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Promising Herbs as Alternatives for Women with Symptoms of Menopause: A Review

Kandavalli Manipriya*, Dasaradhi Bhagya Laxmi Mallika, Anjana Sushma Dixit, Uday Kumar Goud

Department of Pharmacology, G. Pulla Reddy College of Pharmacy, Osmania University, Hyderabad, Telangana, India – 500 028.

ABSTRACT

Hot flashes, sleep issues, bipolar disorder, decreased libido, weight gain, and impairments in cognitive performance are all common symptoms of menopause. Herbs and alternative therapies are often of great value to people in the management and treatment of the signs and complications of menopause, due to the adverse effects of hormone therapy. The practices and effects of medicinal plants used in the management of menopausal symptoms are thoroughly reviewed in this article. Clinical investigations have recently demonstrated the efficacy of using many plants and herbs to alleviate menopausal symptoms. Some herbs' traditional uses also have been noted. Medicinal herbs have the potential to exhibit an important role in the treatment of menopausal symptoms; however, further research is needed to back up their efficacy in this domain.

Keywords: Menopause, hot flashes, phytoestrogens, medicinal plants, herbs.

1. INTRODUCTION

From the time women is born to approaching adolescence, exhibiting a bright youth, enjoying parenthood, and yes, even the extended mid-life periods and old age, each stage of a woman's life is momentous. Nevertheless, as person ages, many changes occur inside within the body, resulting in symptoms such as bodily discomfort, hot flashes, hormonal changes, and so on. These are the major cyphers of menopause. And it is a terrible and challenging period for all women.[1]

Menopause is the term used to describe the conclusion of a woman's menstrual cycle. The name comes from the Greek words '*Menos*' for month and '*Pausis*' for cessation. After 12 months without a menstrual cycle, it is first identified. Menopause can begin at the age of 50, although the average age is 51.[2] Due to changes in reproductive hormone levels such as estrogen, progesterone, and ovarian follicular activity, menopause is a normal biological process that indicates the full end of menstruation cycles and therefore, fertility in women.[3,4]

The indications and symptoms of menopause include irregular periods, vaginal dryness, extreme fatigue, mood swings, sleeplessness, lethargy, decreased metabolism, obesity, drooping breast, thinning of hairs, and dry skin in the months and years leading up to menopause. These side effects might cause sleep disturbances, poor energy, and mental distress. It's normal and expected to skip periods during pre-menopause. Menstrual periods frequently skip a month and then return, or skip many months before resuming monthly cycles for a few months.

***Corresponding Author:** manipriyakandavalli@gmail.com

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Periods may occur in shorter cycles, bringing them closer together. Pregnancy is possible even if the periods are irregular.[5,6]

2. CAUSES OF MENOPAUSE

Menopause can be caused by a naturally decreasing reproductive hormone, like less estrogen and progesterone synthesis, surgery to remove the ovaries (oophorectomy), that also causes immediate menopause, chemotherapy and radiation therapy, which can cause symptoms such as hot flashes during or shortly after treatment, and primary ovarian insufficiency, which can be caused by genetic factors or autistic traits.

Hormone therapy (HT) is usually suggested for these women till they reach menopause naturally, in order to safeguard their brains, hearts, and bones. Medical problems such as heart disease, osteoarthritis, urine dysfunction, and loss of sexual function become more common after menopause. Fractures of the spine, hips, and wrists are more common in postmenopausal women with osteoporosis. Because metabolism slows throughout the menopausal transition and following menopause, many women gain weight.[7]

3. DRAWBACKS OF HORMONAL THERAPY

Menopause does not necessitate medical intervention. Rather, therapies are geared at alleviating signs and symptoms as well as avoiding or treating chronic diseases that may arise as a result of aging. From changes in lifestyle to hormone medication, there are a variety of effective therapies available. For menopausal hot flashes, estrogen therapy (ET) is by far the most effective therapeutic option.

Estrogen in the lowest dose is advised, depending on personal and family medical history, to assist avoids bone loss. Long-term hormone treatment usage may increase the risk of cardiovascular disease and breast cancer. ET contains a progestogen to prevent women with uteruses against uterine (endometrial) cancer caused by estrogen.[8,9]

Following the Women's Health Initiative (WHI) study in 2002, the US Food and Drug Administration and Health Canada now require all estrogen-containing prescription treatments to include a 'black box' warning regarding the harmful effects of HT in their prescribing instructions.[10] Even though only Premarin and Prempro were evaluated in the WHI, the hazards of other HT products, including 'natural' bioidentical and synthesized hormones, should indeed be considered to be equivalent until evidence to the contrary emerges. Estrogen-progesterone therapy (EPT) is linked to the majority of breast cancer risks. Both ET and EPT have been linked to a higher risk of stroke and blood clots in the veins. Women above the age of 60 are at a greater risk. To prevent a woman with a uterus from uterine cancer, progestogen should be given alongside estrogen.[11]

4. NATURAL HERBS FOR MENOPAUSE SYMPTOMS

Menopause creates unpleasant physical and psychological symptoms in many people. Although pharmaceuticals are thought to be the most effective therapy, many females choose natural options. The most common menopausal supplements are herbs and foods; however most of them lack sufficient evidence to support their efficacy. Herbal supplements, like medicines, may have adverse effects and interacts badly with specific drugs. According to a poll conducted by the British Menopause Society, 95% of women would prefer to try natural treatments before undergoing hormone replacement medication to alleviate hot flashes, moodiness, as well as other complaints.[12]

Nature provides several excellent answers to the problems that women face when they approach this period of life. Irritation and fatigue are common side effects of menopause. However, there are many natural strategies to effectively manage these symptoms, allowing women to accept the physical changes and have a smooth and pleasant transition to menopause (Figure 1).[13]

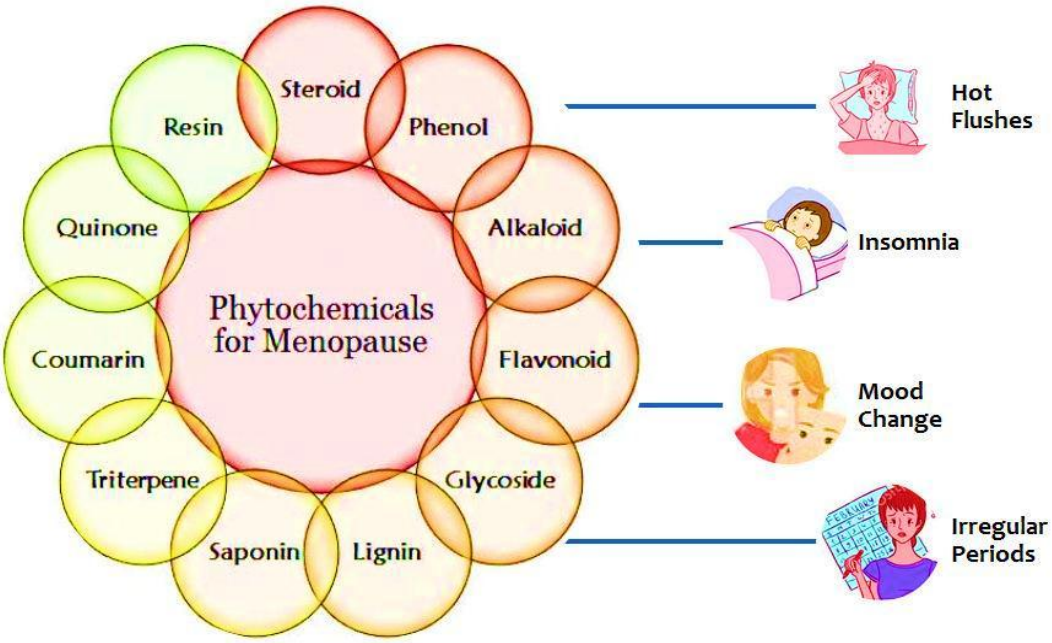

Fig. 1: Phytochemicals used to manage menopause symptoms

4.1 *Actaea racemosa* (Black Cohosh)

Actaea racemosa is a blooming shrub endemic to North America's eastern regions. It's now most commonly used to treat night sweats and hot flashes associated with menopause. The active chemicals present in the plant roots are terpene glycosides. The chemicals in the plant's rhizome bind to the estrogen receptor and decrease luteinizing hormone (LH) production while having no impact on follicle stimulating hormone (FSH). If the person have a history of liver illness, black cohosh isn't a good idea, and some reports claim that tainted supplements cause problems. As a result, it's preferable to pick supplements that have undergone third-party testing for purity.[14]

Inadequate evidence exists to establish if black cohosh is any more beneficial than a placebo for treating menopause symptoms, according to two reviews that collected data from over 8,000 premenopausal, menopausal, and postmenopausal women.[15,16] Although side effects are uncommon, minor vomiting, indigestion, and skin rashes are the most commonly reported.[17]

4.2 *Allium sativum* (Garlic)

Allium sativum is a bulbous floral plant that belongs to the Allium genus. Alliin, allicin, ajoenes, vinyldithiins, and flavonoids like quercetin are among the sulfur-containing phytoconstituents found in it. In traditional medicine, it has been known to have antioxidant, anti-carcinogenic, antidiabetic, anti-atherosclerotic, antimicrobial, hepatoprotective, and antihypertensive effects.[18,19]

Women's joints, muscle, and bones weaken throughout menopause due to a loss of tissue mass and a decrease in estrogen levels, raising the chances of arthritis, osteoporosis, and other painful joint diseases. Garlic is well-known for its potent anti-inflammatory properties, which help to strengthen bones, joints, and muscles.[20]

Vasomotor symptoms refer to the majority of the unpleasant emotions that women experience throughout menopause. Hot flashes, mood changes, and nocturnal sweats are all common symptoms. Vasomotor symptoms can range from minor to severe. Many women who are experiencing vasomotor symptoms desire to take medicine to help them feel better. Hormone treatment is used by certain women. Others may not require medicine, whereas others choose for 'alternative' therapies such as herbs or plant-based products.[21]

4.3 *Angelica sinensis* (Dong Quai)

Female ginseng, also known as *Angelica sinensis*, is an Asian plant similar to celery, carrots, and parsley. Angelica thrives in the colder areas of China, Korea, and Japan.[22] Ferulic acid,

butylidenephthalide, Z-ligustilide, and different polysaccharides are the major chemical components of Angelica. Ferulic acid has a wide range of bioactivities, including anti-inflammatory and immunostimulatory properties; Z-ligustilide and n-butylidenephthalide has anti-cancer, anti-inflammatory, neuroprotective, anti-hepatotoxic properties, and anti-hepatotoxic properties.[23]

For over 1200 years, dong quai has been used in Traditional Chinese Medicine to treat gynecologic conditions. Despite its widespread use, there is very little clinical evidence to back up dong quai's efficacy in treating menopause symptoms.[24]

There were no significant changes in hot flashes or vaginal dryness between dong quai and a placebo in a trial of 71 women.[25] Hot flashes and night sweats were dramatically decreased in two independent trials utilizing dong quai in combination with other herbs such as red clover, black cohosh, and chamomile.[26] For most people, dong quai is typically harmless, although it may enhance the skin's susceptibility to the sun. Those with fibroids or blood-clotting issues like hemophilia, as well as women on anticoagulants like warfarin (Coumadin), should avoid taking dong quai since it might cause hemorrhage difficulties.[27]

4.4 *Arnica montana* (Wolf's Bane)

Arnica montana is a mildly poisonous European plant species belonging to the Asteraceae family, which includes daisies. It is distinguished by a big yellow flower head. Cumene, 2,5-dimethoxy-p-cymene, methyl ether, thymol and 1,2,2,3-tetramethylcyclopent-3-enol are the major components of arnica. *Arnica montana* is a popular medicinal herb that has been used for centuries to cure a variety of illnesses.[28,29]

Yet, the herb's popularity has grown to the point where it has become a threatened species in several nations. Most people were aware of homeopathic Arnica being used to treat bruising.[30] Arnica, when administered topically as a herbal rub, provides pain-relieving qualities and aids aching muscles and tight joints.[31]

Low estrogen level after menopause cause high capillary permeability and reduced vascular tone, both of which contribute to microcirculation impairment and are key contributors in the formation of cellulite. Reduced synthesis and topical concentration of the both Type I and III collagen and elastin fibers that leads to cellulite are two consequences of estrogen deprivation on the skin connective tissue. Enhancing the integrity of blood and lymphatic vessels additionally aids in the elimination of metabolic waste. The chemicals may be found in arnica extracts, as well as the seeds and leaves of the horse chestnut.[32,33]

4.5 Astragalus Root

Astragalus is a huge genus of flowering plants in the Leguminosae family with approximately 3000 species. Over than 200 compounds were extracted from 46 Astragalus species, comprising saponins and flavonoids. Astragalus root is amongst the most powerful immune system boosters, and has been used as an adaptogen in Traditional Chinese Medicine for hundreds of years. The China Pharmacopeia lists the roots of *Astragalus membranaceus* Bge. var. *mongholicus* and its derived food for the management of 'qi deficient' syndrome.[34] It strengthens the immune system and relieves the stress that comes with menopausal symptoms. Early research suggested that taking 3-6 grams of a specific combination of astragalus and dong quai called Dang Gui Buxue Tang might reduce hot flashes in menopausal women.[35] Astragalus is an anti-inflammatory herb that helps to avoid many serious diseases, including cardiovascular disease, diabetes, tumor, respiratory illness, and persistent viral infections, all of which are crucial in controlling menopausal symptoms.[36]

4.6 *Cocos nucifera* (Coconut)

Cocos nucifera is the sole surviving member of the genus Cocos, which belongs to the palm tree family, Arecaceae. The oil has a natural sweet coconut flavor and includes 92 percent saturated fatty acids (in the form of triglycerides); the majority of which (70 percent) are medium chain saturated fatty acids (MCFAs). MCFAs are not

found in all vegetable oils, with lauric acid content ranging from 45 to 56 percent.[37,38] Coconut oil is widely in use in the kitchen, particularly for frying. Coconut oil is the greatest moisturizer for menopausal dryness since it provides instant comfort. This rich, natural oil has moisturizing qualities and is suitable for most skin types. In menopause, coconut oil also can help alleviate itchy skin.[39,40]

4.7 *Commiphora wightii* (Guggul)

Commiphora wightii is a flowering plant in the Burseraceae family that yields guggul, an aromatic resin being used incense and vedic medicine.[41] Quercetin, gallic acid, and guggulsterones E and Z were among the 66 phytochemicals found in guggul. Overweight, arthritis, gout, diarrhea, liver disorders, inflammation, anemia, diabetes, and other illnesses have all been treated with it.[42,43]

Because hormone levels fluctuate so much throughout menopause, body weight fluctuations are common. It is critical to maintain a healthy body weight since an inappropriate increase in body weight can lead to chronic overweight and hypertension.[44] For women going through menopause, the gum resin produced from the powerful guggul plant is a great medicinal approach for losing weight. Surgery for uterine fibroid management is offered to fulfill the patient's urgent requirement. With menopause, the Ayurvedic formulations *Kanchanara Guggulu*, *Shigru Guggulu*, and *Haridra Khand* have been shown to be helpful therapeutic options.[45]

4.8 *Dioscorea villosa* (Wild Yam)

Dioscorea villosa is a glabrous glandular vine that grows wild in eastern North America.[46] It includes diosgenin that is not a phytoestrogen and does not connect with estrogen receptors, despite assertions to the contrary. The plant also contains different steroidal saponins.[47]

Alternatives to hormone treatment for menopause include pills and lotions produced from some species of wild yam. The impacts of a wild yam cream were tested in 23 healthy women experiencing from bothersome menopausal symptoms in a double-blind, placebo-controlled, cross-over experiment. Short-term therapy with external wild yam extract in women who have suffered from menopausal symptoms seems to be devoid of adverse effects, but has little impact on menopausal symptoms, according to this research.[48]

4.9 *Elettaria cardamomum (Cardamom)*

Elettaria cardamomum is a perennial plant found in southern India that belongs to the ginger family. This is the most prevalent species whose seeds have been used to make cardamom, a spice. It's being used to treat libido and sexual disorders. It includes essential oils, the most prominent of which is 1,8-cineole. Carbohydrates, minerals, enzymes, fats, essential oils, terpenoids, flavonoids, and carotenoids are also present. Cardamom contains antioxidant, antibacterial, anticancer, antidiabetic, and gastro-protective properties, among others.[49,50]

Nervous system processes are severely impacted by abrupt peaks and falls in female reproductive hormone levels after menopause.[51] Cardamom is a spice that acts as a wonderful mood booster, helping to improve mental activity, brain functioning, memory, and attention, as well as alleviating depression.[52,53]

4.10 *Foeniculum vulgare* (Fennel)

Because of its taste, people have employed *Foeniculum vulgare*, a flowered medicinal plant belongs to the Umbelliferae (Apiaceae) family, since antiquity. Fennel's medicinal properties are also mentioned in the Chinese Materia Medica. It is used to treat a variety of gastrointestinal, hormonal, menstrual, and pulmonary disorders. It can also be utilized as a galactagogue agent for nursing moms.[54]

Menopause brings on an increase in anxiety, which causes an imbalance in metabolism that causes the body to heat up quickly and cause hot flashes.[55] Fennel seeds are a naturally reducing spice with an inherent cooling effect that aids in perspiration reduction and body temperature regulation. Fennel was shown to be an useful and safe therapy for reducing menopausal symptoms in postmenopausal women without significant

adverse effects in this triple-blind, placebo-controlled experiment including 90 postmenopausal women.[56]

4.11 *Pinus pinaster* (Maritime Pine)

Maritime pine trees are found in Mediterranean nations and belong to the Pinaceae family. Pycnogenol, the US registered trademark name for a widely viable maritime pine bark extract, is made from Maritime pine trees that occur in a region in southwest France.[57]

Hot flashes are linked to vascular alterations, thus this plant-based supplement might help with circulation. It may possibly have antioxidant properties, as well as stimulating the immune system, reducing edema, and preventing infections.[55] In several clinical investigations, French maritime pine bark extract (Pycnogenol) was proven to relieve menstruation discomfort and decrease hyperactivity. It is accessible as a supplement; however it interfere with blood thinners and anti-hypertensive medicines.[58-62]

4.12 *Ginkgo biloba* (Maidenhair Tree)

Ginkgo biloba is a tree species endemic to China and the sole extant member of the Ginkgoales order. The Ginkgophyta is a separate classification for the ginkgo. *Ginkgo biloba* (GB) contains ginkgolides and diterpenes, as well as ginkgo flavone glycosides including bilobetin, ginkgetin, and sciadopitysin.[63]

Sexual attraction may diminish throughout the menopause era. As a result, boosting sexual desire in this group of women may aid in improving libido. Sexual desire in postmenopausal women was considerably improved in the GB group compared to placebo in a triple-blind, randomized, placebo-controlled study.[64] *Ginkgo biloba* is one of the most studied herbs, and we know that it aids proper blood circulation, particularly in the brain. This aids memory and focus.[65]

4.13 *Glycyrrhiza glabra* (Liquorice)

Liquorice is a floral plant in the Fabaceae family that produces a sweet, fragrant flavoring from its root. Terpenes, flavonoids, saponins, isoflavonoids, and steroids are all present.[66] This plant has been proven to be beneficial in reducing the symptoms of hot flashes in women going through menopause. Hot flashes were reduced in frequency and intensity when licorice roots were used. This problem can be relieved by taking this safe, affordable herb that is well-liked by menopausal women, as well as engaging in appropriate and ongoing physical activities and eating dairy products.[67]

4.14 *Glycine soja* (Soy)

Glycine soja is a legume that grows as an annual plant. It's the largest relative cousin of the major crop soybean. Isoflavones like daidzein and genistein, which are chemically related to estrogen and may have mild estrogenic effects in the body, are abundant in soybeans.[68] A decrease in estrogen levels is linked to several typical menopausal symptoms. As a result of its estrogen-like characteristics, soy is considered to help relieve symptoms. Soy meals are typically safe and healthy. Soybeans, tofu, and tempeh are highly processed soy foods with the greatest nutritional profile and maximum isoflavone concentration.[69]

Although population studies link higher soy intake to fewer hot flashes, Levis & Griebeler (2010) found that only a few large-scale clinical trials demonstrate any meaningful effect.[70] Oral supplementation with soy isoflavones may improve bone health, and also the incidence and severity of hot flashes, according to a recent analysis of 95 researches in menopausal women. However, no guarantees can be made about individual outcomes.[71] Long-term supplementation with large dosages of soy isoflavones hasn't been proven to be safe. Stomach discomfort and diarrhea are two common adverse effects.

4.15 *Harpagophytum procumbens (Devil's Claw)*

Harpagophytum is a sesame-family plant genus endemic to southern Africa. The plant produces a claw-like fruit, thus the name Devil's Claw. The root of Devil's Claw, not the fruit, is utilized for therapeutic purposes.[72] The Kalahari Desert is home to virtually all of the plant's species. It's a popular herbal treatment for joint and muscular

pain, as well as back discomfort. It is great for aching muscles and stiff joints in women who suffer from menopause symptoms in their joints and muscles.[73,74]

4.16 *Humulus lupulus* (Hop)

The typical hop is a flowering plant belonging to the Cannabaceae family that is native to Europe, Western Asia, and North America.[75] Myrcene, humulene, xanthohumol, myrcenol, linalool, tannins, and resin are all present. It includes phytoestrogens produced from plants that have estrogenic or anti-estrogenic effects on humans.[76] In a 12-week randomized controlled study, 120 women were randomly assigned to one of two groups: Hop or placebo pills. During weeks 4 and 5, the Hop group had considerably fewer hot flashes than the control group.[77]

4.17 *Hypericum perforatum* (St. John's Wort)

Hypericum perforatum is a plant species of the Hypericaceae family that may be located throughout temperate Eurasia. Hypericin, one of the most important active components, was identified many years ago.[78,79] Several plant components, including as hyperforin, have since been discovered to assist to the herb's effect. St. John's Wort is a well-known mood stabilizer and therapy for moderate depression.[80] However; it may be especially beneficial to women going through menopause. St. John's Wort has been shown to enhance mood and calm mood fluctuations associated with menopause, especially when coupled with black cohosh.[81]

4.18 Kelp

Kelps are big dark algal seaweeds belonging to the Laminariales order. There are around 30 distinct genera to choose from. Kelp is a heterokont, not a plant, despite its appearance. Despite its uninspiring name, this group of plants possesses a unique and diverse set of characteristics. Kelp is high in iodine, which is necessary for optimal thyroid function and, as a result, helps the body stay healthy and vigor. For ages, sea kelp has been utilized as a food and in medicine by various civilizations. Kelp was used to assist maintain normal hair development and shine in addition to its usage to support thyroid function.[82]

4.19 *Lepidium meyenii* (Maca)

Lepidium meyenii, like broccoli, cabbage, and Brussels sprouts, is a Peruvian vegetable from the Brassica family. It has been used in traditional folk medicine for generations to cure physical issues including anaemia, fertility, hormone imbalances, and menopausal symptoms like decreased sex desire, mood swings, and vaginal dryness.[83] A small number of studies have found that maca is more effective than a placebo at increasing sex desire and reducing psychological symptoms like anxiety and despair. Although no serious side effects have indeed been reported, there is a scarcity of safety information.[84-86]

4.20 *Linum usitatissimum* (Flax seeds)

Linum usitatissimum, often known as linseed, has naturally high lignan content. The molecular structures and activities of these plant compounds are comparable to those of the hormone estrogen. Because of its estrogen-like action, flax is occasionally used to relieve menopausal symptoms including hot flashes and bone loss.[87]

Flax seeds decreased the incidence and severity of hot flashes, but not any more than that of the control groups, according to an analysis of 11 researches. Those who consumed flax seeds self-reported improvements in different menopause symptoms and general quality of life in a three-month research conducted by Cetisli et al (2015).[88,89]

4.21 *Medicago sativa* (Lucerne)

Medicago sativa is an annual flowering plant that belongs to the Fabaceae family of legumes. Alfalfa, like some other leguminous plants, contains phytoestrogens such as coumestrol, spinasterol, and coumestan.[90] If not managed properly, grazing on alfalfa before breeding might result in decreased fertility in sheep and dairy cattle. Different research have looked into and confirmed its impact on hot flashes. Nevertheless, hypokalemia and digestive problems caused by *E. coli*, Salmonella, and Listeria infection are

conceivable after consuming alfalfa seed-derived products.[91,92]

4.22 *Melissa officinalis* (Lemon Balm)

Melissa officinalis is a medicinal herb that has long been shown to cure a variety of illnesses in many ethno-medical systems, particularly in European and Iranian Traditional Medicine. This plant includes volatile chemicals, triterpenoids, phenolic acids, and flavonoids, according to phytochemical studies. Only the anxiolytic, antiviral, and antispasmodic properties of this plant, and its effects on emotion, memory, and cognition, have been demonstrated in clinical experiments using crude extracts and purified components extracted from *Melissa officinalis*. The major mechanisms hypothesized for the frequently studied neurological benefits of this plant are acetyl cholinesterase (AChE) inhibitory action, activation of the cholinergic and $GABA_A$ receptors, and suppression of matrix metalloproteinase-2.[93] With caffeic acid, this plant is being used to alleviate nerve stimulation and sleep issues, particularly in women going through menopause.[94]

4.23 *Nigella sativa* (Black Caraway)

Nigella sativa is a perennial flowered plant native to Eastern Europe in the Ranunculaceae family. Linoleic acid, oleic acid, palmitic acid, and trans-anethole are all found in its oil. Its primary constituent, thymoquinone, has been shown to be medicinally effective against a range of infections, such as neurological and psychological disorders, heart disease, tumors, diabetes, inflammatory disorders, and fertility problems, and also communicable diseases caused by bacteria, fungi, parasites, and viruses.[95] This herb has been found to be effective in the treatment of metabolic syndrome in postmenopausal women, lowering blood sugar and cholesterol levels.[96]

4.24 *Ocimum tenuiflorum* (Holy Basil)

Ocimum tenuiflorum, sometimes called as holy basil or tulsi, is a fragrant perennial plant belonging to the Lamiaceae family. It is an indigenous plant native to the Indian subcontinent that has been utilized for thousands of years for its therapeutic qualities. It can help with exhaustion, stress, hypothyroidism, heart rate, and insulin sensitivity. Cortisol (a stress hormone) levels that are too high can be harmful because they affect our learning, memory, immunological function, bone mass, excess weight, hormonal imbalances, and cardiovascular disease. Tulsi has a remarkable capacity to naturally control cortisol levels and maintain hormone balance. Its potent qualities make this a great plant for peri-menopause and menopausal symptoms. The immune system is aided by the anti-inflammatory effects of holy basil. Holy Basil is used to cure a variety of ailments as well as to prevent the onset of many chronic illnesses.[97]

People who eat tulsi on a daily basis are far less prone to be immune-compromised, according to a report in Nutrition and Cancer. They are also less prone to cancer cell development. Holy Basil is an adaptogen plant with significant anti-stress effects. It's a fantastic resource for anyone dealing with anxiety or stressful situations. It helps to strengthen the adrenal system, which is affected by hormonal changes during menopause.[98,99]

4.25 *Oenothera biennis* (Evening Primrose Oil)

Evening primrose oil (EPO) is made from the seeds of *Oenothera biennis*. The seed oil from this blooming plant, which is native to central and eastern North America, is widely used to remove menopausal symptoms such as hot flashes and bone loss. Proteins, minerals, carbs, and vitamins are all found in primrose seeds.[100]

Johnson et al (2019) evaluated a calcium supplement to a combination EPO, calcium, and omega-3 supplement in pre and postmenopausal women to see which was better at preventing bone loss. Both groups maintained their bone mineral density; however the EPO supplement had no advantage over the calcium. Another research evaluated the effectiveness of a calcium supplement with a combination EPO, calcium, and omega-3 supplement in preventing bone loss in pre and postmenopausal women. Both groups maintained their bone mineral density; however the EPO supplement had no advantage over the calcium.[101]

4.26 *Panax ginseng* (Ginseng)

Ginseng is the root of plants in the Panax genus and is a famous herbal remedy containing volatile oil and phenolic chemicals all over the world.[101,102] Ginseng has been found in studies to assist with menopausal symptoms including mood swings and sleep problems, as well as general well-being. It also improves heart health and energy levels while boosting immunological function. The most common study of Korean red ginseng is in connection to menopause.[103]

Lee et al (2016) conducted a review of 10 researches and concluded that Korean red ginseng may boost sex desire, enhance mood, and overall well-being in menopausal women. The evidence is, however, insufficient, and additional study is necessary. For most individuals, short-term usage of Korean red ginseng appears to be safe. However, skin rash, diarrhea, vertigo, insomnia, and migraine are some of the most prevalent adverse effects.[104] It may also affect blood sugar regulation, making it unsuitable for diabetics. Certain pulse rate, lipid, and blood-thinning drugs may affect adversely with ginseng.[105]

4.27 *Passiflora incarnate* (Mayop)

Passiflora incarnata is a biennial creeper with ascending or drooping stems that grows quickly. It contains hexanol, benzyl alcohol, linalool, 2-phenylethyl alcohol, 2-hydroxy benzoic acid methyl ester, carvone, and trans-anethol; essential oil containing linalool, hexanol, 2-hydroxy benzoic acid methyl ester, 2-phenylethyl alcohol, carvone, and trans-anethol; and carbohydrates such as raffin.[106] It includes flavonoids and has anti-anxiety, anti-insomnia, and phytoprogestrogenic properties. Some studies have shown that it can help with neurological problems and hot flashes linked with menopause.[107]

4.28 *Pimpinella anisum* (Aniseed)

Pimpinella anisum is a plant species native to the eastern Mediterranean and Southwest Asia in the Apiaceae family. Anethole is the main component of the oil, with estragole, 4-anisaldehyde, and pseudoisoeugenyl-2-methylbutyrates as minor components. Caffeic acid compounds are present.[108] This herb has been shown to help with hot flashes and other menopausal symptoms. There has been no mention of any negative or serious side effects associated with the use of therapeutic dosages of this plant.[109]

4.29 *Rhodiola rosea* (Golden Root)

Rhodiola rosea is a Crassulaceae family evergreen annual herb. Organic acids, terpenoids, phenolic acids and their derivatives, flavonoids, anthraquinones, alkaloids, tyrosol, and salidroside are all found in rhodiola roots. It has been increasingly popular in the recent studies due to its strong adaptogenic properties. This potent herb aids the body in combating stress's harmful effects.[110] Because of its benefits on levels of cortisol; it is also considered one of the finest anti-aging herbs. Many neuropsychological symptoms encountered by menopausal women can be improved by *Rhodiola rosea*, according to animal and human research, including tiredness, nervousness, stress, neurological problems, loss of memory, decreased executive functioning, and stress intolerance.[111]

4.30 *Salvia officinalis* (Sage)

Salvia officinalis is an annual, perennial culinary or savory herb native to the Mediterranean region. It is a component of the mint family Lamiaceae. Sage is high in essential oils, which is why it has such a powerful fragrance. The therapeutic activity of the plant is also aided by these oils. It's usually used as a stuffing for roasts, but it's also been used as an herb to aid with excessive perspiration during the menopause for a long time. Because of its estrogenic properties, this herb contributes in the management of hot flashes and sweats by binding to complex GABA/benzodiazepines receptors in the brain. It raises the risk of drug interactions with diabetes and blood pressure medications. Sage extracts are now well-known for their ability to alleviate the symptoms of menopausal sweating and hot flashes.[112]

4.31 *Schisandra chinensis* (Magnolia Berry)

Schisandra chinensis is a vine that may be found in the woods of Northern China, Russia's Far East, and Korea. Schisandra is a powerful general tonic

that can help with tiredness, athletic performance, and stamina.[113] This lovely red fruit helps to relieve stress by lowering stress hormone levels. It has a strong supportive impact on the adrenal glands. Schisandra slows down the aging process and extends life expectancy. It brings blood sugar and blood pressure levels back to normal. It also boosts the immune system and improves healing process following surgery. It helps with pre-menopause and menopausal symptoms such as insomnia, anxiety, premenstrual syndrome (PMS) symptoms, restlessness, and loss of memory.[114-116]

4.32 *Terminalia arjuna* (Arjuna)

The *Terminalia arjuna* tree belongs to the Terminalia genus. Flavonoids, phenols, tannins, saponins, phytosterols, and alkaloids are just a few of the chemicals found in arjuna bark. Since ancient times, the Arjuna plant was used to cure heart problems. The management of fat metabolism and control of cholesterol levels becomes a difficulty when estrogen levels in the female body drop.[117] Arjuna is a plant known for its capacity to improve heart functions, allowing women to maintain normal blood pressure and avoid cardiac problems.[118]

4.33 *Trifolium pratense* (Red Clover)

Trifolium pratense is a legume family perennial flowering plant. It contains a lot of isoflavones. These chemicals work in a similar way to estrogen and may assist with symptoms linked with the reduction in estrogen levels that happens during menopause. Hot flashes, nocturnal sweats, and bone loss are all common menopausal symptoms that red clover has been used to treat.[119]

Red clover was shown to be more helpful than a placebo in reducing hot flashes in a study of 11 trials in menopausal women.[120] When compared to a placebo, supplementary dosages of red clover isoflavones may delay bone loss in menopausal women, according to two trials.[121,122] There have been no major adverse effects recorded, however minor symptoms such as headache are possible. Children, pregnant or nursing women, and women with breast cancer or other hormone-sensitive malignancies should avoid this blooming plant.[123]

4.34 *Trigonella foenum - graecum* (Fenugreek)

Trigonella foenum-graecum is a perennial crop belonging to the Fabaceae family with three tiny obviate to oblong leaflets. This plant includes mucilage, proteins, and steroidal saponins, among other things. Its lipid-lowering properties have been attributed to the prevalence of saponin chemicals in the plant.[124,125] This plant has been found to be effective in the management of menopausal symptoms, notably hot flashes and metabolic syndrome, in several trials. There have been no reports of harmful or serious side effects from taking therapeutic amounts of this herb. But, repeated external use of this plant has been shown to induce irritation.[126-128]

4.35 *Valeriana officinalis* (Valerian)

Valeriana officinalis is a blooming plant whose roots have been used to promote relaxation and serenity in a number of herbal medicine techniques. It contains valerane, caryophyllene, naphthalene, linoleic acid, and myrtenyl acetate, as well as valerenic acid, beta-sitosterol, ursolic acid, tetrahydroxy-3,3'-dimethoxyl-dibenzyl-ditetrahydrofuran.[129,130] Menopause symptoms such as sleeplessness and hot flashes are treated with valerian. The calming effects of the plant roots are likely attributable to an increase in GABA in the synaptic cleft owing to inhibition of its absorption, an increase in neurotransmitter release, and a significant quantity of glutamine in the plant extract.[131]

In a study of 68 menopausal women, Mirabi and Mojab (2013) discovered that valerian supplements were substantially more efficient than a placebo in decreasing subjective hot flash intensity.[132] Jenabi et al (2018) reported comparable outcomes in 60 menopausal women in another research.[133] Valerian has a good track record for safety, although it might cause minor side effects such stomach upset, headaches, sleepiness, and dizziness.[134]

4.36 *Vitex agnus-castus* (Chasteberry)

The medicinal plant *Vitex agnus-castus* is native to Asia and the Mediterranean. Casticin, penduletin, ferulic acid, apigenin, luteolin, and kaempferol are

among the compounds found in it.[135] It has traditionally been used to treat infertility, menstrual problems, and PMS and menopausal symptoms. The evidence for its efficacy to relieve menopausal symptoms is varied, as it is with many other plants.

When 92 women were given a placebo and a mixture of chasteberry and St. John's Wort, van Die et al (2009) observed no changes in any menopausal symptoms.[136] Naseri et al (2019) recently studied the effects of chasteberry on 52 women, finding that it reduced anxiety and hot flashes significantly, but had no impact on mental or sexual dysfunction.[137]

4.37 *Withania somnifera* (Ashwaganda)

Withania somnifera is a Solanaceae plant used as a medicinal herb in Ayurveda and sold as a nutritional supplement in several countries. In Ayurveda medicine, Ashwanganda has a 2,500-year history. Its pharmacological effects are influenced by biochemical components such as withanolide A, withanolide D, withaferin A, and withaniamides. It helps the immunological and adrenal systems, as do most adaptogen herbs. It acts to counteract the stress reaction in the body, making it an effective tension-relieving herb. During menopausal symptoms, it protects the immune system, maintains healthy blood sugar metabolism, and reduces cholesterol. It enhances memory and other aspects of brain function. It helps men and women feel less anxious and depressed, as well as increase their sexual potency.[138-140]

4.38 Sea Buckthorns

Sea buckthorns are a genus of deciduous plants in the Elaeagnaceae family. It yields orange-yellow berries, which were used for millennia in Mongolia, Ukraine, and northern Europe as a food, traditional medicine, and skin therapy. Although astringent, acidic, and oily, sea buckthorn berries are edible and healthy.[141] This tough plant may be an excellent natural treatment for menopausal dryness, particularly for women who are unable to take estrogen creams or suppositories. Sea buckthorn oil is high in fatty acids, which may aid in cell barrier health and suppleness. Women using sea buckthorn oil every day for three months reported reduced vaginal dryness, itching, and burning, according to a controlled experiment conducted by the University of Turku in Finland, while additional testing revealed the oil might assist improve atrophy.[142]

5. SAFETY OF NATURAL HERBS

The term 'natural herb' does not always imply 'safe'. Many herbal, botanical, and nutritional supplements might interfere with prescription medicines or worsen chronic medical problems. For the alleviation of menopausal symptoms, lifestyle changes should be made for the rest of one's life and should be reinforced by doctors on a regular basis. Alternative remedies for peri-menopausal symptoms are temporary solutions that may be utilized as required. Hormone treatment can be administered for symptom alleviation for a short period of time (2 to 5 years) or for a longer period of time to prevent osteoporosis and perhaps heart disease. In older postmenopausal women, long-term usage necessitates periodic re-evaluation of the benefits and dangers. As they progress from midlife to old age, females have to be educated about all different medicines that may be beneficial for particular disease modification. From promoting health to illness treatment and prevention, counseling must highlight a range of techniques.[143-145]

6. CONCLUSION

The medicinal herbs studied in this review exhibited varied degrees and methods of action on the physical and psychological symptoms of menopause. However, further research and clinical trials are needed before these medicinal herbs may be used as an alternative or original treatment for acute menopausal syndrome in the coming years. Menopause may be a stressful period, and dealing with the symptoms can be challenging. Hot flashes, nocturnal sweats, and vaginal dryness are among symptoms that can be relieved with natural treatments. Not that all herbal treatments are effective or safe. It's critical

for women to understand the dangers and advantages of different herbs for menopausal symptoms.

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