



COMPREHENSIVE REVIEW ON POLYHERBAL MIXTURE IN POSTMENOPAUSAL WOMEN

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Abstract

The menopausal transition marks a time of great variability in reproductive hormones, and this variability can be responsible for specific symptoms, such as hot flashes and mood disturbances. Once a woman who is more than 45 years old has gone for 12 months without a menstrual period, she is considered to be menopausal and has consistently low circulating estradiol and elevated gonadotropins. Estrogen is the most efficacious therapy for bothersome vasomotor symptoms. Although estrogen exerts clear-cut protective effects on the cardiovascular system in premenopausal women, medical evidence does not support its use for the prevention of cardiovascular disease

soy protein and isoflavones contained in soy foods can improve muscle and bone density quality and reduce body weight. It is considered a breakthrough in preventing osteosarcopenia and obesity that may occur after menopause.

Polycystic ovary syndrome (PCOS) is an oxidative state resulting in ovarian dysfunction. Licorice is one of the natural antioxidants used for the treatment of infertility.

Present review of the plants showed a wide range of pharmacological activity in anxiolytic relax the clinical disease, such as anti-inflammatory, anxiety and antioxidant. In addition, *Passiflora incarnata* L. affects menopause symptoms such as vasomotor symptoms, insomnia, and depression

The researchers concluded sesame ingestion benefits postmenopausal women by improving blood lipids, antioxidant status, and possibly sex hormone status

Fenugreek seeds (which are rich in phytoestrogens) may be the alternative strategy to treat the above mentioned menopause induced deficits. This study was designed to evaluate the role of Fenugreek seed extract on menopause induced impaired memory and hippocampal damage using ovariectomized rat model.

Introduction Fenugreek

At women age they eventually go through menopause, typically In their late 40s or early 50s. At menopause the ovaries no longer produce estrogens; this lowers the circulating levels of estrogens, especially 17-estradiol. The age at which women attain menopause is 51 years in the Western population, whereas in the Indian scenario it is 47.5 years. However, the average age of menopause is 45–55 years, so postmenopausal health care becomes the utmost priority in the Indian population. However, early onset of menopause is noted in case of ovariectomy or in certain ovarian diseases. In the 20th century, average life expectancy is increased and women are likely to have prolonged post-menopausal life. Women who attained surgical or natural menopause are shown to have osteoporosis, hot flashes, various levels of dementia, depression and anxiety. Earlier experiments, ovariectomy (OVX) decreased synaptic remodeling by reducing spine density in the CA1 region of hippocampus, and this phenomenon was reversed by estrogen treatment in rodents and primates. Based on the animal model experiments, estradiol replacement after ovariectomy can enhance learning and memory.

Seasam indicum

Many physical changes occur during the transition from the reproductive years to menopause for most women (Manson and Bassuk, 2008 and Asali et al., 2010). Menopause enhances the psychological and physiological changes greatly affect the health of women and lead to the loss of ovarian work, followed by a permanent interruption of menstruation (Bruce and Rymer 2009 and Goodman et al., 2011). Most women undergo physiological changes in postmenopausal, and complications occur.

Due to the reduction of estrogen including osteopenia and osteoporosis, hot flashes, sweating, general discomfort, insomnia and vaginal dryness (Triggiani et al. 2006., Gibbs et al. 2008 and AlSafi and Polotsky 2015). Twelve months aged or above rats showed an abnormal estrous cycle with lower progesterone and estrogen levels.

Table (5): Effect of sesame seeds powder and extract on serum calcium, calcitonin hormone and thyroid hormone of control and aged menopausal female rat groups

Variables	Groups (-ve) Control	(+ve) control	Treated with sesame seeds	
			15g powder	13000 mg extract
Ca (mg/dl)	a 8.35±0.16	d 7.27±0.09	b 7.67±0.05	c 7.52±0.10b
Calcitonin (ng/ml)	a 3.12±0.14	d 1.86±0.08	c 2.79±0.08	b 2.90±0.11
T4 (ng/ml)	a 0.40±0.01	ab 0.39±0.02	ab 0.39±0.02	ab 0.39±0.02
T3 (ng/ml)	a 0.92±0.03	d 0.73±0.03	b 0.81±0.03	c 0.74±0.03

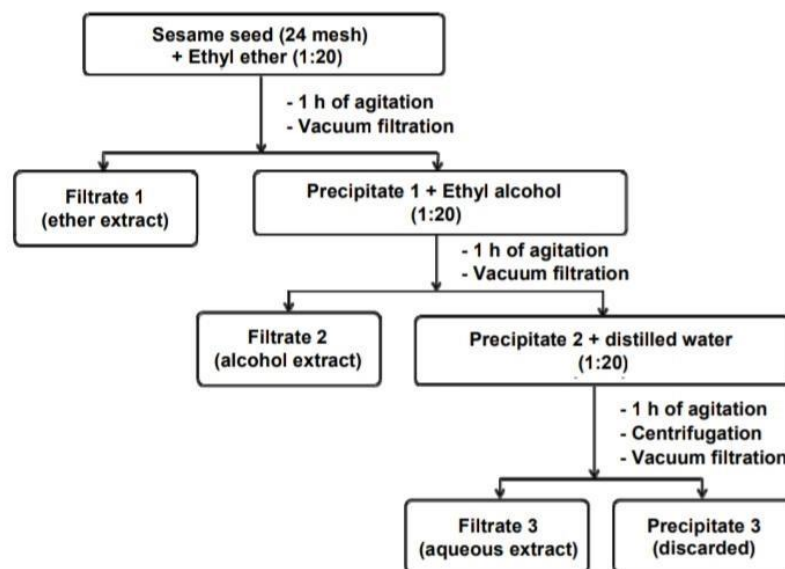


Figure 1: Sequential steps of preparing the ether extracts, alcoholic and aqueous extracts

Soya

Isoflavones can be extracted from soybeans. They can exert estrogen-like actions and thus alleviate postmenopausal syndrome. Two types of estrogen receptors include $ER\alpha$, which is distributed predominantly in the uterus and breast, and $ER\beta$, which is distributed predominantly in bone, the urogenital system and the cardiovascular system [10]. Generally, the binding affinity of isoflavones is higher to $ER\beta$ than to $ER\alpha$. Using in vitro human cell culture for estimating the estrogenic effects of isoflavones, research has revealed the potencies as follows: estradiol (E2) 100,

Liquorice Vasomotor hot flash is the most common and distressful complication of menopausal women. Its treatment is the most frequent clinical challenge. As a result, an effective and harmless therapy is needed. This double-blind controlled clinical trial was conducted to determine the effects of licorice roots on the relief and recurrence of hot flash in menopausal women.

Passiflora incarnata

Present review of the plants showed a wide range of pharmacological activity in anxiolytic relax the clinical disease, such as anti-inflammatory, anxiety and antioxidant. In addition, *Passiflora incarnata L.* affects menopause symptoms such as vasomotor symptoms, insomnia, and . Depression.

Method of extraction

Sesame indicum

MATERIALS AND METHODS

Material

The raw material used in the extractions was Fresh sesame seed imported from India. The Vetec, Brazil), petroleum Ether (Vetec, Brazil), CO₂ (99.99%, AGA, Brazil), B-carotene (Typel, approx. 95% UV, Sigma),

Polyoxyethylene 20 sorbitan monooleate (Tween20, Merck), linoleic acid (puriss. P.a. standard for

GC \geq 99%, Sigma-Aldrich, Steinheim, Germany) and Chloroform (Sigma standards, Steinheim Germany).

Preparation of Raw Material

The moisture of the samples was determined by The AOCS method (2004). The seed was crushed and Separated into Tyler series sieves, using the particle Size of 24 mesh for the testing of sequential Extraction, and 24 and 28 mesh (87.5 and 12.5% in Mass, respectively) for the supercritical and

Soxhlet Extractions.

Soxhlet Extraction The extractions were carried out using 5 g of Sample in the granulometry described above for a 100 mL volume of solvent. The oilseed extractions Were performed for 8 hours.

Soya

Extraction of Isoflavones from Soybeans

The concentrations of isoflavones are low in soybeans and related food products; therefore effective extraction prior to further analyses is quite important [3,7]. Before extraction, the preparation process includes removal of water from the samples and grinding or homogenization of samples [7].

Accelerated Solvent Extraction (ASE)

Accelerated solvent extraction is a modern extraction technique used for the recovery of bioactive compounds involving solvents under high temperature and pressure but without Supercritical fluid extraction is a valuable and environmentally friendly extraction technique of being fast, selective and solvent saving

Passiflora extracts for in vitro testing

Whole extract An extract of passionflower (Lot# PAS 02034C) was obtained from a local dietary supplement manufacturer, Oregon's Wild Harvest (OWH), Sandy, OR. Fresh passionflower, collected from the wild, was steeped in 44% ethanol for 35 days. The extract was distilled to remove ethanol, and freeze dried to a dry powder (1 g equivalent to 25.78 g of fresh Passionflower herb or 5.6 g of dried plant material).

Amino acid-reduced extract The freeze dried powder from above (3 g) was dissolved in a minimum amount of water and applied to a column containing EMD C-18 silica gel 60 (Sigma; water (1 l), and flavonoids by elution with 80% aqueous methanol containing 1% ammonia (400 ml), methanol:chloroform; water (48:30:12; 150 ml), chloroform (100 ml) and finally dichloromethane; methanol; ammonia (200:75:5; 175 ml). The water elution containing amino acids was freeze dried (extracted amino acids, 2.4 g). The combined organic elutions were dried on a centrifugal evaporator (amino-acid reduced extract, 0.8 g).

Liquorice

Extraction is the separation of the medicinally active component from its parent source using selective solvents through suitable standard procedures. A lot of extraction methods have been employed to extract glycyrrhizin from licorice which includes analytical, solvent based dipping/percolation/maceration, microwave-assisted, Soxhlet, etc. A new technique involving ultra-sound was employed and the product yield was compared with other existing procedures

Fenugreek

Procurement of fenugreek seed

Seeds of fenugreek were purchased from local retail market in Kuantan, Pahang, Malaysia. The seeds were cleaned before drying it in oven at 50 °C for 24 h. Then, the dried seeds were ground using a mill with ultra-centrifugal (Retsch ZM-200, Germany) equipped with ring sieve owning trapezoid holes sized 0.5 mm.

The moisture content of the seed was (5.51 ± 0.14% d.w basis). The powdered seeds were kept in dark airtight container before extraction.

Analytical reagents and chemicals

Methanol (99% purity), n-hexane (99% purity), 2,2-diphenyl-picrylhydrazyl (DPPH), sodium carbonate, Folin-Ciocateu reagent and gallic acid (GA) were obtained from Sigma Aldrich (M) Sdn. Bhd, Selangore, Malaysia. All chemicals used for the extraction process were analysis.

EXTRACTION PROCESS OF OF FENUGREEK:

A 100 g of crushed fenugreek seed was extracted using n-hexane (600 mL) and a Soxhlet Extractor for 3 h at (65–70 °C). Then, the mixture of solvent-oil was filtered through a No.1 Paper filter (Whatman).

Evaporator, (Rotavapor R-200, Büchi, Germany) at 40 °C

. Finally, the oil extract was stored at 4 °C to prevent degradation of the compounds for further Analysis. The yield of extraction was calculated

Formula Extraction yield (v/w)% = Amount of oil extracted (ml) / weight of dry sample use (g) × 100

Antidepressant Activity of the Sesame Extracts

Preliminary Tests

Preliminary studies of the antioxidant activity (AA) were performed with the extracts obtained by Sequential extraction. These preliminary tests were Performed in order to evaluate the effectiveness of The β-carotene/linoleic acid method to be used for Other extracts (SFE and Soxhlet). The results Obtained from these tests were satisfactory, with an Oxidation inhibition percentage of 57.32% for the Ether extract (ethylic ether), 32.22% for the alcoholic Extract (ethanol) and 53.14% for the aqueous extract (volume of extract used of 100 μL). The sequential Technique was used in the preliminary tests because Of its rapid implementation and the use of solvents of Different polarities, which formed the basis for the Choice of solvents used in the other extraction Techniques evaluated (SFE and Soxhlet). The kinetic curves of oxidation inhibition Were constructed to clarify the mechanism of Antioxidant action of the phenolic compound Present in sesame extracts. Glycyrrhizic acid (GA) in licorice roots can be efficiently extracted by BLM techniques to produce glycyrrhizin.

- Extracting efficiency of polar BLM using 1-Hexanol is preferred than using of non-polar (n-Hexane).
- The experimental rate constants transport of kinetic performance of the irreversible reactions were in good agreement with the calculated values by MATLAB program.

In this work, the extraction of glycyrrhizin from Licorice using bulk liquid membrane technique was developed and optimized. The effect of various parameters such as pH of stripping and donor solutions, temperature, stirring speed and kinetic parameters were investigated. Moreover, to study the impact of the polarity of membrane solvent, two types of extraction solvents were used as a membrane solvent: n-Hexane was used as a non-polar solvent and 1-Hexanol was as a polar solvent.

The optimum extraction condition was found (95.53%) using 1-Hexanol, rotating speed was 400 rpm, and pH of the acceptor and donor solutions were 8 and 5.5, respectively. The reaction kinetics constants (and) for the transport of glycyrrhizin from the donor phase to BLM phase then to acceptor phase were evaluated. In addition, the accumulation of glycyrrhizin in bulk liquid membrane phase and rate controlling step under different experimental conditions were also discussed. The results showed that the proposed liquid membrane was effectively applied for glycyrrhizin extraction from the aqueous phase.

Licorice Dosing

Licorice root has been used in daily doses from 760 mg to 15 g for ulcer and gastritis. Higher doses given for extended periods of time may pose a risk of hypokalemia. The acceptable daily intake (ADI) for glycyrrhizin is suggested to be 0.2 mg/kg/day.

Dosing of soya

Dosages of various forms of soy in clinical studies evaluating various uses have included 22.7 to 300 mg/day of soy isoflavones, up to 40 g/day of isolated soy protein, 120 g/day of dietary soy foods, 50 to 150 g/day of unfermented soy foods, up to 450 mg/day of genistein, up to 300 mg/day of daidzein, or 70 g/day.

Dosing of fenugreek

Wide-ranging dosages and differing preparations have been used in clinical studies. A standardized hydroalcoholic extract of fenugreek seeds is available, and a trial evaluated its use in patients with Parkinson disease at 300 mg twice daily for a period of 6 months. Studies in patients with type 2 diabetes and hypercholesterolemia have used from 1 g/day of a hydroalcoholic extract of fenugreek up to 100 g/day of germinated fenugreek seeds, whereas seed powder 1.8 to 2.7 g taken 3 times daily for the first 3 days of menstruation was used in primary dysmenorrhea (total daily dose, 5.4 to 8.1 g); 500 Sesame seeds and sesame oil are commonly consumed in foods.

As medicine, sesame oil has most often been used by adults in doses of up to 35 grams by mouth daily for 6-12 weeks. Sesame oil has also been applied to the skin. Speak with a healthcare provider to find out what type of product and dose might be best for a specific condition.

Passiflora Incarnata

For anxiety: Capsules containing 400 mg of passion flower extract twice daily for 2-8 weeks has been used. Also, 45 drops of a liquid extract of passion flower has been used daily for 4 weeks.

For reducing anxiety before surgery: 20 drops of a specific passion flower extract (Pasipay by Iran Darouk Pharmaceutical Company) taken the evening before surgery and 90 minutes before the start of surgery has been used. Tablets of this product have also been used in a dose of 500 mg taken 90 minutes before the start of surgery. Also, 5 mL of syrup containing 700 mg of passion flower extract (Passiflora syrup by Sandoz) has been taken 30 minutes before surgery.

Uses of polyherbal suspension

Sesame seeds contain phytoestrogens, plant compounds that are similar to the hormone estrogen (58 , 59). Therefore, sesame seeds might be beneficial for women when estrogen levels drop during menopause. For example, phytoestrogens may help counteract hot flashes and other symptoms of low estrogen

Present review of the plants showed a wide range of pharmacological activity in anxiolytic relax the clinical disease, such as anti-inflammatory, anxiety and antioxidant. In addition, *Passiflora incarnata* L. affects menopause symptoms such as vasomotor symptoms, insomnia, and depression.

Theory

Fenugreek, the ripe seed of *Trigonella foenum graecum* Linn (family Fabaceae), is widely used as a condiment and traditional herbal medicine worldwide.[12] Fenugreek contains many chemical ingredients such as alkaloids, saponins, flavonoids, coumarins, vitamins, and amino acids.[13] Studies in animals and humans have reported numerous pharmacological effects of fenugreek, including anti-diabetes, lipid-lowering, anti-inflammation, antioxidation, antitumor, immunoregulation.

Soy contains phytoestrogens, whose chemical structure is very similar to that of human estrogen. Compounds called lignans and isoflavones in soybeans can mimic the sex hormone estrogen produced by the human body.46 Studies have shown47 that phytoestrogens can help prevent bone loss in aging women. Recent studies have shown that there is a positive correlation between habitual soybean intake and bone health in premenopausal women. Soy isoflavones have a bonepreserving effect on bone mass after ovariectomies.48 A study of postmenopausal women in Japan reported a significant positive correlation between soy proteins or isoflavone intake and spinal BMD.49 The mechanism by which soybeans may play a protective role is unclear. There is some suggestive evidence that the high consumption .

Formulation of fenugreek

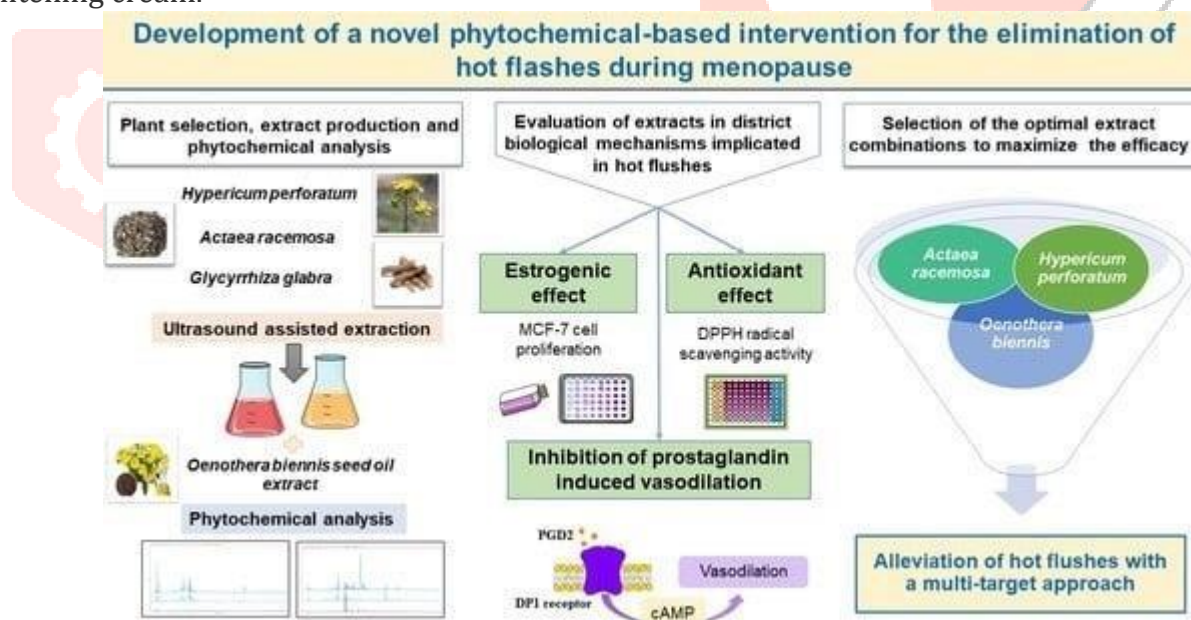
Fenugreek seeds possess antioxidant effects and contain a mucilage which has emollient properties. It can also produce skin healing, whitening, moisturizing, skin soothing and antiwrinkle effects. The purpose of study was to formulate a stable W/O emulsion containing fenugreek seeds extract using liquid paraffin oil. Fenugreek seeds extract, which was obtained by concentrating methanolic extract of fenugreek seeds, was entrapped in the inner aqueous phase of W/O emulsion. A base containing no active material and a formulation containing concentrated extract of fenugreek (in a concentration of 4%) in the internal aqueous phase (W/O emulsion) were prepared and stored at different accelerated conditions for a period of four weeks to predict the stability of these creams. It was found that both, the base and the formulation, were stable at all the accelerated conditions regarding color, liquifaction and phase separation. However, insignificant changes in the pH of base and significant changes in the pH of the formulation were observed with the passage of time. Both the base and the formulation were applied to the cheeks of human volunteers for six weeks and various parameters of the skin were evaluated every week to measure any effect produced by these creams. All the effects of base were statistically significant except the sebum contents and pH, which changed but insignificantly. A significant decrease on skin melanin and erythma was produced by the formulation. An insignificant decrease in TEWL was observed for the formulation.

Licorice

Vasomotor hot flash is the most common and distressful complication of menopausal women. Its treatment is the most frequent clinical challenge. As a result, an effective and harmless therapy is needed. This double-blind controlled clinical trial was conducted to determine the effects of licorice roots on the relief and recurrence of hot flash in menopausal women.

Liquorice contains glycyrrhizin (10-25%), liquiritin, liquiritigenin, isoliquiritigenin, isoliquiretin, glizirhizat, glabrenen acid and glabridin.

Liquorice root extract (*Glycyrrhiza glabra* L.) contains glabridin, an isoflavane as inhibitors of tyrosinase. This enzyme is responsible in melanin synthesis. The aim of this research was to determine the tyrosinase inhibition activity of liquorice root extract and to formulate into a cream with a variety of emulsifier agent glyceryl monostearate. Liquorice root was macerated using ethanol 96%, invitro tyrosinase inhibition assay was conducted using kojic acid as positive control in 96-well plate. The physical quality parameters of the cream were also evaluated. The results showed that liquorice root extract inhibits tyrosinase with the IC₅₀ 126.75 µg/mL. Creams containing 1.01% liquorice root extract were yellowish white, aromatics odour, soft texture, homogen and no segregation in O/W emulsion type. It also showed plastic thixotropic rheological property, viscosity of (2800±0.00) – (4000±0.00) Ps, spreadability of (3029.72±0.81) – (3531.79±6.15)mm², droplet size of (60.00±0.00) – (65.12±0.01)µm, pH of (4.55±0.03)–(4.63±0.04) and inhibited tyrosinase 10.14 – 19.30%. It can be concluded that the formula with 0.1% of glyceryl monostearate was the best formula that conforms physical quality test and potentially to be developed as a skin whitening cream.



Chronic diseases in postmenopausal women are caused by rapid changes in hormones and are accompanied by rapid changes in body composition (muscle, bone, and fat). In an aging society, the health of postmenopausal women is a social issue, and people's interest in ingesting high-quality protein is increasing in order to maintain a healthy body composition. This review aims to summarize the efficacy of soy foods and their impact on body composition. The soy protein and isoflavones contained in soy foods can improve muscle and bone density quality and reduce body weight. It is considered a breakthrough in preventing osteosarcopenia and obesity that may occur after menopause.

Effects of Aqueous Extracts of *Cynanchum wilfordii* in Rat Models for Postmenopausal Hot Flush

Menopausal hot flushes (HFs), which manifest as a transient increase in skin temperature, occur most frequently in postmenopausal women, and sometimes negatively influence daily life. We investigated the effect of an aqueous extract of *Cynanchum wilfordii* (CWW) in a rat model of menopausal HFs, where tail skin temperature (TST) is increased after the rapid estrogen decline induced by ovariectomy

Keywords: anti-hot flush, *Cynanchum wilfordii*, tail skin temperature, ovariectomy.

MATERIALS AND METHODS

Samples and preparation

C. wilfordii root (2 kg) was extracted with distilled water at 100°C for 4 h, 0.7~0.75 kg/cm². The extract was filtered through Whatman No. 4 filter paper and concentrated in vacuum at 40°C using a rotary evaporator (R-210, BÜCHI Labortechnik AG, Flawil, Switzerland). The extracted compound was lyophilized using a freeze-dryer and was stored at -20°C until needed. The aqueous extract of *C. wilfordii* was defined as CWW, which was used for treatments. Chemicals used were purchased from Sigma-Aldrich Co. (St. Louis, MO, USA).

Animals and treatments

This study was approved by the Animal Ethical Committee of Jeollanamdo Institute for Natural Resources Research (JINR1515). All experimental procedures were undertaken in compliance with the Guide for the Care and Use of Laboratory Animals (National Institutes of Health, Bethesda, MD, USA) and the National Animal Welfare Law of the Republic of Korea. Ten-week-old female Sprague-Dawley rats weighing 210~230 g were purchased from Samtako (Osan, Korea). The animals were allowed tap water and standard laboratory food ad libitum, and were housed in polycarbonate cages at a temperature of 23±2°C, relative humidity of 55±10% and a 12-h light/dark cycle, with lights on from 07:00 h to 19:00 h daily. The rats were randomly allocated to two groups before the operation. Both groups were anesthetized with Zoletil 50 (Virbac, Carros, France) 50 mg/kg IP. Then, one group received bilateral ovariectomy using the dorsal approach (OVX; n=45) and the other group underwent a sham operation (sham; n=7) as controls. The OVX rats were randomly divided into 4 groups: OVX group (OVX/vehicle; n=9), E2 treatment group (OVX/E2; n=9), and two CWW treatment groups

Experimental procedure

Rats underwent bilateral ovariectomy or sham operations. After 1 week recovery period, CWW or E2 was administered once daily by oral gavage for 7 days. On the measurement day, water, E2, or CWW were administered orally 30 min before tail skin temperature (TST) and rectal temperature (RT) measurements. After the measurement of TST and RT, rats were sacrificed and then blood was collected to measure serum estradiol levels.

Measurement of TST and RT

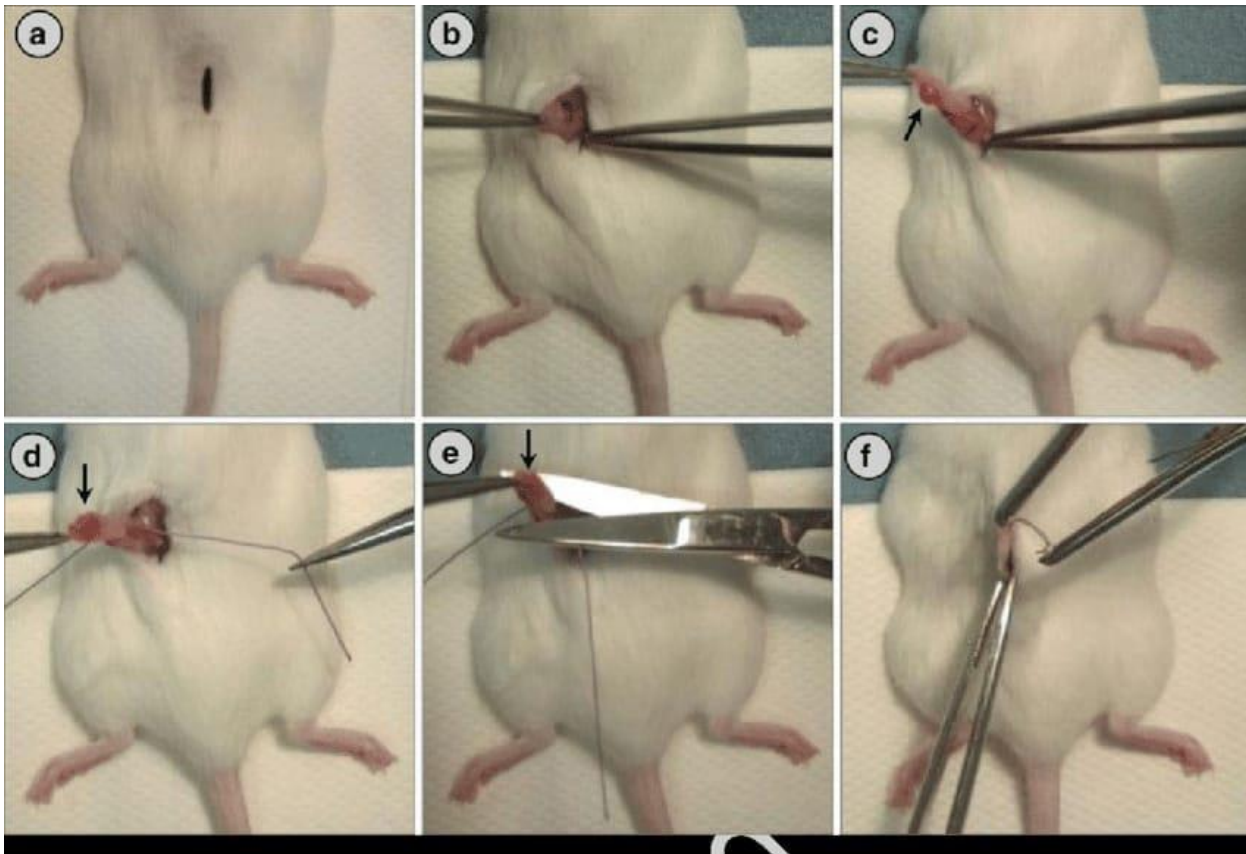
Rats were restrained in a holder in a conscious state and the TST was measured for 1 h at the dorsal surface of the tail about 2 cm from the fur line with an infrared thermometer (AMIR 7210, Ahlborn Meßtechnik GmbH, Holzkirchen, Germany). Before testing, all animals were settled in the laboratory room for 15 min. The environment temperature was 25°C. Measuring points were identified and marked on the dorsal surface of the tail 2 cm from its base.

Assay for serum chemistry

For the measurement of individual serum E2 concentrations, blood samples were collected via abdominal aorta puncture and were kept at room temperature for 30 min followed by centrifugation at 3,000 rpm for 10 min. Serum samples were stored at -80°C until assayed. Steroids from serum samples were extracted with diethyl ether twice and concentrated for estradiol determination. The level of estradiol was measured using a competitive ELISA assay

Kit (ADI-901-174, Enzo Life Sciences, Farmingdale, NY, USA) according to the manufacturer's instructions. The limit of detection for the assay was 14.0 pg/mL.

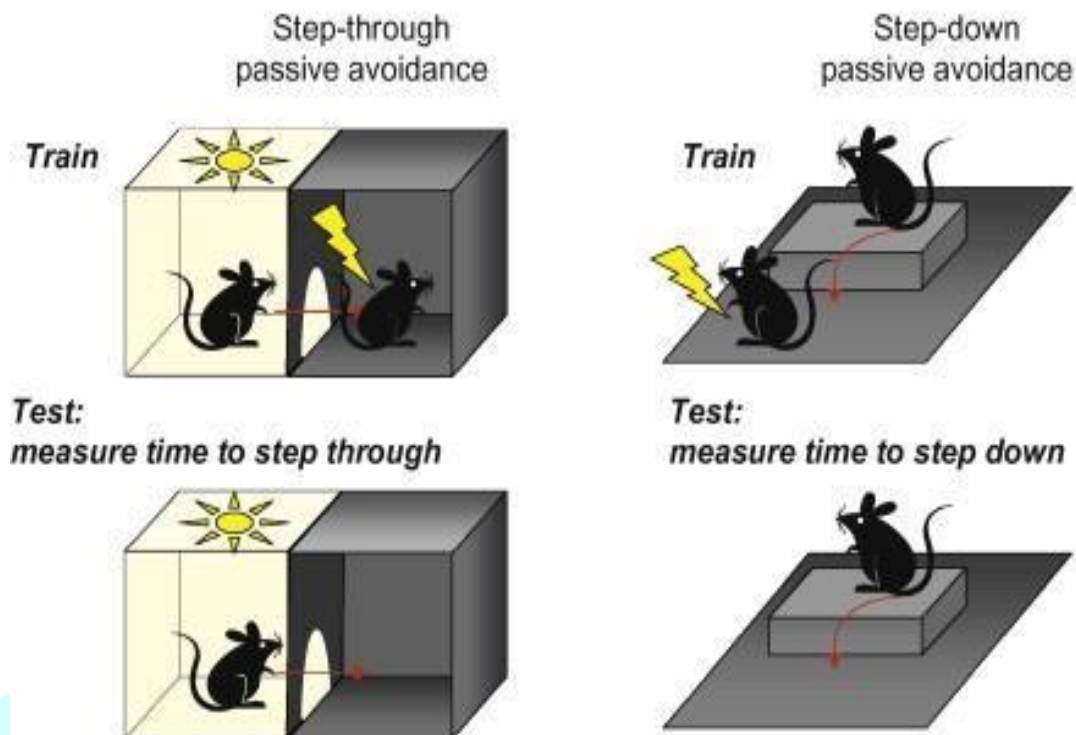
OVARECTOMIZED RAT MODEL:



Steps	Explanation and recommendation
1 Selection of rat strain	Sprague-Dawley and Wistar rats are most commonly used strains with similar response to OVX.
2 Choosing the appropriate age of rat at the time of OVX	6-9 months of age is appropriate age for OVX and 6 month of age is recommended for doing of OVX.
3 OVX	<p>Two dorsolateral skin incision method is recommended for doing OVX due to</p> <ul style="list-style-type: none"> (1) Lower length of skin incision (2) Lower duration of surgery (3) Lower wound healing time (4) Lower rate of death
3.1. Surgery methods	<p>OVX is verified during 1-3 weeks after OVX by</p> <ul style="list-style-type: none"> (1) Disappeared regular estrus cycle (2) Lower estradiol and progesterone levels (~45-60%) (3) Higher LH and FSH levels (~40 fold) (4) Higher body weight (5-17%) (6) Lower uterine weight (70-80%)
3.2. Verification	
4 Evaluation of OVX-induced osteoporosis	
4.1. Selection of bone sites	<p>Regions of interest in rat bones are limited to</p> <ul style="list-style-type: none"> (1) Proximal tibia (2) Lumbar vertebrae (3) Femur
4.2. Selection of bone types	<p>Trabecular or cortical bone Trabecular responds rapidly to intervention and is recommended for osteoporosis research.</p>
4.3. Time needed for inducing osteoporosis	Trabecular bone mass in the proximal tibia, femoral neck and lumbar vertebral body decreases at 14, 30 and 60 days after OVX and proximal tibia is recommended for short term studies.
4.4. Verification of osteoporosis	<p>Osteoporosis is verified by</p> <ul style="list-style-type: none"> (1) rT-score ≤ -1.96 (2) Lower Tb.N and Tb.Th and higher Tb.Sp (3) Higher bone formation and resorption marker in serum: measurement of PINP and CTX is recommended (4) Higher serum and urine phosphate as well as urine calcium one week post-OVX

Figure 1: Step-by-step guideline for inducing osteoporosis using an ovariectomized rat model. OVX.

Passive avoidance



Active avoidance

Shuttle box active avoidance

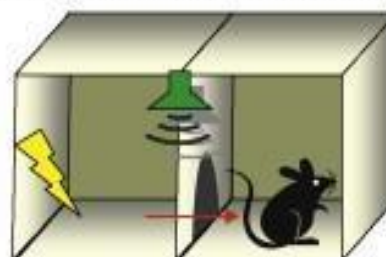


Train



Test:

Can the animal avoid the shock?



Passive avoidance is fear-motivated tests classically used to assess long-term memory based on negative reinforcement in small laboratory animals (rat, mice). Creative Biolabs performs this test for evaluating the effect of novel chemical entities on learning and memory as well as studying the mechanisms involved in cognition. Memory performance is assessed by recording the latency to escape from the white compartment.

In the test, the animal is placed in a well-lit side of a two-compartment box and offered access through a narrow hole to a closed dark compartment. When the animal enters the dark side following its natural instinct, the opening is closed, and a mild foot shock is given. Thus, during this acquisition phase, the animal learns that the moving to the dark compartment has negative consequences. After the first acquisition, the animal is taken to its home cage and returned to the arena (test phase) after a delay, usually 24 h.

During the test phase the animal is again placed in the white compartment and the passive avoidance response is evaluated. The latency to enter is taken as a measure of the memory strength. Memory performance is positively correlated with the latency to escape from the white compartment; the better the recollection, the greater the latency.

Conclusion

In conclusion, the biochemical results reported in the current study confirmed and indicated that increased consumption of sesame powder and extract lowered, total cholesterol levels and LDL-c, while increase in HDL-c and improving the level of sex hormones. These effects of sesame powder and extract might be a result of their high content of polyphenols and other antioxidants like flavonoids that could scavenge the free radicals of postmenopausal in woman. It is recommended to administer of sesame powder and extract for menopausal woman to improve morphological changes.

This meta-analysis will systematically evaluate the efficacy and safety of fenugreek in the treatment of menopausal vasomotor symptoms.

Interest in the clinical use of herbal medicine is a trend that has substantially increased around the world. Natural remedies have a potential role in treatment of various anxiety disorders and they have shown efficacy as therapeutic agents. Most herbal medicine has antioxidant activity because of the polyphenolic compounds flavonoids (e.g., flavonol), which have been used in various diseases like diabetes, atherosclerosis, and cardiovascular disease. There is increasing concern, however, about the use of *Passiflora incarnata* L. over the long term. The results summarized above include pre-clinical and clinical studies of the effects of *Passiflora incarnata* L. on anxiety, nervousness, insomnia and menopausal symptoms. Further study is required to demonstrate its efficacy.

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