISA technique [7].

Determination of Testosterone Concentration

Estimation of the testicular lipid hormone concentration by following the accompanying steps with the examination kit of the manufacturer and using the ELISA technique.

Blood tests

All blood tests were performed with a Mindray machine

3. Statistical Analysis

Duncan's Multiple Range Test with the significance level of P7005 is used to do an ANOVA Analysis of one-way variation on the data. [8].

4. Results

Table (1) and Figure 1 indicate the values of the results in the amount of LH hormone in the blood serum of male rabbits treated with sildenafil and natural honey compared to the control group (1).

Honey	Viagra	values
10.1	31.4	WBC
5.4	19.6	LYMPH
4.1	11.1	GRAN
12.6	13.4	HGB
5.6	6.6	RBC
36.2	38.8	HCT
64.7	58.9	MCV
22.5	20.3	MCH
34.8	34.5	MCHC
462	874	PLT
12.08	7.736	FSH
0.307	0.574	LH
2.72	2.702	TESTRON

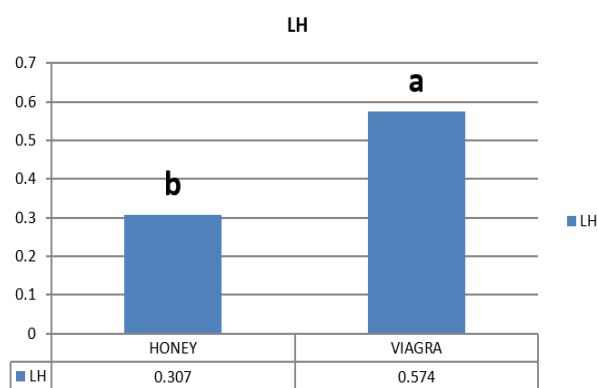


Figure (1) Effect of honey and sildenafil (Viagra) on the level of LH

The current study's findings demonstrate that a month of treatment with Viagra and natural honey resulted in a considerable increase in the concentration of FSH in the animal's blood serum when treated with natural honey. higher than it was when treated with Viagra, with a difference of (4.344), and the reason may be due to the direct effect of sildenafil.

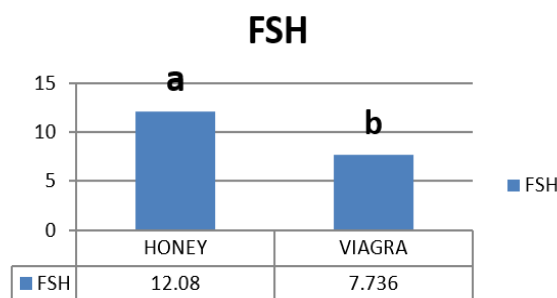


Figure (2) Effect of honey and sildenafil on the level of FSH

The values of the results in this study show the effect of the level of FSH in the blood serum of male rabbits treated with sildenafil and natural honey and compared it with the control group through Table (1) and Figure (2).

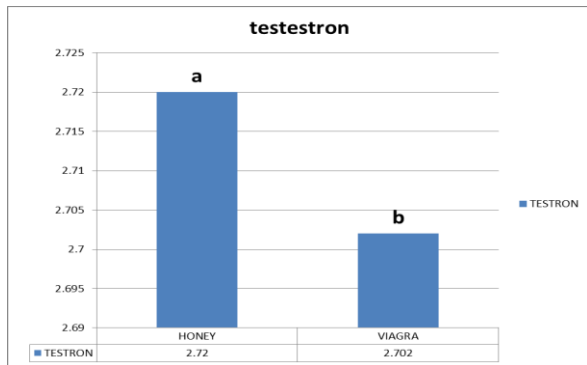


Figure (3) Effect of natural honey and sildenafil on the level of testosterone

The current study found that treating an animal with Viagra and natural honey for one month resulted in a considerable increase in the concentration of testosterone hormone in the animal's blood serum when treated with natural honey, higher than it was when treated with Viagra with a difference of 0.018. The values of the results in the level of red blood cells in the blood of male rabbits treated with sildenafil and natural honey and compared with the control group are shown in Table (1) and Figure (4).

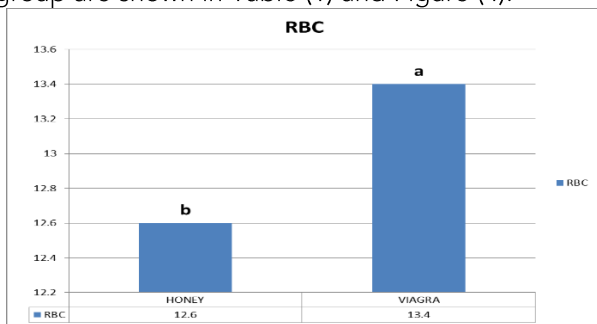


Figure (4) Effect of natural honey and sildenafil on the level of red blood cells.

Table (1) and Figure 1 show the values of the results in the level of white blood cells in the blood of male rabbits treated with sildenafil and natural honey and compared to the control group.

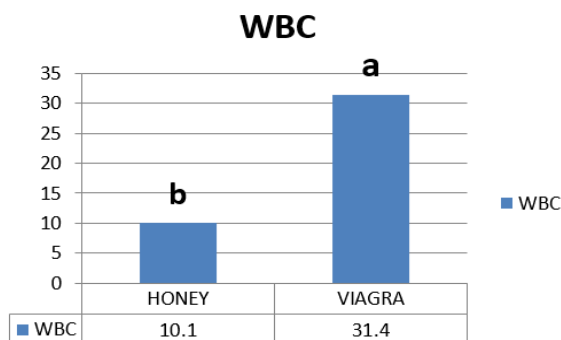


Figure (4-5) Effect of natural honey and sildenafil on the level of white blood cells

The current study found that a month of treatment with Viagra and natural honey resulted in a considerable rise in red blood cells in the animal's blood serum when treated with Viagra, which was 21.3 higher than when treated with natural honey. Table (1) and Figure 1 indicate the values of the results in the level of platelets in the blood of male rabbits treated with sildenafil and natural honey, as well as their comparison with the control group (6).

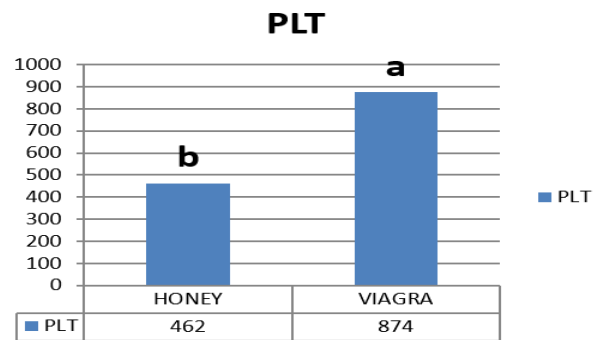


Figure (5) Effect of natural honey and sildenafil on the level of PLT. platelets

The current study compared the effects of a month's treatment with Viagra and natural honey on platelet counts in the blood serum of animals, and discovered that Viagra produced a 412 percent higher increase in platelets compared to natural honey. Blood red blood cell volume was measured before and after treatment with sildenafil and natural honey in male rabbits and the findings are shown in Table (1) and Figure 1. (6).

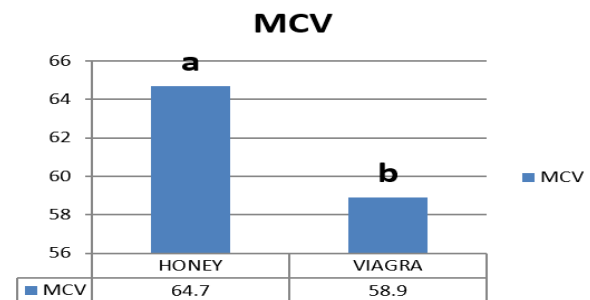


Figure (6) Effect of natural honey and sildenafil on the level of red blood cell volume

The results of the current study show that treatment with Viagra and natural honey for a month led to a significant increase in the volume of red blood cells in the animal's blood serum when treated with natural honey, higher than it was when treated with Viagra, with a difference of 5.8. The results' values are shown in the average level of hemoglobin in the blood of male rabbits treated with sildenafil and natural honey and compared with the control group through Table (1) and Figure (7).

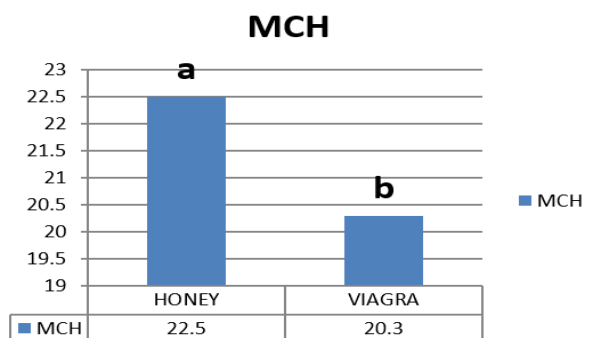


Figure (7) Effect of natural honey and sildenafil on the average level of hemoglobin

The results of the current study show that treatment with Viagra and natural honey for a month led to a significant increase in the average level of hemoglobin in the animal's blood serum when treated with natural honey, higher than it was when treated with Viagra,

with a difference of 2.2. The values of the results are shown in the average level of hemoglobin in the red blood cells in the blood of male rabbits treated with sildenafil and natural honey and compared with the control group through Table (1) and Figure (8).

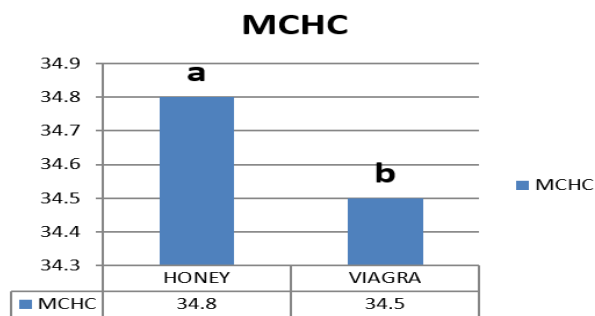


Figure (8) Effect of natural honey and sildenafil on the level of average body hemoglobin in red blood cells

The results of the current study show that treatment with Viagra and natural honey for a period of one month led to a significant increase in the average level of red blood cell hemoglobin in the animal's blood serum when treated with natural honey, higher than it was when treated with Viagra with a difference of 0.3. The values of the results are shown in the level of the ratio of blood components to the total blood volume in the blood of male rabbits treated with sildenafil and natural honey and compared with the control group through Table (1) and Figure (9).

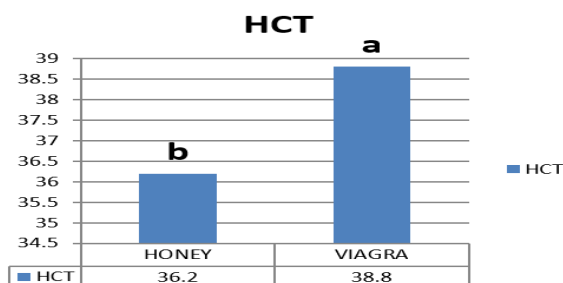


Figure (9) The effect of natural honey and sildenafil on the level of the ratio of blood components to total blood volume

The results of the current study show that treatment with Viagra and natural honey for a month led to a significant increase in the level of blood components to total blood volume in the animal's blood serum when treated with Viagra, higher than it was when treated with natural honey, with a difference of 2.6. The values of the results are shown in the level of hemoglobin in the blood of male rabbits treated with sildenafil and natural honey and compared with the control group through Table (1) and Figure (10).

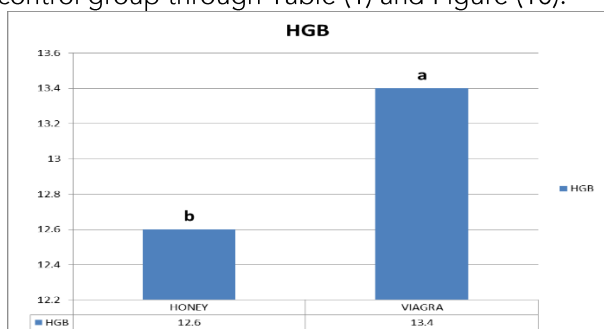


Figure (9) The effect of natural honey and sildenafil on the level of hemoglobin

The results of the current study show that treatment with Viagra and natural honey for a month led to a significant increase in the level of hemoglobin in animal blood serum when treated with Viagra, higher than it was when treated with natural honey with a difference of 0.8. The values of the results are shown in the level of neutrophilic white blood cells in the red blood cells in the blood of male rabbits treated with sildenafil and natural honey and compared with the control group through Table (1) and Figure (11).

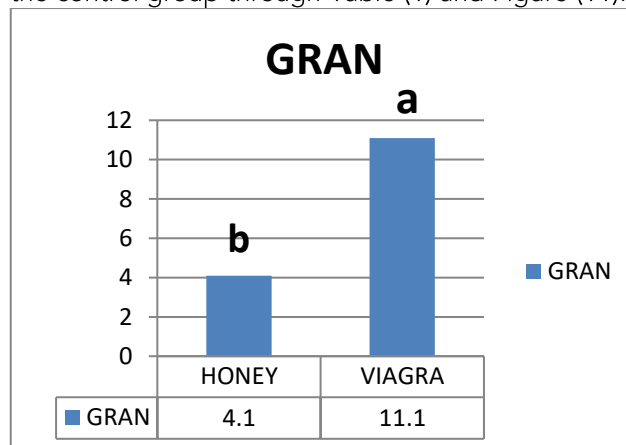


Figure (11) Effect of natural honey and sildenafil on the level of neutrophilic white blood cells

The current study found that after a month of treatment, the level of neutrophilic white blood cells in the blood serum of the animals treated with Viagra was significantly higher than that of the animals treated with natural honey (by a difference of 7). Table (1) and Figure 1 indicate the values of the results in the amount of lymph in the blood of male rabbits treated with sildenafil and natural honey and compared with the control group (12).

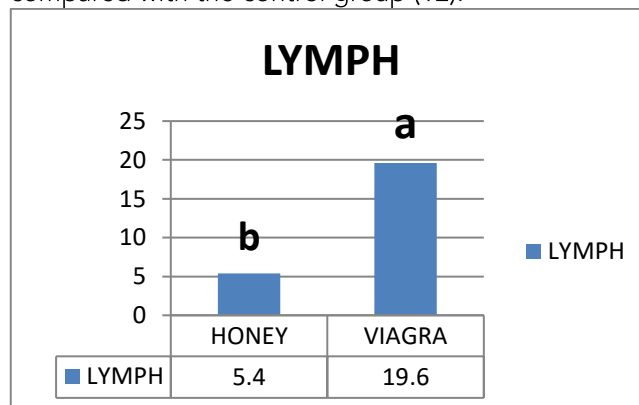


Figure (12) Effect of natural honey and sildenafil on the level of lymphocytes

The current study found that after a month of treatment with Viagra and natural honey, the number of neutrophilic white blood cells in the blood serum of the animals significantly increased. when treated with Viagra, higher than it was when treated with natural honey with a difference of 14.2.

5. Discussion

LH Hormone in males is called interstitial stimulating hormone, Interstitial cell stimulating hormone (ICSH) [9]. It also stimulates Ledic cells to secrete the primary testosterone hormone in the manifestation

of male characteristics as well as the completion of the process of spermatogenesis and sperm maturation [10]. LH Previous studies did not indicate the effect of Viagra and honey on the level of common use in herbal treatment and its introduction into medicines in the Middle East and around the world, but the absence of scientific explanations in studies on these compounds made it difficult to determine the safety of their effects as well as their mechanisms of action. This may be due to the fact that Viagra contains ginseng in its composition, which contains LH.

The results of the current study show that treatment with Sildenafil (Viagra) for a whole month leads to a significant increase in the concentration of LH hormone in the animal's blood serum, higher than it was when treated with natural honey, with a difference of 0.267. The elevated LH hormone in rabbit serum may be due to decreased levels of estrogen and progesterone. LH is known to be inhibited by elevated E² and prog levels through the negative feedback mechanism [11]. Luteinizing hormone is necessary for testicular development and the manufacture and secretion of male hormones by stimulating the cells located between the seminiferous tubules called Lyddick cells [12]. The level of follicle stimulating hormone (FSH) in the serum: The values of the results in the level of FSH in the blood serum of male rabbits treated with sildenafil and natural honey and compared with the control group are shown in Table (1) and Figure (1). On the hypothalamic-pituitary axis to release the gonadotropin-stimulating hormone (GnRH), which stimulates the pituitary gland to secrete hormones LH, FSH from the anterior lobe of the pituitary gland (Peterson, 2008). It plays an important role in the process of sperm development, especially in the last stages of it, and the development of the functions of the reproductive system, as it stimulates the growth of the seminiferous tubules [13]. The role of FSH is also in regulating the functions of Sertoli cells and it is one of the most important cells These cells are the target cells for the action of the male FSH hormone, as there are hormone receptors on these cells [14]. It is clear in the concentration of FSH a clear indication of low estrogen and lack of feedback in groups of sildenafil and herbal Viagra, and perhaps the reason may be due to an increase in the concentration of inhibin [15]. A study conducted by the researcher showed that The significance of the effect of inhibin B concentration on FSH concentration.[16].

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