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Reduction of Menopausal Symptoms Women with the Roots of Black Cohosh (*Cimicifuga Racemosa*)

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ABSTRACT:

This study examined how powdered black cohosh root affected women's menopausal symptoms. There are two hundred women on the recruitment list, divided into four different groups. The second major menopausal women group (n=50) was once given a normal diet, whilst the first major group (n=50) used to be kept as a negative control group woman. One group of menopausal women was given a 40 mg black cohosh root powder, and the fourth group was given an 80 mg black cohosh root powder for two months. At the end of the experiment, the women's blood was once taken and processed to obtain the serum. The following measurements have been made: the hormones recognized as luteinizing hormone (LH), follicle-stimulating hormone, additionally recognized as (FSH), testosterone hormone, and estrogen hormone. Also, different immunological markers (IgG and IgM) levels, liver enzymes (ALP, ALT, and AST), kidney biomarkers like uric acid, urea, creatinine, lipid fractions like total cholesterol, triglycerides, low-density lipoprotein, very low-density lipoprotein, and high-density lipoprotein have been assessed. The obtained records confirmed that black cohosh root treatment in women significantly increased testosterone, FSH, and estrogen hormones while LH hormone declined. Also, lipid fractions and kidney and liver biomarkers decreased, whilst HDL-c performed the reverse. In conclusion, black cohosh powder has favorable influences on women's menopausal symptoms, hormones, and the immune system in women.

Keywords: Woman, black cohosh, menopause, Sexual hormones.

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1. INTRODUCTION

Although women's health is an urgent world issue, it is still mostly unnoticed in underdeveloped nations and has now not but received prominence in industrialized ones either. Many specific health problems that affect women have both pathological and physiological causes. These gender-specific illnesses include cancers of the ovary, breast, and cervical regions in addition to physical problems like osteoporosis and menopause, which frequently occur (1). Women's health concerns, such as postmenopausal syndrome,

have drawn the hobby of academics and clinical experts recently, growing new opportunities for medical and pharmaceutical research. Hormone shortage causes a health phenomenon known as postmenopausal syndrome (PMS), which is primarily experienced by women but is no longer considered an illness. Women's suffering has multiplied due to longer existence expectancies, necessitating pharmaceutical interventions. Among the available treatment options, using a variety of plants or herbs has shown to be an advantageous tool for women's fitness administration (2). Menopause, which is greater precisely described as an ordinary transition time in reproductive females, is an herbal health subject for female worldwide. Dramatic hormonal adjustments are its defining feature, and social adjustments often occur frequently. It is also likely to change a woman's mental and physical requirements. A person female's bodily and emotional necessities are probable additionally altered by way of it. Ovarian dysfunction-related low estrogen stages are a widespread trait shared by means of postmenopausal women. Postmenopausal syndrome (PMS) is the collective time for a wide range of symptoms that may also result from this fluctuation in hormone tiers (3). When ovarian characteristic begins to decline at the age of forty-five to fifty-four, menopause normally occurs. An estimated 25 million female globally ride menopause annually, and through 2030, there will be 1.2 billion menopausal and postmenopausal females worldwide, with 47 million beginners to the populace every yr (4). In as many as 85% of women, menopausal estrogen shortage is linked to vasomotor, vaginal, and psychological symptom such as hot flashes, dry vagina, and bone loss. For these problems, hormone alternative remedy (HRT) is a beneficial strategy. Nonetheless, the consequences of two current essential randomized scientific trials (RCTs) recommended that for girls on non-stop estrogen and progestin regimens, the dangers related with HRT would possibly outweigh the advantages (5). Menopause influences a woman's organs, body, and social connections in addition to her intellectual state. Postmenopausal osteoporosis is a normal circumstance related with adjustments in bone shape and a minimize in bone mass that is commonly added on by using a lack of estrogen (6).

Treatments aimed at lessening the intensity and occurrence of these menopausal symptoms are probably going to enhance an individual's overall health and life satisfaction. Native Americans have long utilized the herb black cohosh to treat irregular menstruation, and numerous experimental investigations suggest that black cohosh may also be useful in the menopause (7). Cimicifuga racemose, or CR, is one such plant that belongs to the Ranunculaceae family. It is also known as rheumatic weed, black cohosh, rattle weed, snakeroot, squaw root, and bugbane (8). Black cohosh's root and rhizome have long been used to treat a variety of illnesses, including rheumatism, malaria, colds, sore throats, and problems related to delivery. It also has several traditional uses and is widely utilized for solving health-related difficulties for women (9). Europeans have been using black cohosh for centuries to alleviate menopausal symptoms, and a new medical study backs up the herb's effectiveness and protection (10). Black cohosh is presently regularly used to deal with menopausal signs and symptoms in postmenopausal women, together with vaginal dryness, hot flashes, night sweats, sleep problems, vertigo, restlessness, and mood adjustments (11). The function that black cohosh performs in complementary and choice treatment options aimed at enhancing postmenopausal symptoms, as effectively as possible as a helpful herbal source for hormone-exchange alternative treatment. In addition, our aim used to be to methodically emphasize the bioactive factors of CR, its pharmacology, pharmacokinetics, therapeutic

potential, chromatographic techniques, great manipulate procedures, and possible mechanisms of motion to strengthen phytomedicine for women's health that is clinically advisable (12).

The purpose of this study was to investigate into the potential effects of various dosages of black cohosh roots on women's menopausal hormones as well as various biochemical markers.

2. MATERIAL AND METHODS

Materials

Source of black cohosh

The roots of black cohosh (Cimicifuga racemose) have been offered in Cairo, at the Haraz herbalist store.

Research methodology

The women's health hospital at Menoufia University's Gynecology Clinic used to be the beginning point for the sampling, which proceeded till the goal sample dimension was once reached. Women between the ages of 45 and 60 who referred to the have been the target group. Study included female participants who expressed interest in learning more and complained about menopausal vasomotor symptoms and hot flashes, the usage of the health archives of women who had earlier obtained family planning offerings and have been now postmenopausal (13).

Inclusion and exclusion criteria

In this cross sectional/case control study, 200 healthful postmenopausal females participated after receiving approval from the Institutional Review Board. They have been observed up for eight weeks after attending the Genecology Clinic of the Women's Health Hospital, Menoufia University, Menoufia, Egypt. Only the 200 women who completed the 8-week follow-up length had been viewed in the study. With a vary of 45 to 60 years, their suggest age was once 54.72±2.63 years (SD). Ages over 40 with a one-year gap after the final menstrual cycle, the presence of menopause-related symptoms, the absence of gynecologic diseases, natural menopause, consent to take part after receiving an enough rationalization of the learn about design, and accessibility for events follow-up had been amongst the inclusion criteria.

Women have been knowledgeable about the trial as a safety investigation on phytoestrogens for the remedy of menopausal symptoms. Vaginal bleeding, active or continual liver disorder and/or abnormal liver functions, thromboembolic disease, breast or uterine tumors, endometrial thickness larger than 5 mm by using transvaginal ultrasonography, and use of complementary, alternative, or natural drugs for menopausal symptoms inside the preceding three months had been amongst the exclusion criteria.

Following receipt of enough records involving the trial's effects, every woman furnished signed consent to take part in it. A subjective record on menopausal symptoms in accordance with (14) was once performed earlier than the use of each day dose of 40 and 80 mg as supercharged each day training of black cohosh and for eight weeks thereafter.

Experimental woman

In August 2023 the Ethics Committee of Menoufia University's Faculty of Home Economics approve study protocol #12-SREC-04-2023.

Two-hundred women participated in the study, 50 in every group: 50 normal make up Group C1 (-) Control (Normal woman). This is a female in her natural state; she is at the ovulation stage, and we have not given her any plants or drinks. 50 patients make up Group C2 (+) Control (a menopausal woman). A menopausal woman who obtained neither drink nor plant. Menopausal women in Group C3 (50 patients) have been given 40 mg of black cohosh once a day as a hot drink (in boiling woter). Menopausal women in Group

C4 (50 patients) had been given a drink containing 80 mg of black cohosh once a day.

Biochemical analysis

Each woman had blood samples taken after testing. Blood samples had been put in sterile, sanitized centrifuge tubes and left to coagulate at room temperature for 10 minutes to separate the serum. The serum used to be absolutely separated, positioned into sanitized centrifuge pipes, and frozen at -18°C to put together it for evaluation (15).

Clinical and laboratory testing used to determine evaluation parameters, which included:

The luteinizing hormone (LH) levels have been measured via calorimetric measurement by (16) techniques. Follicle stimulating hormone (FSH) concentration in participants' plasma was once measured quantitatively the use of an FSH ELISA package from Chemux Bio-Science Inc. in South San Francisco, California, in accordance with (17). Estrogen content was once measured quantitatively the usage of an ELISA package from Chemux Bio-Science Inc. in South San Francisco, California (18). IBL International GMBH, Hamburg, Germany presents a testosterone ELISA package for the quantitative measurement of testosterone concentration, as mentioned by (19).

Purified myeloma IgM from Serotec (Oxford, United Kingdom) and chromatographically pure rat IgG from Cappel (PA, USA) have been obtained using the method of (20).

Enzymatic colorimetry used to be used to test alkaline phosphatase (ALP) in accordance with (21). Using a package provided by means of Human, Germany, ALT activities in serum have been determined using the modified kinetic method of (22). On the other hand, the (23) technique was once applied for assessing aspartate amino transferase (AST) activity.

Total cholesterol was once measured, in accordance with (24). Triglyceride measurements have been made using the techniques described in (25). High-density lipoproteins can be measured with the use of the (26) approach (HDL-c). The estimation of VLDL and LDL used to be carried out in accordance with approach (27). VLDL (mg/dl) = Triglycerides /5. LDL (mg/dl) = (Total cholesterol – HDL) – VLDL.

Urea was once calculated the usage of the enzymatic technique of (28). Uric acid was once quantified whilst utilizing the enzymatic approach of (29). The kinetic approach of (30) used to be utilized to determine creatinine.

Statistical analysis:

The data were analyzed using a completely randomized factorial design (SAS, 1988) when a significant main effect was detected; the means were separated with the student-Newman-Keuls Test. Differences between treatments of ($P \leq 0.05$) were considered significant using Costat Program. Biological results were analyzed by One Way ANOVA.

3. Results and Discussion

Table 1 shows the average LH hormone ranges in women who are menopausal and in those who are normal, given different black cohosh levels. The average LH hormone values, which ranged from 3.60 to 7.20 mIU/ml for the groups with negative control (normal women) and positive control (menopausal women), certainly differed extensively between them. Regarding the groups of menopausal women, the findings revealed that the group that obtained 80 mg of black cohosh had the significantly lowest LH hormone value recorded. However, the highest recorded values had been 3.90 and 5.23 mIU/ml in the group that took 40 mg of black cohosh, respectively.

FSH hormone was once observed to have a suggest value of 25.35 and 33.28 mIU/ml, respectively, in the group with negative control, which was once substantially greater than the group with positive control. However, the FSH hormone value was once appreciably greater in the menopausal female groups' findings when they had been administered 40 mg of black cohosh. Conversely, the group fed

80 mg of black cohosh recorded decrease values, 29.15 and 26.54 mIU/ml, respectively. It should be stated that there are great variations in the common testosterone values of 1.25 and 1.16 ng/ml between the groups with the negative and positive control groups. Regarding the groups of menopausal women, the outcomes received indicated that the non-significantly testosterone hormone was once observed with the group that received 80 mg of black cohosh and the group that acquired 40 mg, with respective values of 1.24 and 1.20 ng/ml.

Table 1 illustrates the various dose of black cohosh provided to menopausal women collectively with their foods in the case of estrogen hormone. It is evident that the groups containing control negative and high-quality women have extensively different average estrogen hormone values, ranging from 73.37 to 53.61 pg/ml. Regarding the groups of menopausal women, the results revealed that the team that took forty milligrams of black cohosh had the lowest recorded levels of estrogen hormone. However, the best value observed was 59.11 and 67.42 pg/ml, respectively, in the group that took 80 mg of black cohosh. The outcomes of this investigation confirm the claims cited by (32) that the activities of enzymes linked to reproductive hormones are additionally regarded to be correlated with ranges of LH and FSH. Depending on the menopause transition period, LH and FSH have a range of relationships with reproductive hormones.

It was once believed that hot flashes were associated with changes in release of LH, and by inference hypothalamic luteinizing hormone-releasing hormone (LHRH), but this association is not invariant (33). If black cohosh increased estrogen levels and this in turn decreased LH pulsatile release, this might influence the incidence of hot flashes (34)

Table (1): Influence of various levels of black cohosh on sexual hormones of normal and menopausal woman

Parameters / Groups	LH (mIU/ml)	FSH (mIU/ml)	Testosterone (ng/ml)	Estrogen (pg/ml)
C1 (-) Control (Normal woman)	3.60c ±0.21	25.35d±0.34	1.25a±0.14	73.37a±2.03
C2 (+) Control (Menopausal woman)	7.20a ±0.74	33.28a±1.21	1.16b±0.12	53.61d±1.16
C3 Menopausal woman with 40 mg black cohosh	5.23b ±0.52	29.15b±1.13	1.20a±0.25	59.11c±2.34
C4 Menopausal woman with 80 mg black cohosh	3.90c ±0.48	26.54c±1.10	1.24a±0.12	67.42b±1.58
LSD (P≤0.05)	1.015	1.130	0.081	1.750

Means in the equal column with different superscript letters point out a significant difference at P≤0.05.

Table 2 presents the average serum IgG studying for women who are menopausal and who observe different levels of black cohosh diets. When in contrast to the control positive woman group, whose great serum IgG concentration was once 1155.86 mg/ml, the negative control female group's result was plenty higher. In comparison, groups of menopausal women showed a significantly higher IgG value when fed 80 mg of black cohosh, in contrast to a decrease value when fed 40 mg of black cohosh, the means values were 1177.00 and 1163.50 mg/ml.

It was previously evident that the negative control group woman's average IgM readings, which had been 235.00 and 223.18 mg/ml, respectively, had been significantly greater than those of the positive control group woman. Regarding menopausal women groups, the findings confirmed that the decrease cost recorded with group receiving 40mg black cohosh was once 227.26 mg/ml, whereas the significantly larger value recorded with group receiving 80mg black cohosh was once 230.35 mg/ml. The outcomes corroborate the statement made with the aid of (35) that because of the

Women's Health Initiative, more women would resort to black cohosh to alleviate symptoms of menopause.

Estrogen enhances antibody production by human peripheral blood mononuclear cells in vitro by enhancing IL-10 production by monocytes. However, the effect of estrogen on antibody production in the female genital tract appears to be more complex. Although estradiol elevates the levels of IgG, and IgA, in the uterus of ovariectomized rats (36).

Additionally, describe an instance of immunomodulatory treatment-responsive autoimmune hepatitis that was once likely added on by using black cohosh. These case reports consist of no patients with records of liver harm or exposure to different viable hepatotoxins (37).

Table (2): Influence of different amounts of black cohosh on immunity parameters of normal and menopausal woman

Parameters Groups	IgG (mg/ml)	IgM (mg/ml)
C1 (-) Control (Normal woman)	1180.00a±4.70	235.00a± 3.70
C2 (+) Control (menopausal woman)	1155.86d±4.21	223.18d± 2.85
C3 Menopausal woman with 40 mg black cohosh	1163.50c±4.67	227.26c± 3.00
C4 Menopausal woman with 80 ml black cohosh	1171.00b±5.11	230.35b± 3.30
LSD (P≤0.05)	5.860	2.440

Means in the equal column with different superscript letters point out a significant difference at P≤0.05.

Table 3 indicates the effects of different doses of black cohosh on liver function markers such as ALT, AST, and ALP in each menopausal and everyday woman. The ALT liver enzyme concentrations in the groups with the positive and negative control women which 26.24 and 23.00 U/L, respectively were considerably greater. Regarding the corporations of menopausal women, the records confirmed that the higher value was once recorded with the group that acquired 40mg of black cohosh, and the considerably decrease value used to be recorded with the group that acquired 80mg, that means 23.70 and 24.35 U/L, respectively.

It seems that the group of women who have been positive controls had AST liver activity that was once considerably greater than the group of women who had been bad controls. The readings had been 25.00 and 21.30 U/L on average. On the different hand, records on treated groups of menopausal women confirmed that the group that obtained 80 mg of black cohosh had a considerably decrease recorded AST value. On the different hand, the higher suggested value with the group that took 40mg of black cohosh intended 22.69 and 24.20 U/L.

In terms of ALP liver activity, the group with positive control women carried out a great higher than the group with control terrible women. The common values were 39.00 U/L and 44.20 U/L. When treated menopausal women groups had been taken into consideration, the data collected confirmed that the groups who obtained 80 mg of black cohosh had considerably decrease ALP values (40.40 and 42.50 U/L), whereas the groups that obtained 40 mg of black cohosh had extensively greater values. These results are consistent with the findings of (38) regarding the influence of black cohosh on hepatic perfusion. After utilizing black cohosh for a year, there were no discernible changes in the hepatic artery blood flow, portal vein blood flow, or complete hepatic blood flow measured the usage of Doppler technology. The postmenopausal healthy women without liver disease who took 40 mg of black cohosh daily for over a year did not appear to experience any liver-related side effects.

Furthermore, because of their potent antioxidant effects, the development of novel

dietary supplements from a varied herbal world has been shown to boost the liver activities of ALP, AST, and ALP in rat groups (39).

On the other hand, the study of (40) concluded that liver injury following the use of black cohosh should be included in the list of differential diagnoses for chronic hepatitis with features mimicking autoimmune hepatitis.

Table (3): Influence of different levels of black cohosh on liver activity of normal and menopausal woman

Parameters / Groups	Serum AST (U/L)	Serum ALT (U/L)	Serum ALP (U/L)
C1 (-) Control (Normal woman)	21.30c±0.40	23.00c±0.30	39.00d±1.20
C2 (+) Control (menopausal woman)	25.00a ± 0.49	26.24a ±0.57	44.20a±1.35
C3 Menopausal woman with 40 mg black cohosh	24.20a ±0.52	24.35b ±0.48	42.50b±1.42
C4 Menopausal woman with 80 ml black cohosh	22.69b ±0.30	23.70c ±0.41	40.40c±1.20
LSD (P≤0.05)	1.026	0.985	1.260

(ALT) = Alanine amino transferase. (AST)= Aspartate amino transferase. (ALP)= Alkaline phosphatase. Means in the equal column with different superscript letters point out a significant difference at P≤0.05.

Table (4) displays the impact of various black cohosh concentrations on the serum triglycerides (TG) of woman who are menopausal. It is obvious that the TG of control positive group women showed that the significantly greater value when compared to group with control negative women, that were 160.50 and 145.00 mg/dl, accordingly. As for treated menopausal women groups, the data collected demonstrated significantly lesser TG value recorded with group received 80 mg black cohosh, thus greater range recorded with group received 40 mg black cohosh, which were 148.50 and 153.50 mg/dl, respectively.

About the blood total cholesterol (TC) in females who obtained black cohosh. The TC values for the group of females who have been positive controls have been considerably higher than those of the group of females who have been negative controls, at 181.50 and 160 mg/dl, respectively. The statistics received on the groups of treated menopausal female revealed a substantially decrease total cholesterol (TC) value for the group that obtained eighty mg of black cohosh, in contrast to a larger value for the group that obtained 40 mg of black cohosh. The average amounts had been 167.50 and 172.00 mg/dl. These observations assist the findings (41) that female treated with 0.625 mg of black cohosh, with or except medroxyprogesterone acetate, had decreased levels of cholesterol and LDL and increased ranges of HDL and triglycerides.

In addition, black cohosh extract lowered total cholesterol (TC) and low-density lipoprotein cholesterol (LDL-c) levels but did not affect high-density lipoprotein cholesterol or triglyceride (TG) levels (42).

Table (4): Influence of various levels of black cohosh on triglycerides and total cholesterol of normal and menopausal woman

Parameters / Groups	Serum triglycerides (mg/dl)	Serum total cholesterol (mg/dl)
C1 (-) Control (Normal woman)	145.00d± 2.72	160.00d±3.50
C2 (+) Control (menopausal woman)	160.50a ±3.40	181.50a±3.62
C3 Menopausal woman with 40 mg black cohosh	153.50b ±3.12	172.00b±3.46
C4 Menopausal woman with 80 ml black cohosh	148.50c±3.05	167.50c±3.41
LSD (P≤0.05)	2.835	3.280

Means in the equal column with different superscript letters point out a significant difference at P≤0.05.

The average serum HDL-c ranges of normal and menopausal woman served on a variety of diets had been proven in Table (5). Comparing the values of the two control groups, the negative control women group proven a considerably larger value compared with positive control women, which were 51.50 and 43.00 mg/dl, respectively. As for the treated menopausal woman groups, the obtained results observed that with significantly greater HDL-c value recorded with group received 80 mg black cohosh, while the lesser value recorded with group received 40 mg black cohosh, which were 42.31 and 36.47 mg/dl.

Table (5) indicates the serum LDL-c ranges of woman received a variety of diets. It must be stated that the suggested LDL-c value of the group with control positive women was once considerably greater than that of the group with control negative, that were 106.40 and 79.50 mg/dl. As for the treated menopausal woman groups, the obtained results showed that the significantly greater LDL-c value recorded with group given 40 mg black cohosh, whilst the lesser value recorded with group given 80 mg black cohosh, that were 59.54 and 44.08 mg/dl. Women who acquired a vary of diets had different serum VLDL-c levels. The average varies of VLDL-c in the group of females who examined high quality was once determined to be appreciably greater than that of the group of women who examined negative, ranging from 32.10 to 29.00 mg/dl.

Regarding the groups of treated menopausal women, the findings confirmed that the group that obtained 40 mg of black cohosh had a considerably greater VLDL-c value (30.70 mg/dl) than the group that acquired 80 mg of black cohosh (30.70 mg/dl). These effects corroborate (43), which stated that after six months (+1.5 mg/dl) and 52 weeks (+7 mg/dl), two trials determined modest however statistically large increases in HDL-c from baseline. A significant minimize in LDL-c (−7.7 mg/dl) was once detected after 12 weeks in the find out about by way of (44) however a significant extend in LDL-c (+8 mg/dl) used to be stated after fifty-two weeks in the different study.

Table (5): Influence of various levels of black cohosh on lipid fractions of normal and menopausal woman

Parameters / Groups	Serum HDL-c (mg/dl)	Serum LDL-c (mg/dl)	Serum VLDL-c (mg/dl)
C1 (-) Control (Normal woman)	51.50a±1.61	79.50d±1.75	29.00±1.27
C2 (+) Control (menopausal woman)	43.00d±1.61	106.40a±2.17	32.10a ±1.43
C3 Menopausal woman with 40 mg black cohosh	46.10c±1.42	95.20b±1.60	30.70a ±1.51
C4 Menopausal woman with 80 ml black cohosh	49.63b±1.45	88.17c±1.58	29.70a±1.60
LSD (P≤0.05)	1.405	1.790	1.081

HDL-c= High-density lipoprotein. LDL-c= Low-density lipoprotein. VLDL-c= very low-density lipoprotein.
Means in the equal column with different superscript letters point out a significant difference at P≤0.05.

Table (6) illustrated the average urea for women fed on variety of black cohosh serum urea of positive control group women showed that the significantly greater value when compared to group with negative control, that were 34.10 and 32.00 mg/dl. As for treated menopausal woman groups, the results attained showed that the significantly greater urea value captured with group received 40 mg black cohosh, but lesser value recorded with group received 80 mg black cohosh, which mean 33.05 and 32.71 mg/dl, respectively.

Table (6) displays the average blood creatinine concentration for women with menopausal given varied black cohosh. The serum creatinine of control positive group women showed that the non-significantly higher

concentration as comparing to group with negative control, that were 1.25 and 0.85 mg/dl. As for treated menopausal woman groups, the outcomes attained showed non-significantly higher creatinine concentration observed for group receiving 40 mg black cohosh, but lesser concentration observed for group receiving 80 mg black cohosh, which mean 1.03 and 0.93 mg/dl.

The group of females with control positive confirmed a drastically wider vary in common uric acid concentration (5.85 and 4.60 mg/dl) than the group with control negative. Regarding the groups of menopausal females who acquired treatment, the records confirmed that the group that obtained forty mg of black cohosh had a significantly greater uric acid content. However, the group that bought eighty mg of black cohosh-that is, 5.40 and 4.90 mg/dl-showed much less concentration. The outcomes of this find out about corroborate the reports of humans who noted that the (45), They mentioned that all the examined formulae consisting of black cohosh had a renal safety profile, with no considerable transformations determined in the ranges of creatinine and uric acid in the renal function. In contrast to the control group, the group that received foods with black cohosh validated a noteworthy 40% reduction in uric acid, similarly indicating the importance of a healthful metabolism in the protein and renal milieu.

Additionally, all kidney-damaging diet groups confirmed a sizeable minimize in the crew whose averages for urea, uric acid, and creatinine had been effective for the manage group. The group who obtained the 5% herb combination had the lowest statistics, but there used to be no difference between them and the group with control negative (46).

Table (6): Influence of various levels of black cohosh on kidney biomarkers of normal and menopausal woman

Parameters Groups	Serum urea (mg/dl)	Serum uric acid (mg/dl)	Serum creatinine (mg/dl)
C1 (-) Control (Normal woman)	32.00a±0.46	4.60b±0.57	0.85a±0.37
C2 (+) Control (menopausal woman)	4.10a±0.61	5.85a±0.63	1.25a±0.5
C3 Menopausal woman with 40 mg black cohosh	3.05a±0.17	5.40a±050	1.03a±0.40
C4 Menopausal woman with 80 ml black cohosh	32.71a±0.44	4.90b±0.31	0.93a±0.59
LSD (P≤0.05)	1.335	0.680	0.740

Means in the equal column with different superscript letters point out a significant difference at P≤0.05.

4. Conclusion

Using black cohosh powder as a decoction to enhance women menopausal symptoms and immunity due to the fact it has high quality effects on reproductive hormones and the immune system in rats, particularly at 80 mg daily.

Conflict of Interest

The authors declare that there is no conflict of interest.

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5. References:

1. Liske E. Cimicifuga racemosa: a systematic review of its clinical efficacy. Eur J Clin Pharmacol. 2002 Aug;58(4):235-41. https://doi.org/10.1007/s00228-002-0457-2
2. DePree, B.M.D.; Houghton, K.M.M.; Benedetti, D.B.; Shiozawa, M.B.; King, D.D.; Kim, J. and Mancuso, D.O. Practice patterns and perspectives regarding treatment for symptoms of menopause: qualitative interviews with US health care providers. Menopause, (2023); 30 (2): 128-135.

https://doi.org/10.1097/GME.0000000000002096
3. Reid, R.; Abramson, B.L.; Blake, J.; Desindes, S.; Dodin, S.; Johnston, S.; Rowe, T.; Sodhi, N.; Wilks, P. and Wolfman, W. Managing Menopause. Journal of Obstetrics and Gynaecology Canada, (2014); 36: 830-833. https://www.jogc.com/article/S1701-2163(15)30487-4/fulltext
4. Hall, J.E. Endocrinology of Menopause. Endocrinology Metabolism Clinical North America, (2015); 44 (3): 485 https://doi.org/10.1016/j.ecl.2015.05.010
5. Sturdee, D.W.; Hunter, M.S.; Maki, P.M.; Gupta, P.; Sassarini, J. and Stevenson, J.C. The menopausal hot flush: A review. Climacteric, 20 (4): (2017); 296-305. https://doi.org/10.1016/j.maturitas.2008.02.006
6. Youssef, H.E.; Abeer khder, A. and Nour El-Din, A.G. Effect of germinated chickpea flour on bone health of ovariectomized rats as model of menopause. Journal of Home Economics, 30 (4): 47-62. HTTPS://DOI.ORG/10.21608/MKAS.2020.159036
7. Wang, C. Huang, Q. and Liang, C.L. Effect of cimicifuga racemosa on menopausal syndrome caused by LHRH-a in breast cancer. Journal Ethnopharmacology, (2019); 238:1-9. https://doi.org/10.1016/j.jep.2019.111840
8. Wuttke, W.; Jarry, H.; Haunschild, J.; Stecher, G.; Schuh, M.; Seidlova-Wuttke, D. The non- strogenic alternative for the treatment of climacteric complaints: Black cohosh (Cimicifuga or Actaea racemosa). Journal Steroid Biochemistry Molecular Biology, (2014); 139: 302-310. https://doi.org/10.1016/j.jsbmb.2013.02.007
9. Gardner, Z.E. and McGuffin, M. American Herbal Products Association's Botanical Safety Handbook, 2nd ed.; CRC Press: (2013); Boca Raton, FL, USA. https://doi.org/10.1201/9780367803841
10. Predny, M.L.; De Angelis, P. and Chamberlain, J.L. Black Cohosh (Actaea racemosa): An Annotated Bibliography; General Technical, Report; SRS–97; U.S. Department of Agriculture Forest Service, Southern Research Station: (2006); Asheville, NC, USA, p. 99. https://doi.org/10.2737/SRS-GTR-97
11. Wuttke, W.; Seidlová-Wuttke, D. and Gorkow, C. Cimicifuga preparation BNO 1055 vs. conjugated estrogens in a double-blind placebo-controlled study: Effects on menopause symptoms and bone markers. Maturities, (2003); 44: 67-77. https://doi.org/10.1016/S0378-5122(02)00350-X
12. Leach, M.J. and Moore, V. Black cohosh (Cimicifuga spp.) for menopausal symptoms. Cochrane Database Systematic Review, (2012); 1: 1-7. https://doi.org/10.1002/14651858.CD007244
13. Bennett, A. A simplified general method for cluster-sample surveys of health in developing countries. World health statistics quarterly, (1991); 44 (3):98-106. https://pubmed.ncbi.nlm.nih.gov/1949887/
14. Mattiasson-Nilo, I. Domestic activities and walking in the elderly: evaluation from a 30-hour heart rate recording. Aging (Milano), (1990); 2 (2):191-198. https://doi.org/10.1007/bf03323916
15. Chapman, D. G.; Castilla, R. and Campbell, J.A. Evaluation of protein in food. I. A. method for the determination of protein efficiency ratio. Canadian. Journal of Biochemistry Physiology, (1959); 37 (5): 679-686. https://cdnsciencepub.com/doi/10.1139/o59-074
16. Fahim, M.S.; Fahim, Z. and Harman, J.M. Clevenger, T.E.; Mullins, W.; Hafez, E.S. Effect of Panax ginseng on testosterone level and prostate in male rats. Arch Andrology, (1982); 8 (4): 261-263.

https://doi.org/10.3109/01485018208990207

17. Swerdloff, R. and Wang, C. Free testosterone measurement by the analog displacement direct assay and new evidence. Clinical Chemistry, (2008); 54 (3):458-460. https://doi.org/10.1373/clinchem.2007.101303
18. Rebar, R.W. Erickson, G.F. and Yen, S.S. Idiopathic premature ovarian failure: clinical and endocrine characteristics. Fertility and Sterility, (1982); 37 (1): 35-41. PMID: 6800842
19. Ratcliffe, W.A.; Carter, G.D.; Dowsett, M.; Hillier, S.G.; Middle, J.G. and Reed, M.J. Oestradiol assays: applications and guidelines for the provision of a clinical biochemistry service. Annal Clinical Biochemistry, (1988); 25 (5): 466-483. https://doi.org/ 10.1177/000456328802500502
20. Salauze, D.; Serre, V. and Perrin, C. Quantification of Total IgM and IgG Levels in Rat Sera by a Sandwich ELISA Technique. Comparative Hematological International (1994); https://doi.org/10.1007/BF00368263
21. Belfield, A. and Goldberg, D.M. Revised assay for serum phenyl phosphatase activity using 4-amino-antipyrine. Enzymes, (1971);12 (5): 561-573. https://doi.org/10.1159/000459586
22. Hafkenscheid, J.C. Determination of GOT. Clinical Chemistry Journal, (1979); 25:155. https://doi.org/10.1093/clinchem/25.1.55
23. Young, D.S. Determination of AST. Clinical Chemistry Journal, (1975); 22 (5):1-21. https://pubmed.ncbi.nlm.nih.gov/1091375/
24. Allain CC, Poon LS, Chan CSG, Richmond W, Fu PC. Enzymatic determination of total serum cholesterol. Clin Chem. 1974 Apr;20(4):470–475. https://doi.org/10.1093/clinchem/20.4.470
25. **Fossati P, Prencipe L.** Serum triglycerides determined colorimetrically with an enzyme that produces hydrogen peroxide. *Clin Chem.* 1982;28(10):2077–2080. https://doi.org/10.1093/clinchem/28.10.2077
26. Wadehra NR. A colorimetric method for the estimation of cholesterol from high density lipoprotein and its subclasses. Indian J Clin Biochem. 1990;5(2):131–134. https://doi.org/10.1007/BF02873500
27. Lee, R. and Nieman, D. National Assessment. 2nd Ed., Mosby, (1996); Missouri, USA. https://openlibrary.org/works/OL2936993W/Nutritional_assessment?
28. Patton, C.J. and Croush, S.R. Enzymatic determination of urea. Journal Analytical Chemistry, (1977); 49: 464-469. https://doi.org/10.1021/ac50011a034
29. Barham, D. and Trinder, P. Determination of uric acid. Analyst, (1972); 97:142–146. https://doi.org/10.1039/an9729700142
30. Schirmeister, J. Creatinine standard and measurement of serum creatinine with picric acid. Deutsche Medizinische Wochenschrift, (1964); 89: 1018-1021.
31. **SAS Institute.** *SAS User's Guide: Statistics*. Version 5 ed. Cary (NC): SAS Institute Inc.; 1988. https://support.sas.com/documentation/onlinedoc/91pdf/sasdoc_91/stat_ug_7313.pdf

30. Kawakita, T.; Yasui, T.; Yoshida, K.; Matsui, S. and Iwasa, T. Associations of LH and FSH with reproductive hormones depending on each stage of the menopausal transition. BMC Women's Health, (2023); 23 (286): 1-9. 10.1186/s12905-023-02438-5

31. Nelson, H.D. Menopause. The Lancet, (2008); 371 (1):760-770. https://doi.org/10.1016/S0140-6736(08)60346-3

32. Yen, S.S.; Tsai, C.C.; Naftolin, F.; Vandenberg, G. and Ajabor, L. Pulsatile patterns of gonadotropin release in subjects with and without ovarian function. Journal Clinical Endocrinology Metabolism, (1972); 34:671-675. https://doi.org/10.1210/jcem-34-4-671

33. Cohen, S.M.; O'Connor, A.M.; Hart, J.; Merel, N.H. and Te, H.S. Autoimmune hepatitis associated with the use of black cohosh: a case study. Menopause, (2004); 11:575-577. https://doi.org/10.1097/01.gme.0000142914.55849.6a

34. Kanda, N. and Tamaki, K. Estrogen enhances immunoglobulin production by human PBMCs. Journal Allergy Clinical Immunology, (1999); 103:282-288. https://doi.org/10.1016/S0091-6749(99)70503-8

35. Franco, D.L.; Kale, S.; Lam-Himlin, D.M. and M. Edwyn Harrison, M.E. Black cohosh hepatotoxicity with autoimmune hepatitis presentation. Case Reports in Gastroenterology, (2017); 11(1): 23-28. https://doi.org/10.1159/000452735

36. Mazzanti, G.; Di Sotto, A.; Franchitto, A.; Mastrangelo, S.; Pezzella, M. and Vitalone, A. Effects of Cimicifuga racemosa extract on liver morphology and hepatic function indices. Phytomedicine. (2009); In press. https://doi.org/10.1016/j.phymed.2008.02.023

37. Naser, A. and Nafeh, H. Influence of black cohosh (Cimicifuga racemosa) use by postmenopausal women on total hepatic perfusion and liver functions. Fertility and Sterility, (2009); 92 (5): 1780-1782. https://doi.org/10.1016/j.fertnstert.2009.05.038

38. Grace Guzman, Eric R Kallwitz, Christina Wojewoda, Scott J Cotler. Liver Injury with Features Mimicking Autoimmune Hepatitis following the Use of Black Cohosh. Case Reports in Medicine, (2009); (7):918156. https://doi.org/ 10.1155/2009/918156.

39. Ragab, S.S.; El-Tahan, N.R. and Elmokdem, D.E. Biological, studies of some herbal and plants formula on the healthy status of obese female Rats. Journal of Home Economics, (2020); 30 (4): 233-248. https://doi.org/10.21608/MKAS.2020.159939

40. Kim, E.; Song, A.; Kim, Y.; Yoon, B. Lee, Y.J. and Rhyu, M. Black cohosh (Actaea racemosa, L.) improves serum lipid profiles and vasomotor responses in ovariectomized rats. Journal of Food and Nutrition Research, (2017); 5 (8): 539-544. https://doi.org/10.12691/jfnr-5-8-2

41. El-Dashlouty, M.S.; Al-Mosselhy, S.M. and Abd-Allah, N.F. Effect of Jew's stone alone or in herbal formulations on the renal dysfunction. Journal of Home Economics, (2013); 23 (1): 67-89. https://scholar.google.com.eg/scholar?hl=ar&as_sdt=0%2C5&as_vis=1&q=Effect+of+Jew%E2%80%99s+stone+alone+or+in+herbal+formulations+on+the+renal+dysfunction&btnG=

42. Nappi, R.E.; Malavasi, B.; Brundu, B. and Facchinetti, F. Efficacy of Cimicifuga racemosa on climacteric complaints: a randomized study versus low-dose transdermal estradiol. Gynecology Endocrinology, (2005); 20: 30-35. https://doi.org/10.1080/09513590400020922

43. Raus, K.; Brucker, C.; Gorkow, C. and Wuttke, W. First-time proof of endometrial safety of the special black cohosh extract (Actaea or Cimicifuga racemosa extract) CR BNO 1055. Menopause, (2006); 13: 678-691. https://doi.org/10.1097/01.gme.0000196813.34247.e2

44. Zhong, Y.; Sun, D.; Yao, Y.; Liu, Q.; Guo, T.; Wang, X. and Peng, X. Autophagy and mitochondrial dynamics contribute to the protective effect of diosgenin against 3-MCPD induced kidney injury. Chemical Biological Interaction, (2022); 355: 1-27. https://doi.org/10.1016/j.cbi.2022.109850

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تقليل أعراض انقطاع الطمث عند النساء باستخدام جذور نبات الكوهوش الأسود

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الملخص العربى:
يهدف هذا البحث إلى دراسة كيفية تأثير مسحوق جذور الكوهوش الأسود على أعراض انقطاع الطمث لدى النساء. تم استخدام ٢٠٠ سيدة. وتم إنشاء أربع مجموعات رئيسية للنساء. تم إعطاء المجموعة الرئيسية الثانية من النساء فى فترة انقطاع الطمث (ن = ٥٠) نظامًا غذائيًا طبيعيًا، فى حين تم الاحتفاظ بالمجموعة الرئيسية الأولى (ن = ٥٠) كمجموعة ضابطة سالبة للنساء لمدة شهرين، تم إعطاء مسحوق جذور الكوهوش الأسود في شكل نظام غذائي مسحوق بتركيز ٤٠ مجم لمجموعة واحدة من النساء بعد انقطاع الطمث، بينما تم إعطاء مسحوق جذور الكوهوش الأسود ٨٠ مجم للمجموعة الرابعة من النساء بعد انقطاع الطمث. فى نهاية التجربة (شهرين) تم أخذ الدم من النساء ومعالجته لاستخراج السيرم. تم إجراء القياسات التالية، الهرمونات الجنسية مثل هرمون ملوتن (LH)، والهرمون المحفز للغدد الجنسية (FSH)، وهرمون التستوستيرون، وهرمون الاستروجين. كما تم تقييم العلامات المناعية المختلفة مثل نطاقات IgG، IgM، وإنزيمات الكبد (ALP، ALT، AST) والمؤشرات الحيوية للكلى مثل حمض البوليك واليوريا والكرياتينين صورة دهون الدم مثل الكوليسترول الكلى والدهون الثلاثية والبروتين الدهنى منخفض الكثافة والبروتين الدهنى منخفض الكثافة جدًا والبروتين الدهنى عالى الكثافة. وأكدت السجلات التى تم الحصول عليها أن استخدام جذور الكوهوش الأسود للنساء أدى إلى زيادة هرمونين (التستوستيرون، FSH) بشكل ملحوظ بينما انخفض هرمون LH وهرمون الاستروجين، بينما انخفضت صورة دهون الدم والمؤشرات الحيوية للكلى والكبد، بينما على العكس ذادت قيم البروتين الدهنى عالى الكثافة. وفى الختام، فإن مسحوق جذور الكوهوش الأسود له تأثيرات إيجابية على تحسين هرمونات وأعراض انقطاع الطمث والجهاز المناعي لدى النساء.

الكلمات الكاشفة: السيدات، انقطاع الطمث، الكوهوش الأسود، الهرمونات الجنسية

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