JHE JOURNAL OF HOME ECONOMICS, MENOUFIA UNIVERSITY
Website: https://mkas.journals.ekb.eg
Print ISSN 2735-5934 Online ISSN 2735-590X

NUTRITION AND FOOD SCIENCES

Effect of Some Plant Parts (*Marjoram and Vitexagnus-Castus*) Containing Phytoestrogen on the Ovaries of Female Experimental Rats

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Article Type
Original Article

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DOI:10.21608/MKAS.2024.256778.1268

Cite as:
Abdel Rahman et al., 2024, Effect of Some Plant Parts (Marjoram and Vitexagnus-Castus) Containing Phytoestrogen on the Ovaries of Female Experimental Rats. JHE, 34 (3), 145-158

Received: 19 Dec 2023
Accepted: 12 May 2024
Published: 1 July 2024

ABSTRACT:

This research studied the therapeutic effects of marjoram and palm trees and the biological, biochemical, and histopathological changes in the ovaries of female laboratory rat. Thirty rats weighing approximately 150 grams ±10 were used during the experiment and were 3 months old. Concentrates of dried marjoram and palm of Mary were used at concentrations of 5%, 10%, and 2.5% of the basic meal. Rat were fed the basal diet for 5 consecutive days to achieve adaptation. Then, the rats were divided into 6 groups of 30 rats, each group consisting of 5 rat. After conducting the experiment and recording the results, the percentage of estrogen for the negative control group (Group 1) was recorded as (-) the lowest value compared to the rest of the groups, with a significant difference. The value was 4.56%, while the value reached 4.56%. The rats fed (2.5%, 2.5%) recorded the highest estrogen value. The lowest value was recorded with the group fed with 5% vitex agnus-castus compared to the first group (-), with a significant difference, as the values reached (5.3, and16.06), respectively. The lowest value was recorded with the group fed with marjoram, 10%, compared to the first group (-), with a significant difference, as the values reached (7.58 and 6.21), respectively. The histological results confirmed the validity of the chemical analyses on the reproductive system organs (ovaries, ovarian ducts, uterine wall).

Keywords: *Ovaries ,Marjoram, Vitexagnus- Castus, Estrogen*

1. INTRODUCTION

Estrogen is a well-known female steroid hormone synthesized from the ovary that controls the estrous or menstrual cycle in females, therefore estrogen is imperative for female reproduction. Estrogen is not only important in female reproduction but also in male reproduction. Estrogen, one of the first hormone substances identified, was thought to have only female-selective activities important in female reproduction. Estrogen influences of many physiological processes, as it is also implicated in many different diseases

including obesity, metabolic disorders, a variety of cancers, osteoporosis, lupus, endometriosis, and uterine fibroids [1].

Estradiol (E2), also spelled estradiol, is an estrogen steroid hormone and the major female sex hormone. It is involved in the regulation of the estrous and menstrual female reproductive cycles. Estradiol is responsible for the development of female secondary sexual characteristics such as the breasts, widening of the hips, and a female-associated pattern of fat distribution and is important in the development and maintenance of female reproductive tissues such as the mammary glands, uterus, and vagina during puberty, adulthood, and pregnancy.[2]

Marjoram is one of the most common medicinal and aromatic species and as described by Lamiaceae [3] in most species, we have observed epidermal trichomes in leaves and stems, the leaf has a typical dorsiventral structure with hair on either side.

Marjoram (Origanum majorana L.), of the Lamiaceae family, was known to the ancient Egyptians, Greeks and Romans. The Greeks felt it was a symbol of happiness and that if grown on the grave, the deceased would be eternally happy Marjoram is also known to possess various therapeutic properties including antioxidant activity. The antioxidant activity of marjoram was found to be much higher than that of a-tocopherol and comparable with BHT at all concentrations tested . The marjoram (Origanum majorana L.) species plays a primary role among culinary herbs in world trade the increasingly growing popularity of oregano is a result of scientific research recent findings report the antimicrobial , fungicidal and antioxidant properties of marjoram. [4]

Polycystic ovary syndrome (PCOS) is the most common cause of female subfertility, with an estimated prevalence of up to 12% among women of reproductive age [5].

Its major characteristics include hyperandrogenism (clinical or biochemical), menstrual irregularities and polycystic ovaries [6].

The etiology of PCOS still remains an area of research. Studies strongly suggest a genetic component to the pathogenesis of the syndrome. Apparently, environmental factors such as diet, stress and lifestyle interact with abnormal genetic variants to trigger the onset of the disease [7].

Vitexagnuscastus, belongs to the family Verbenaceae, under the common names of chaste tree and monk's pepper [8]. Which can be found in the environments in Central Asia, the Mediterranean region, and Southern Europe and also harvested in the various regions [9].

This plant is considered an herbal product since the fruit berry and the dried leaves have been used for medicinal aims [10]. The medical part of the V. agnuscastus is the fruit produced from the V. agnuscastus seeds[11]. The fruits have

been applied for more than 2500 years in ancient Egypt, Greece, Iran, and Rome for a variety of gynecologic problems. It has also been used for its claimed activity for reduction of libido[12].

Based on ethnomedicine of different nations, this plant is used for relieving menstrual pain, eye diseases, spasmodic dysmenorrhea, insufficient lactation, treatment of acne, snakebites and scorpion stings, stomachache, and also as antispasmodic, anaphrodisiac, and emmenagogue agent [13, 14].

This investigation aims to study the effect of some plant parts containing plant estrogen on the ovaries of female experimental rat. The main objective of this research is to study the therapeutic effects of some plant parts of each of the leaves of the marjoram plant and dried vitexagnus-castus due to their availability in the local Egyptian market and study the biological, biochemical and histological changes on the ovaries of female experimental rats.

2. Materials and methods

2.1. Materials

2.1.1 Plants:

Marjoram and Mariam's palm were obtained from a perfumery shop in Shebin El-Kom, Menoufia. These plants were obtained by a semi-dried method because they are not found in Menoufia, but they are found in desert areas. It was ground into a fine powder in the mill located in the College of Agriculture in Shebin El-Kom, Menoufia. In this study, concentrations of marjoram and dried marjoram were used at a concentration of 5% and 10% of the main meal.

2.1.2 Rats:

Thirty female rats (Sprague-Dawley rats) weighing approximately 150 grams, positive or negative 10, were used during the experiment period, and their age was three months. The proportions of nutrients used in the experiment: Rats were fed a basic meal containing (15% casein of the diet weight and its quality 98%), (corn oil 10% of the diet weight) and (a mixture of salts 4% of the diet weight) and (vitamin mixture 1% of the diet). diet weight) and (starch is 70% of the diet weight).

2.1.3 Diet

The composition of standard (Basal) diet. Protein 15%, corn oil 10% , a mixture of salts 4% , vitamin mixture % 1, and starch 70 %

2.2 Methods:

Rats were fed a meal containing 5% or 10% marjoram and chasteberry herbs as an extract daily in the basic ration by mouth. Rats were fed the basic meal for five consecutive days to induce adaptation. The rat were divided into six groups consisting of 30 rats, and each group consisted of five rats, as follows:

1- The first group: It was used as a negative control group and was fed the basic meal (only regular food) throughout the experiment period.

2- The second group: The experimental group was fed 5% of the marjoram plant from the main meal.
3- The third group: The experimental group was fed 10% of marjoram plant from the main meal.
4- The fourth group: The experimental group was fed 5% of vitexagnus-castusfrom the main meal.
5- The fifth group: The experimental group was fed 10% of vitexagnus-castusfrom the main meal.
6- The Sixth Group: It is a mixture where 2.5% of the marjoram plant was mixed with 2.5% of vitexagnus-castusfrom the main meal.

The experiment lasted for four weeks, during which food intake was calculated, and the weight of the rat was measured once a week. At the end of the experiment, after anesthesia, the rats were weighed. Rats were slaughtered, blood samples were collected, serum was separated, and some organs were collected from the rat, namely the liver, kidneys, spleen, pancreas, heart, lungs, ovaries, and eggs. of these members.

The used part of the reproductive system of female rats, namely the ovaries and eggs, was preserved, and a histopathological examination was carried out on them to know the extent of the effect of these herbs on these organs, as the organs were preserved in 10% formalin until the histopathological examination was performed.

Blood samples were taken and the serum was separated to conduct chemical analyses, which include the following tests: a complete blood count (CBC) such as Hemoglobin was determined in whole blood according to [15], and a serological examination (Egyptian) to estimate the percentage of estrogenin the blood serum [16,17] such as WBC (total and differential) was determined according to [18], RBCs corpuscles were determined according to [19], Serum PLT was determined according to [20].

The biological evaluation was carried out to find out the rate of change in body weight (BWG), the rate of daily food intake (FI), and the food utilization ratio (FER).

During the experimental period (28 days), the diet consumed was recorded every day and body weight was recorded every week. The body weight gain (B.W.G. %), feed efficiency ratio (F.E.R), and organ/ body weight % were determined according to Chapman et al., [21]. Using the following equations:

$$B.W.G\ \% = \frac{\text{Final weight} - \text{Initial weight}}{\text{Initial weight}} \times 100$$

$$FER = \frac{Gram\ gain\ in\ body\ weight}{Food\ Intake} = \frac{B.W.E}{F.I}$$

$$R.O.W = \frac{\text{member weight}}{\text{Final weight}} \times 100$$

Blood sampling and organs

Two blood samples were collected after 12 hours of fasting at the end of the experiment using the abdominal aorta in which the rats were sacrificed under ether anesthetized. One of them was received

into clean dry centrifuge tubes and left to clot at room temperature, then centrifuged for 10 minutes at 3000 rpm to separate the serum. The Serum was carefully aspirated, transferred into clean cuvette tubes, and stored frozen at-20°C for biochemical analysis. The other blood samples were received into clean tube continous anticoagulant and centrifuged to obtained plasma [22].

At the same time, the organs: heart, kidney, liver, lungs, pancreas and spleen were removed, washed in saline solution, dried with filter paper, weighted, pancrease, kidney and liver stored frozen in formalin solution 10% for histopathological testing according to method mentioned by [23] .

These biological, chemical and histopathological analyzes were taken to conduct statistical studies and statistical analysis and obtain the required results.

Statistical analyses

Statistical analyses were made by using statistical methods using the ANOVA test for comparison of data in the control group and the experimental groups. The results were expressed as mean ± SD. Significant difference between treatments was calculated at ($P \leq 0.05$) [24].

Ethical Approval

The article includes approval of the scientific research (Approval # 13-SREC-10-2022).

3. Results and Discussion

It is clear from table (1), that the average values of Weight Gained (BWG) for female natural experimental rats of the type (Sprague Dawley rats) that feed on both herbs (marjoram and Vitexagnus-castus) (5% and 10%) Which are fed on different diets, and it was noted that the average value of the percentage of Relative Weight Gained (BWG) for the negative control group (-) is 3±0.624In view of the rest of the groups, it was noted that the weights of all groups were less in weight than the negative control group, which are (G2, G3, G4, G5, and G6), their weights, respectively (-5.39 ± 0.118, -4.44 ± 1.33, -5.3 ± 0.2, -4.73±0.251 and -3.11±0.115) and it was noted that the relative weight of the group G2, which is-5.39±0.118 which feeds on marjoram by 5%, deviates in weight from the negative control group, G1, which is3±0.624 and by a percentage difference from the negative control group, G1, which is -279.66 %These results are in agreement with [25, 26]

Table (1): The Effect of Marjoram Seeds and Vitexagnus-castus On Increasing Body Weight Gain for Rats .

	BWG % mean ± SD	% change of Negative control
G1	3±0.624a	-
G2	-5.39±0.118c	-279.667
G3	-4.44±1.33c	-248
G4	-5.3±0.2c	-276.667
G5	-4.73±0.251c	-257.667
G6	-3.11±0.115b	-203.667
LSD	1.102	

G1: Control(-ve), G2: 5% marjoram, G3: 10% marjoram, G4: 5% Vitexagnus-castus, G5: 10% Vitexagnus-castus, G6: 2.5% marjoram and 2.5% Vitexagnus-castus. BWG:Body Weight Gainand. LSD: Least significant differences (P<0.05). Means in the same raw with different letters are significantly different

It is clear from table (2), that the average values of Weight food intake (FI) for female natural experimental rats of the type (Sprague Dawley rats) that feed on both herbs (marjoram and Vitexagnus-castus) (5% and 10%) Which are fed on different diets, and it was noted that the average value of the percentage of weight food intake (FI) for the negative control group (-) is13.83±0.763 Looking at the rest of the groups, it was observed that each of the groups G2,and G5 had a relative weight respectively (12.16±0.288 , and 13.33±1.52) and they were less than the negative control group G1 and its relative weight13.83±0.763 and that the rest of the groups(G3, G4 , and G6) is greater than the negative control group, G1, and the relative weight for them, respectively, is (15±1 , 14.66±1.04 , and 15±0.5).It was observed that the groups G3 and G6 are equal in relative weight, which is (15±1 , and 15±0.5) and is larger than the negative control group (-), and deviates significantly from the negative control group G1, with a difference percentage from the negative group G1, which is 8.45 % These results are in agreement with [28].

It is clear from table (3) and figure (3), that the average values of the percentage of Weight Food Efficiency Rate (FER) for female natural experimental rats of the type (Sprague dawly rats) that feed on both herbs (marjoram and Vitexagnus-castus) (5% and 10%) Which are fed on different diets, and it was noted that the average value of the percentage of Weight Food Efficiency Rate (FER)for the negative control group (-) is 0.135±0.005.

Table (2): Effect of Marjoram and Vitex agnus-castus Seeds on Feed Efficiency Ratio of Rats.

	FER mean ± SD	% change of Negative control
G1	0.135±0.005a	-
G2	-0.20±0.090b	-248.148
G3	-0.15±0.097b	-211.111
G4	-0.18±0.064b	-233.333
G5	-0.22±0.045b	-262.963
G6	-0.13±0.065b	-196.296
LSD	0.121	

G1: Control(-ve), G2: 5% marjoram, G3: 10% marjoram, G4: 5% Vitexagnus-castus, G5: 10% Vitexagnus-castus, G6: 2.5% marjoram and 2.5% Vitexagnus-castus. FER:Food Efficiency Rateand. LSD: Least significant differences (P<0.05). Means in the same raw with different letters are significantly different

As for rest of the groups, it was noted that the weights of all groups were less in weight than the negative control group, which are (G2, G3, G4, G5, and G6), their weights, respectively (-0.20 ± 0.090, -0.15±0.097, -0.18±0.064, -0.22±0.045, and -0.13±0.065) and it was noted that the relative weight of the group G5, which is0.22 ± 0.045which is fed on the Vitexagnus-castus, deviates by 10% in weight from the negative control group, G1, which is0.22 ± 0.045 and by a percentage difference from the negative control group, G1, which is -262.96 % These results are in agreement with [27].

It is clear from table (4) and figure (4) that the mean values of the white blood cells (wBCs) for female rat of the normal type (Sprague dawly rats) that feed on both herbs (marjoram and Vitexagnus-castus) (5% and 10%) and that are fed on different

diets. It was noted that the average value of white blood cells (wBCs) percentage of the negative control group G1 (-) is 13.71 ± 1.68In view of the rest of the groups, it was noted that the groups (G2, G3, G4, and G5) are less than the negative control group (-) G1 and the percentage value for them, respectively (7.64±0.76, 12.95±1.46, 12.13±1.30, and 12.5±1.56).

It was noted that group G6 is equal to the negative control group (-) G1, which feeds on (marjoram and Vitexagnus-castus) at a rate of (2.5, 2.5%), and the percentage value for themis13.72 ±0.40 , It turns out that group G2 is much less than the negative control group (-) G1, which feeds on marjoram herbs by 5%, and its percentage value is 7.64 ±0.76 and the percentage of change or difference is -44.27 %[18] .

Table (3): Effect of Marjoram and Vitex agnus-castus Seeds on Feed Intake of Rats.

	FI g/day/rat mean ± SD	% change of Negative control
G1	13.83±0.763ab	-
G2	12.16±0.288b	-12.0752
G3	15±1a	8.45987
G4	14.66±1.04a	6.001446
G5	13.33±1.52ab	-3.61533
G6	15±0.5a	8.45987
LSD	1.677	

G1: Control(-ve), G2: 5% marjoram, G3: 10% marjoram, G4: 5% Vitexagnus-castus, G5: 10% Vitexagnus-castus, G6: 2.5% marjoram and 2.5% Vitexagnus-castus. FI: Feed Intake. LSD: Least significant differences (P<0.05). Means in the same raw with different letters are significantly different

Table (4): Effect of Marjoram and Vitex Agnus-Castus Seeds on White Blood Cells (WBCs) and red blood cells (RBCs):

	WBCs (10^3 Cells/mm3) mean ± SD	% change of Negative control	RBCs (100^3 Cells/µL) mean ± SD	% change of Negative control
G1	13.71±1.68a	-	6.12±0.23c	-
G2	7.64±0.76b	-44.2743	6.73±0.36b	9.96732
G3	12.95±1.46a	-5.5434	6.21±0.33c	1.470588
G4	12.13±1.30a	-11.5244	6.38±0.075bc	4.248366
G5	12.5±1.56a	-8.82567	7.58±0.12a	23.85621
G6	13.72±0.40a	0.072939	5.62±0.137d	-8.16993
LSD	2.28		0.42	

G1: Control(-ve), G2: 5% marjoram, G3: 10% marjoram, G4: 5% Vitexagnus-castus, G5: 10% Vitexagnus-castus, G6: 2.5% marjoram and 2.5% Vitexagnus-castus. WBCs: White Blood Cells, RBCs: red blood cells, LSD: Least significant differences (P<0.05). Means in the same raw with different letters are significantly different

It is clear from Table (5) that the mean values of the red blood cells (RBCs) for female rat of the normal type (Sprague dawly rats) that feed on both herbs (marjoram and Vitexagnus-castus) (5% and 10%) and that are fed on different diets. It was noted that the average value of red blood cells (RBCs) percentage of the negative control group G1 (-) is 6.12 ± 0.23 Looking at the rest of the groups, it was observed that the rest of the groups (G2, G3, G4, and G5) were larger than the negative control group (-) G1, respectively, was (6.73±0.36,

6.21±0.33, 6.38b±0.075, and 7.58±0.12). It was observed that the G6 group was less than the negative (-) control group, which fed on (marjoram and Vitexagnus-castus) by (2.5, 2.5%), and its percentage value is is 5.62 ± 0.137 and the percentage change is -8.16 % and that the group G5 is much larger than the negative control group, which is fed on the Vitex agnus-castus, by 10%, and its percentage value is 7.58 ±0.12 and the percentage change is 23.85 %[19] .

Table (5): Effect of Marjoram and Vitex Agnus-Castus Seeds on Blood Hemoglobin and Platelet.

	HB (gm /dL) mean ± SD	% change of Negative control	PLT(103/mm3) mean ± SD	% change of Negative control
G1	12.4±0.2b	-	721 ±2c	-
G2	13.5±0.65b	8.870968	567±2d	-21.3592
G3	13.43±0.11b	8.306452	552.66±2.51e	-23.3481
G4	12.73±0.25b	2.66129	775±2b	7.489598
G5	16.86±0.50a	35.96774	817.33±2.51a	13.36061
G6	13.06±0.66b	5.322581	454±2.64f	-37.0319
LSD	0.859		4.08	

G1: Control(-ve), G2: 5% marjoram, G3: 10% marjoram, G4: 5% Vitexagnus-castus, G5: 10% Vitexagnus-castus, G6: 2.5% marjoram and 2.5% Vitexagnus-castus. HB: Blood Hemoglobin, PLT: Platelet, LSD: Least significant differences (P<0.05). Means in the same raw with different letters are significantly different

It is clear from table (5) and figure (5) that the mean values of the blood hemoglobin (HB) for female rat of the normal type (Sprague Dawley rats) that feed on both herbs (marjoram and Vitexagnus-castus) (5% and 10%) and that are fed on different diets. It was noted that the average value of hemoglobin (HB) percentage of the negative control group G1 (-) is 12.4±0.2 As for the rest of the groups, it was noted that the groups (G2, G3, G4, G5, and G6) are larger than the negative control group G1 (-) and the percentage value for them, respectively (13.5±0.65, 13.43±0.11, 12.73±0.25, 16.86±0.50, and 13.06±0.66). It was noted that the groups G5, and G6 are much larger than The negative control group, G1 (-), and the percentage values for them, respectively, are (16.86±0.50, and 13.06±0.66) and that these groups also deviate significantly from the negative control group G1, with different percentages from the negative control group (-) G1, respectively (35.96%, 5.32%) [15].

It is clear from Table (4) and Figure (4) that the mean values of the Platelet Value (PLT) for female rat of the normal type (Sprague Dawley rats) that feed on both herbs (marjoram and Vitex agnus-castus) (5% and 10%) and that are fed on different diets. It was noted that the average value of the (PLT) percentage of Platelet Value (PLT) control group G1 (-) is 721±2c of the rest of the groups, it was noted that the groups (G2, G3, G6) are less than the negative control group (-) G1 and the percentage value for them, respectively

(567±2, 552.66±2.51, and 454±2.64) It was noted that the groups (G4, and G5) are greater than the control group Negative (-) G1 and their percentage value respectively (775±2, and 817.33±2.51) It was also noted that the group G6, which fed on (marjoram and Vitex agnus-castus) at a rate of (2.5, and 2.5%), was much lower and deviated significantly from the negative control group G1 (-) 454 ±2.64 and the percentage of change or difference is -37.03 % [20] .

Table (6): Effect of Marjoram and Vitex Agnus-Castus Seeds on Estrogen.

	Estrogen mean ± SD	% change of Negative control
G1	4.56±0.378d	-
G2	4.81±0.226d	5.482456
G3	6.95±0.83c	52.41228
G4	5.30±0.28d	16.22807
G5	11.43 ±1.026b	150.6579
G6	16.06 ±1.12a	252.193
LSD	1.31	

G1: Control(-ve), G2: 5% marjoram, G3: 10% marjoram, G4: 5% Vitexagnus-castus, G5: 10% Vitexagnus-castus, G6: 2.5% marjoram and 2.5% Vitexagnus-castus. LSD: Least significant differences (P<0.05). Means in the same raw with different letters are significantly different (P ≤ 0.05) E2; estradiol.

It is clear from Table (6) and Figure (6) that the mean values of the estrogen for female rat of the normal type (Sprague Dawley rats) that feed on both herbs (marjoram and Vitexagnus-castus) (5% and 10%) and that are fed on different diets. It was noted that the average value of estrogen percentage of the negative control group G1 (-) is 4.56 ±0.378In view of the rest of the groups, it was noted that the groups (G2, G3, G4, G5, and G6) are larger than the negative control group G1 (-) and the percentage value for them, respectively (4.81±0.226, 6.95±0.83, 5.30±0.28, 11.43±1.026, and 16.06±1.12). It was noted that the groups G5, and G6 are much larger than The negative control group, G1 (-), and the percentage value for them, respectively, is (11.43±1.026, and 16.06±1.12). As well as these groups also deviate significantly from the negative control group G1, with different percentages from the negative control group (-) G1, respectively (150.65%, 252.19%) [16,17].

Broadly speaking, normal levels are between 37 pg/mL (low point during periods) and 229 pg/mL (high point during ovulation). In adult men, estrogen levels should remain fairly constant throughout their lifetime, with a normal range being about 12 to 72 pg/mL [29].

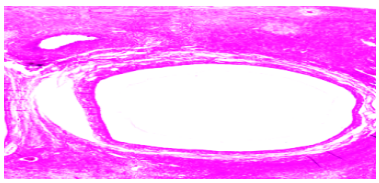
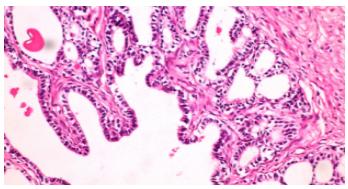
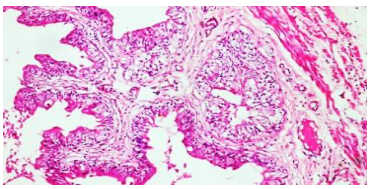

Photo (1): Ovary of rat G (1). showing normal tissue of the ovaries in female rat (H&E X 400)

Photo (2): Ovary of rat G (2). showing hyperplasia of granulose cells with papillary architecture (H&E X 400)

Photo (3): Oviduct of rat G (2). showing hyperplasia in lining epithelial with clear cytoplasm and pyknotic nuclei in addition to congestion of blood vessels were noticed (H&E X 200)

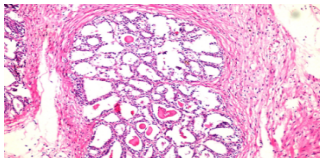

Photo (4): Ovary of rat G (3), showing hyperplasia in ovarian follicles and thick eosinophilic material in the follicular lumen (H&E X 100)

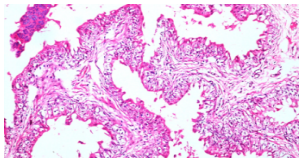

Photo (5): Oviduct of rat G (3) showing hyperplasia in lining epithelial with clear cytoplasm and pyknotic nuclei with edema in lamina propria (H&E X 200)

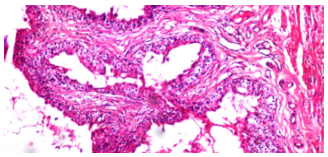

Photo (6): Endometrium of rat (3) showing hyperplasia in lining epithelial with the adhesion of mucosal folds (H&E X 200)

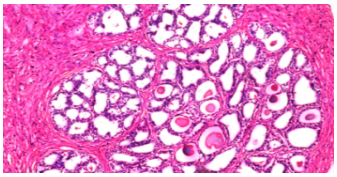

Photo (7): Ovary of rat (4) showing tubulocystic architecture with hyperplasia of ovarian follicles with thick eosinophilic material in follicular lumen (H&E X 100)

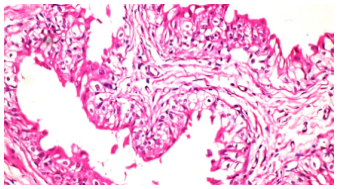

Photo (8): Oviduct of rat G (4), showing edema in lamina propria with hyperplasia in lining epithelial with clear cytoplasm (H&E X 400)

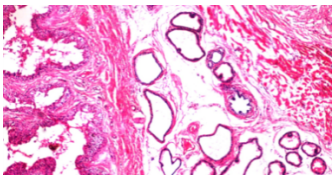

Photo (9): Endometrium of rat G (4), some uterine glands showing cystic dilatation others revealing hyperplasia in lining epithelial with interstitial edema (H&E X 200)

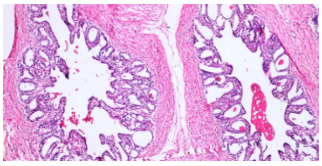

Photo (10): Ovary of rat G (5) showing hyperplasia in ovarian follicles and thick eosinophilic material in follicular lumen (H&E X 200)

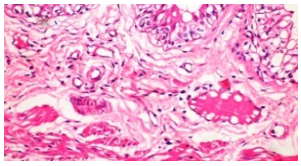

Photo (11): Oviduct of rat G (5) showing edema in lamina propria with congestion of some blood vessels (H&E X 200)

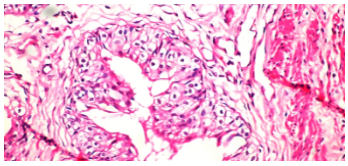

Photo (12): uterus of rat G (5) showing endometrial hyperplasia in the lining epithelium with clear cytoplasm in some cells (H&E X 200

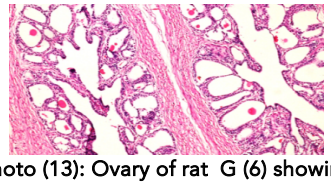

Photo (13): Ovary of rat G (6) showing tubulocystic architecture with hyperplasia of ovarian follicles with thick eosinophilic material in follicular lumen (H&E X 200)

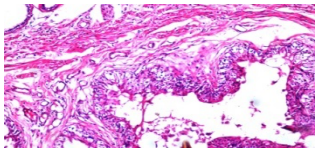

Photo (14): Oviduct of rat (6) showing hyperplasia in lining epithelial with clear cytoplasm and pyknotic nuclei (H&E X 200

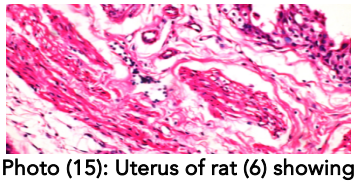

Photo (15): Uterus of rat (6) showing interstitial edema with mononuclear inflammatory cells infiltrations (H&E X 200).

Ovaries of female rats from group 1. Microscopically, based on the normal tissue of the ovaries in female rat, instead, the ovaries of female rat from group 2 showed hyperplasia of granulosa cells with a papillary structure (Photo 2), and the presence of oviduct hyperplasia was observed in female rats in the epithelium lining with the cytoplasm. NET and nuclei allowed in addition to vascular congestion (Photo 3). However, the ovaries of rats from group 3 showed enlargement of ovarian follicles and the presence of thick eosinophilic material in the follicular lumen (Photo 4), and oviduct hyperplasia was observed in female rats in the epithelial lining with clear cytoplasm and motor nuclei with edema in the lamina propria (Photo 5). It also showed endometrial hyperplasia in female rat in the epithelial lining with adhesion of mucosal folds (Photo 6). On the other hand, the ovaries of rats from group 4 revealed a tubular cystic structure with enlarged ovarian follicles with thick eosinophilic material in the follicular lumen (Photo 7), however, in the oviduct, edema in the lamina propria with hyperplasia of the lining of the epithelial layer with clear cytoplasm was evident in the oviduct (Photo 8), and also the endometrium in rats revealed some uterine glands showing cystic dilatation, and others revealing hyperplasia of the lining of the epithelium with interstitial edema (Photo 9). Moreover, the ovaries of rate from group 5 showed enlargement of the ovarian follicles and the presence of thick eosinophilic material in the follicular cavity (Photo 10), and it was noted that the oviduct showed edema in the lamina propria with congestion of some blood vessels (Photo 11), and the uterus of the rats also showed enlargement. The endometrium is in the lining epithelium with clear cytoplasm in some cells (Photo 12). The ovaries of rat in group 6 were observed with a tubular cystic structure with enlarged ovarian follicles with thick eosinophilic material in the follicular lumen (Photo 13), however, in the oviduct, hyperplasia of the epithelial lining with evident cytoplasm and motor nuclei appeared (Photo 14), and also, In the uterus of rats there was interstitial edema with infiltration of mononuclear inflammatory cells (Photo 15) [2].

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الترقيم الدولي اون لاين 2735-590X الترقيم الدولي للطباعة 2735-5934

التغذية وعلوم الاطعمة

تأثير بعض أجزاء النبات (البردقوش وكف مريم)المحتوية على الاستروجين النباتي على المبايض في إناث فئران التجارب

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DOI:10.21608/MKAS.2024.256778.1268

الاستشهاد الي:

Abdel Rahman et al., 2024, Effect of Some Plant Parts (Marjoram and Vitexagnus-Castus) Containing Phytoestrogen on the Ovaries of Female Experimental Rats. JHE, 34 (3), 145-158

تاريخ الاستلام: ١٩ ديسمبر ٢٠٢٣

تاريخ القبول: ١٢ مايو ٢٠٢٤

تاريخ النشر: ١ يوليو ٢٠٢٤

الملخص العربى:

فى هذا البحث تم دراسة التأثيرات العلاجية لنبات البردقوش وكف مريم ودراسة التغيرات البيولوجية البيوكيميائية و الهستوباثولوجية على مبايض إناث فئران المعامل. تم استخدام 30 فأراً وزنها حوالي 150 جرام ±10 خلال فترة التجربة وكان عمرها 3 أشهر. تم استخدام تركيزات البردقوش و كف مريم المجففة بتركيز 5% و 10% و2.5% من الوجبة الأساسية. تم تغذية الفئران بالنظام الغذائي الأساسي لمدة 5 أيام متتالية لتحقيق التكيف. ثم بعد ذلك تقسيم الفئران إلى 6 مجموعات مكونة من 30 فأرًا، كل مجموعة مكونة من 5 فئران. وبعد إجراء التجربة وتسجيل النتائج سجلت نسبة هرمون الاستروجين لمجموعة الضابطة السالبة (المجموعة 1) (-) أقل قيمة (4.56 %)، مقارنة ببقية المجموعات، مع وجود اختلاف معنوي، فى حين . سجلت مجموعة الفئران التي تم تغذيتها على خليط (2.5%، 2.5%)من نبات البردقوش وكف مريم وهى المجموعة السادسة أعلى قيمة للإستروجين (16.06) . بينما سجلت أقل قيمة مع المجموعة التي تغذت بـ كف مريم 5% مقارنة بالمجموعة الأولى (-) مع اختلاف معنوي إذ بلغت القيم (5.3، 16.06) على التوالي. بينما سجلت أقل قيمة مع المجموعة التى تغذت على البردقوش بنسبة 10% مقارنة بالمجموعة الأولى (-) مع اختلاف معنوي حيث بلغت القيم (7.58، 6.21) على التوالي. . أكدت النتائج الهستوباثولوجية صحة التحاليل الكيميائية على أعضاء الجهاز التناسلي (المبيضين، القنوات المبيضية، جدار الرحم).

الكلمات الكاشفة: المبيض ، البردقوش ، كف مريم ، هرمون الاستروجين