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Phytopharmacologial Review on Vitex Agnus Castus: A Potential Medicinal Plants

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Abstract: *Vitex agnus-castus is a plant also known as vitex, chasteberry and orange pepper. Vitex agnus-castus L. (chaste tree; vitex) is a type of medicinal herb used primarily in AngloAmerican and European practices for various aspects of female fertility. Clinical studies have reported many benefits of this plant, including antioxidant, antiinflammatory, hypolipidemic, antidiabetic, hormonal modulating, antinociceptive and opiate activity, antioxidative activity in depression and nonalcoholic fatty liver disease. The benefits of this herb are natural remedies that people love, making it one of the best and widely used options for treating gynecological diseases, especially those related to bleeding disorders. Women with fertility problems will benefit from this herb because it reduces prolactin, a hormone that causes stress. VAC fruit extract has been used to treat many female conditions, including menopause (amenorrhea, dysmenorrhea), premenstrual syndrome (PMS), luteal insufficiency, hyperprolactinemia, infertility, acne, and menopause. Therefore, the purpose of this review is to evaluate all human safety data for a single VAC model. Its products may interact with dopamine antagonists and exhibit progestogenic and estrogenic activity. Despite its name, vitex (Vitex agnuscastus) is often used to increase women's fertility. Women who have problems conceiving will benefit from this herb because its use can reduce prolactin, a substance that causes stress in humans. People use vitex to treat menstruationrelated conditions such as breast pain and premenstrual syndrome (PMS). It is also used to treat osteoporosis, infertility, menopausal symptoms, and many other conditions. Vitex contains dopaminergic components that bind to dopamine D2 receptors in the anterior lobe of the pituitary gland, thereby inhibiting prolactin. After three treatment cycles, 93% of patients reported a reduction in symptoms or even reduced PMS symptoms..*

Keywords: chaste tree, vitex, pharmacological effects, menopause, herbal medicine, premenstrual syndrome

I. INTRODUCTION

Vitex is one of the largest in the Lamiaceae family (formerly part of the Verbenaceae family), with a total of 217 specie s .Some of the most wellknown and studied species of Vitex are Vitex negundo L., Vitex agnuscastus L., Vitex trifolia L, Vitex rotundifolia, Vitex cymosa Bertero ex Spreng and Vitex pedunularis Wall. Ex Schauer.. This fruit has historica lly been used to reduce sexual desire.Vitex fruit and seeds contain substances that appear to affect many hormones in pr egnant women.

The herb is known for its ability to help treat infertility and reduce libido.

Available information indicates a variety of activities offered by the Vitex genus, including anti-inflammatory, anti-bacterial, anti-bacterial, anti-bacterial, and cytotoxic activity against various cancers.

Flavonoids extracted from Vitex also contribute to the plant's many medicinal benefits, such as antiviral activity, trypanocidal activity, and antibacterial properties. In addition, diterpenoids and triterpenoids are some substances found in the Vitex genus that have anti-inflammatory properties, cytotoxic activity and dopaminergic effects.

Vitex agnus castus, also known as chaste tree, is a shrub with finger-shaped leaves and slender violet flowers.

The chaste tree (Vitex agnus-castus L.) is a low tree or Tall shrub that grows to a height of 3–6 m. The modern taxonomy Of plants classifies it as a member of the Lamiaceae family, but It previously belonged to the Verbenaceae

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family. It grows along Riverbanks and seacoasts as a wild plant in the Mediterranean Region (Southern Europe, North Africa, and Western Asia) and the Caucasus.

Another sacred tree thought to grow in India is Vitex pseudonegundo (Hausskn.) Tes.-Mazz**.** (V. agnus-castus var. pseudo-negundo Hausskn.

The fruit possesses a pepper-like aroma and flavor. The ripe, dried fruit of V. agnus castus is the part of the plant used in medicinal preparations today.

In 1582, Lonicera reported the fruit's ability to stimulate menstruation. It is stated that it was used in the treatment of sick children in old herbal medicines.

Vitex is a well-known adjunct drug for fertility treatment, effective anovulatory cycles, hyperprolactinemia, hypothalamic dysfunction, hypothalamic-pituitary-ovarian (HPO) axis axis and supports regular menstrual bleeding.

A randomized, double-blind, controlled study showed that, compared to placebo, V. agnus castus improved hormonal levels, promoted the return of menstruation in amenorrheic women, and improved fertility in fertile women.

The most popular type of medicine, herbs, contain pharmacologically active components that have a physiological effect on the endocrine system. It is estimated that there are 10,000 to 53,000 native plants worldwide.

The herb used in this experiment was an extract of Vitex (VAC) (Verbenaceae; Chaste tree). This effective medication is used to treat women's reproductive problems such as irregular menstrual periods, polycystic ovary syndrome (PCOS), premenstrual dysphoric disorder (PMDD) and breastfeeding difficulties, hyperprolactinemia, cyclic breast pain, menopausal symptoms, PMS.

In reproductive biology, administration of VAC extract has been shown to stimulate the systematic ovulation, stabilize the reproductive hormones and promote regular menstrual cycles.

VAC extract helps increase the level of luteinizing hormone (LH) while mildly inhibiting the release of prolactin and FSH. The effects of VAC extract result from its dopaminergic activity by binding to dopamine-2 (DA-2) receptors in the brain. Hypothalamus and anterior pituitary gland) and decrease in cyclic adenosine monophosphate (cAMP), resulting in prolactin suppression.

Vitex also appears to help reduce cyclic mastalgia, a type of breast pain associated with menstruation. Research shows it can be as effective as regular medications but with fewer side effects.

Vitex is taken by mouth to treat irregular menstrual bleeding, premenstrual syndrome (PMS), multiple premenstrual syndrome (PMDD), and menopausal symptoms. It is also used to treat "lumpy" (fibrocystic) breasts, infertile women, prevent miscarriages in women with progesterone hormone deficiency, regulate blood flow and help the body expel the placenta after birth, and increase milk production.

Microscopy

The height of the tree is between 1.5 and 2 m. Palmate compound leaves, with 5 to 9 radial leaflets, narrowly lanceolate, sharp apex, with coarsely toothed edges upwards or completely wavy edges, the base and largest leaf are 5 to 10 cm long, 2 to 4 cm wide, and the upper part is. The leaves are 5 to 10 cm long and 2 to 4 cm wide. The upper surface is dark green, and the lower part is light gray with hairy hair. Its taste is different and its smell is aroma. The flowers are in clusters and come in a variety of colors, from violet to blue to purple. It blooms from summer to early winter, and its fruits are black pepper-like four-seeded fruits that range from purple to black.

Botanical description

V. agnus-castus is a fragrant, deciduous tree approximately 1-6 m tall. The leaves are different; It has long stems, palmate compound leaves and 3-9 leaflets; leaves are linear-lanceolate, pointed at the apex and base, 1.5 to 10.0 cm long and 0.5 to 2.0 cm wide; the central leaf is the smallest. Long, dark green, glabrous above and velvety white below; margin fully to sparsely serrated. The inflorescence is a terminal raceme consisting of many stemless to nearly stemless stems, 12.0-17.5 cm long. The flowers are perfect, bell-shaped and symmetrical, with white downy hairs; calyx 5-toothed, bell-shaped, 2.0-2.5 cm long; The crown is blue, red, light yellow or white, long and foot-shaped. The tube is 6-7 mm long and the leaves have 2 lips. Shape: upper lip 2 slits, lower lip 3 slits; Stamens 4 abducted, 2 long, 2 short, located near the top of the petal. Tube alternating with corolla lobes; Ovary superior, style abducted, stigma bilobed. Fruits Are drupe, globose to subglobose, 2–4 mm in diameter,

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Taxonomy

Kingdom	Plantae
Clade	Tracheophytes
Clade	Angiosperms
Clade	Eudicots
Clade	Asterids
Order	Lamiales
Family	Lamiaceace
Genus	Vitex
Species	V agnus castus

Chemical constituents

The main components of V. agnus-castus are flavonoids, essential oils, diterpenes and glycosides.

The fruits of the chaste tree contain many compounds: flavonoids (e.g. ricin, kaempferol, orientin, quercetin and isovitexin), iridoid glycosides (e.g. agnuside and peach phyllosine) and essential oils (e.g. limonene, cineole. Sabinen)

Flavonoids (vitexin), vitexin), iridoid glycosides (agnuside, aucubin), p-hydroxy Benzoic acid, alkaloids, essential oils, essential oils, diterpenoids and steroids

Traditional Medicinal Use of Vitex Species

The Vitex plant has been known as a medicinal plant and used as herbal medicine in the past, where it was recognized and noted in many health practices, including Ayurveda, Unani medicine, Chinese traditional medicine, Malay traditional medicine, European medicine, and ancient Greek medicine .

V. agnus-castus L., V. negundo L., V. peduncularis Wall, and V. trifolia L. Ex Schauer are some of the Vitex species commonly used in the preparation of traditional remedies.

In India and Malaysia, the shoot, fruit, and leaf of Nirgundi plant are used to help women after childbirth where the juice of the shoot and fruit is utilized to increase milk lactation and the leaf was boiled in water for post-partum bath, which helps the mother's recovery.

In China the plant is used to treat asthma. In Japan, it is used to alleviate headaches.

According to Ayurveda, the combination of Jalanirgundi leaves and other herbs is believed to help regulate the accumulation of pitta (In Ayurverda, they believe pitta represents heat, fire, and energy) in the blood and the root can be used to make tonic, act as expectorant and febrifuge.

V. agnus-castus could be used to treat acne, digestive complaints, menstrual irregularities, premenstrual syndrome (PMS), mastalgia, and infertility, and also for lactation support.

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V. agnus castus has a long tradition as a herbal remedy and was used in ancient times not only as an anaphrodisiac but also against diverse disturbances of the female genital system.

Vitex has been included in numbers of herbalPerpetrations which used in clinical treatment. ClinicalEvidence indicates that the extract of VAC dried fruits isEffective for the recovery of premenstrual syndrome,Menstrual abnormality, amenorrhea, mastidynia andHyperprolactinemia which all due to elevated the level ofProlactin .

Vitex agnus-castus is a popular herbal supplement used to treat a variety of health problems.

It's most commonly used to treat:

- Premenstrual syndrome (PMS)
- Menstrual disorders
- Infertility
- Acne
- Menopause
- Nursing difficulties

It's also touted as protection against insect bites and certain types of cancer and claimed to offer a variety of other health effects. However, not all benefits are backed by science.

This fruit — as well as other parts of the plant — are typically used as an herbal remedy to treat a variety of ailments.

For instance, Vitex agnus-castus is used to treat:

- PMS
- Symptoms of menopause
- Infertility issues
- Other conditions affecting a woman's reproductive system
- Acne.
- Dementia.
- Enlarged prostate.
- Eye pain.
- Increasing lactation.
- Insomnia.
- Menopausal symptoms.
- Nervousness.
- Prevention of miscarriage

Le 1 displays the summary of traditional uses of different Vitex species for medicine.

Summary of traditional applications of various Vitex species in medicine.

Vitex species	Traditional Uses	Plant Parts Used
Vitex negundo L.	Increase lactation	Shoot, fruit
	Post-partum bath	Leaf
	Diarrhea, dysentery, flatulence, indigestion, cholera	Root, bark, flower
	Headache	Leaf
	Cough, sore throat	Leaf
	Rheumatism	Root, leaf
	Hives, cellulitis, carbuncle	Leaf
	Catarrhal fever, muffled hearing	Leaf
Vitex agnus-castus L.	Decrease sexual drive	Leaf, seed, fruit
	Menstrual irregularities, infertility, premenstrual syndrome, acne, digestive complaint, sedative Increase lactation	Leaf, fruit

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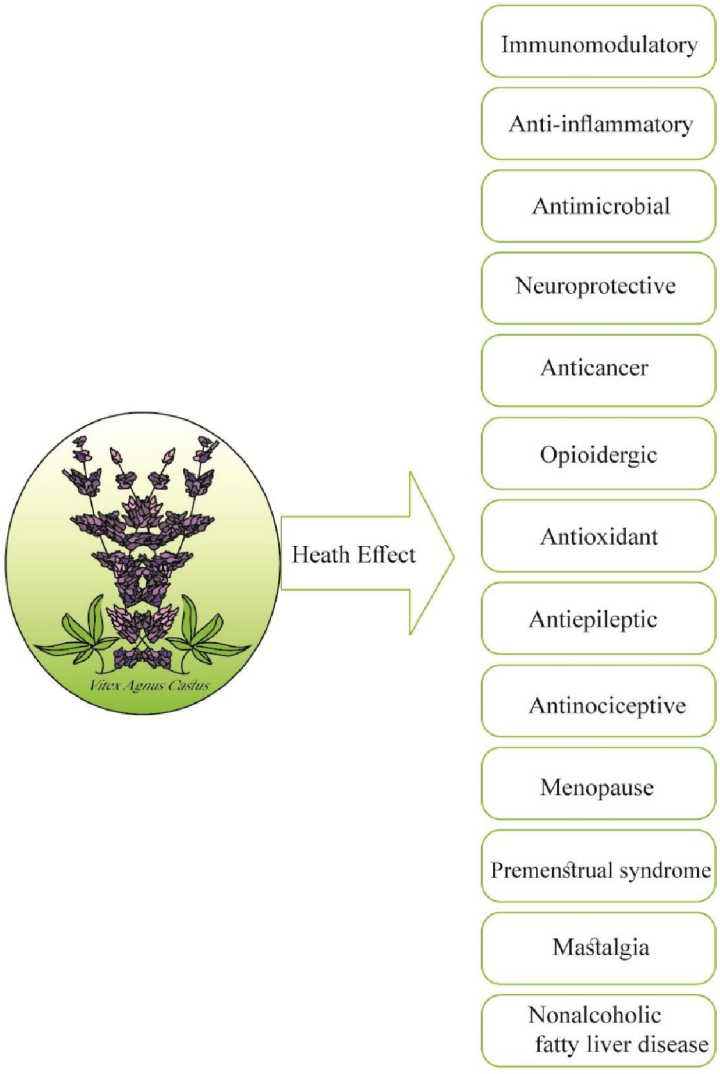
	Inflammation, injury, spider antivenom, epilepsy, madness, urination, dropsy, splenic disease	Seed
	Pain due to chills	Leaf
	Calming agent for hysteria	Fruit
Vitex trifolia L.	Joint pain, ringworm, leprosy, skin rashes	Leaf
	Intermittent fever, catarrh, headache	Leaf
	Pitta in blood	Leaf
	Tonic, expectorant, febrifuge	Root
	Headache, migraine, common fever, eye pain, cancer	Fruit
	Rheumatism, sprained joint Headache	Leaf
Vitex peduncularis Wall. Ex Schauer	Diabetes	Leaf,bark
	Jaundice, numbness of face and eyes, urethritis	Bark
	Blackwater fever, malaria Chest pain, joint pain	Bark, root,leaf



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Secondary Metabolites Isolated from Vitex and Their Biological Activities

Iridoids

Iridoids are associated with terpenes and alkaloids . Previous studies have described many biological activities of this drug, including cardiovascular, anti-inflammatory, anti-plasmodial, anti-cancer, anti-inflammatory, anti-block cholinesterase, anti-inflammatory, and anti-hepatotoxic.

Diterpenoids

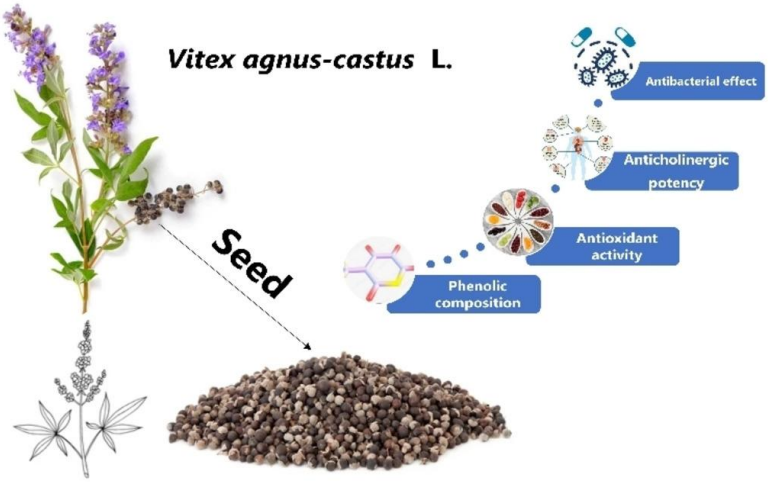
Diterpenes are twenty-carbon terpenes biosynthetically derived from geranylgeraniol pyrophosphate. Among plants belonging to the genus Vitex, labane-type diterpenes are the most common. Additionally, arosinane, nor and haloalkane type diterpenes have been found in Vitex. (Figure 4). Masateru Ono's team from Japan worked to find new Labdane diterpenes from the fruits of V. The research team published 5 journals and reported the discovery of 27 laban-type diterpenes; of these, 8 laban-type diterpenes (25-32) were isolated from V. rotundifolia. Compound 32 was tested as an antioxidant but no activity was found.

Ecdysteroids

Ecdysteroids are hormones produced by insects that were originally thought to regulate the process of molting and meta morphosis. However, today their studies are more comprehensive than before, and it has been found that these hormone s are produced at all stages of the development of the organism, starting from the new egg, the embryonic stage, metam orphosis, growth and diapause. Plants also contain numerous ecdysteroids (phytoecdysteroids) that serve as defenses ag ainst herbivorous diseases.

Flavonoids

Flavonoids are a group of pigment compounds abundant in the plant kingdom [116]. These compounds are responsible for the growth, development and protection of plants. Flavonoid biosynthesis occurs through the shikimic acid and acyl polymalonic acid pathways.



Clinical indications

Premenstrual syndrome (PMS)

Vitex contains substances that compete to bind to receptors, making the herb useful in treating conditions where progesterone deficiency is suspected (e.g. female infertility, menopause or premenstrual syndrome). Prolactin is a hormone of the adenohypophysis. Most importantly, it supports the development of the mammary glands during pregnancy and is responsible for breastfeeding. Prolactin release is controlled by the hypothalamus. It prevents dopamine release. Increased prolactin levels in women can cause amenorrhea and infertility. It is also thought to be the cause of premenstrual syndrome. There are many studies on the effects of V. agnus-castus on prolactin.

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Menstrual cycle irregularities

The observation of luteal phase defects with hyperprolactinemia supports the use of V. agnus-castus for the control of progesterone and other menstrual irregularities.

Acne

Two uncontrolled clinical studies and one clinical report evaluated the effect of this fruit on acne caused by hormonal imbalance. In an open-label study, 118 acne patients were treated with fruit extract (20 drops twice daily for 4-6 weeks, followed by 15 drops twice daily for 1-2 years) and the results were compared with conventional acne treatment results.

Adverse drug reactions

The V. agnus-castus preparation has not yet been identified. However, due to medical evidence that V. agnus-castus has dopaminergic properties, V. agnus-castus should not be used with dopamine receptor agonists or antagonists.

Contraindications

Given its proven medical effects and lack of toxicity data, the use of V. agnus-castus during pregnancy should be avoided. V. agnus-castus has been reported to stimulate milk secretion without altering milk production.

II. CONCLUSION

It is a very powerful herb used in the treatment of digestive, diuretic and carminative disorders, as well as many gynecol ogicalrelated diseases. All parts of the plant have important medicinal properties, but most of the seeds are beneficial. T he use of agnuscastus during pregnancy and breastfeeding is contraindicated. Based on research and theory, it can be co ncluded that V. agnus castus may interact with dopamine antagonist.

Finally, this review provides information to other researchers using products of V. agnus castus. The safety and effectiv eness of goldenrod as a medicinal herb are debated. It is recommended that additional preclinical and clinical studies be conducted to fully evaluate the safety and therapeutic effects of V. agnuscastus.

The advantage of this herb is that it is a popular herb, making it one of the best and widely used medicines for gynecolo gical diseases, especially diseases related to the female body. Endometrial thickness and pregnancy. In Women with PO A.

Vitex has a long history as an herbal medicine and is considered one of the best medicines, especially for women. It ma y reduce PMS symptoms, lower prolactin, and help regulate female hormones.

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