Vitex agnus-castus

Performance Objectives

At the completion of this monograph, you will be able to:

• Name the botanical and family name of chaste tree, Vitex agnus-castus.
• Discuss the primary uses of chaste tree, V. agnus-castus.
• Describe the botanical identifying characteristics of chaste tree, V. agnus-castus.
• Discuss dosage and administration including duration of chaste tree, V. agnus-castus.
• Describe the pharmacological action of chaste tree, V. agnus-castus.
• Discuss the medicinal uses including contraindications of chaste tree, V. agnus-castus.
• Identify and describe adverse effects including possible drug and supplement interactions of chaste tree, V. agnus-castus.
• Recall the regulatory status of chaste tree, V. agnus-castus.

Chaste Tree

Taxonomic Notes

Botanical Name

Vitex agnus-castus

Family

Verbenaceae

Common Names

Agnolyt, agnus castus, agnus-castus, chaste tree, chaste berry, chaste tree berry, chastetree, gattilier, hemp tree, monk’s pepper, vitex, Vitex agnus castus

Primary Uses

Chaste tree is used orally for premenstrual syndrome, painful menstruation or dysmenorrhea, hyperprolactinemia1, corpus luteum insufficiency, and breast tenderness. Other potential uses include treatment of acne vulgaris and prevention of miscarriage in the first trimester where there is a progesterone insufficiency. Refer to the section on Adverse Effects for precautions for this use.

1 Hyperprolactinemia- increased levels of prolactin in the blood; in women it is associated with amenorrhea and often galactorrhea, and it has been reported to cause impotence in men.
Overview

Chaste tree is a perennial deciduous shrub growing 6-18 feet or 180-540 cm in height with a spread of up to 15 feet or approximately 450 cm.

Historians say that monks chewed chaste tree parts to make it easier for them to maintain their celibacy. Progesterone, 17-alpha-hydroxyprogesterone, testosterone, and epitestosterone have been detected in chaste tree flower extract. Androstenedione has been detected in chaste tree leaf extract. The German Commission E recommends that women who experience tension or swelling of the breasts or menstrual disturbances should consult a health care provider before using chaste tree.

Identifying Characteristics

<table>
<thead>
<tr>
<th>PART</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEAVES</td>
<td>Palmate leaves with 5-9 leaflets up to 4 inches or 10 cm long, dark green on top and gray underneath</td>
</tr>
<tr>
<td>FLOWERS</td>
<td>Small lilac flowers borne on long spikes</td>
</tr>
<tr>
<td>ROOT</td>
<td>No information available</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th><strong>PART</strong></th>
<th><strong>Characteristics</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRUIT</strong></td>
<td>Red-black</td>
</tr>
<tr>
<td><strong>TASTE</strong></td>
<td>The berries have a spicy, aromatic flavor</td>
</tr>
<tr>
<td><strong>ODOR</strong></td>
<td>Aromatic</td>
</tr>
</tbody>
</table>

**Parts Used**

Fruit or berries are referred to in the lesson as chaste tree.

**Cultivation/Collection**

Chaste tree can be cultivated from seed or cuttings. Seeds will germinate readily in 14-28 days. Cuttings root easily, especially with bottom heat and misting. Cuttings are best done before flowering starts, which is usually in June. Do not over-water and use well-drained soil. Cuttings will be ready to transplant in eight weeks.

Chaste tree is hardy to at least Zone 6 and may be parts of Zone 5.

The fruit or seed is harvested in the fall after the second or third year. The fruit can be left to dry on the plant and is collected by stripping it from the stalk. Harvest before the fall or winter rains so as not to decrease quality.

**Dosage and Administration:**

**Oral**

A water or alcohol extract (50-70% v/v)\(^4\), corresponding to 30-40 mg or 0.001 oz dried fruit, daily

Dry native extract\(^5\): 2.6-4.2 mg or 8.3-13.4 oz, depending on concentration ratio, standardized to contain approximately 0.6%-1.0% casticin

Fluid extract: [1:1 (g/ml), 70% alcohol (v/v)]: 0.5-1.0 ml (or 0.2-0.4 tsp) OR [1:2 (g/ml)]: 1.2-4.0 ml (or 0.5-1.6 tsp)

Tincture: [alcohol 58% volume, 100g (3.3 oz) of aqueous-alcoholic solution contains 9 g (0.3 oz) of 1:5 tincture]: 40 drops, once daily with some liquid.

**Duration of Administration:**

Chaste tree has been used safely in studies, lasting from three months up to 1.5 years.

Clients may not respond to therapy immediately. Oral administration of 4-12 weeks can be required before there is significant improvement for menstrual disorders. Administration for

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\(^4\) Percent v/v (volume to volume) is the number of milliliters of active substance in 100 ml of product.

\(^5\) Preparations such as juice, teas, and tinctures are called native extracts. Native extracts are liquid fractions prepared by simple extraction procedures from the fresh or dried herb and consumed without further alteration. Another term often used to describe these native extracts is crude extracts. Brinker F, *Complex Herbs Complete Medicines. A Merger of Eclectic & Naturopathic Visions of Botanical Medicine*, 2003.
at least eight weeks or more is often required before there is significant improvement when used for acne. For infertility in women, oral administration for at least six months is usually required before there is significant improvement.6

Active Constituents

Mature chaste tree fruit yields an essential oil, which is composed mainly of limonene, 1,8-cineol, pinene, carophyllene, and sabinene.7

The whole fruit also contains flavonoids such as casticin, kaempferol, quercetin, orientin, and isovitexin. Casticin, a lipophil flavonol, is said to be dominant.8

Three new diterpenoids (vitexilactone, rotundifuran, 6-beta, 7-beta-diacetoxy-13-hydroxy-labda-8, 14-diene) have been isolated. Pharmacological data have indicated that part of the dopaminergic activity of Vitex agnus-castus is attributed to these diterpenoids.9

Iridoid glycosides have also been isolated, such as aucubin and the new glycoside known as agnoside.

Essential fatty acids such as oleic acid, linolenic acid, palmitic acid, and stearic acid are present.

Many chaste tree extracts are standardized to contain 6% agnoside. However, there is increasing evidence that part of the activity of chaste tree fruit is actually associated with the diterpenes and the flavonoid casticin, which is thought to be a more appropriate marker for the effectiveness of chaste tree preparations.

Pharmacological Action

The therapeutic effects of chaste tree have primarily been attributed to its indirect effects on various neurotransmitters and hormones. Chaste tree seems to affect dopamine, and possibly acetylcholine and opioid, receptors. Chaste tree extracts contain multiple active constituents that seem to have agonistic effects at pituitary dopamine receptors when used in higher doses. This dopaminergic activity inhibits basal and thyrotropin-releasing hormone (TRH)-stimulated prolactin release. In women with hyperprolactinemia, chaste tree seems to suppress prolactin release. Hyperprolactinemia or elevated levels of prolactin (>30ng/ml--more than 30 nanograms) might interfere with both endometrial proliferation and follicle growth and development and thereby reduce the likelihood of a successful pregnancy occurring. Chaste tree may normalize luteal phase defects in the menstrual cycle. In healthy men, chaste tree’s hormonal effects seem to be dose dependent. Lower doses of chaste tree extract of approximately 120 mg per day seem to increase prolactin release. Higher doses seem to suppress prolactin release. Chaste tree does not appear to affect testosterone.

Preliminary research suggests chaste tree also might have estrogen and progesterone activity. Other preliminary research suggests that chaste tree might inhibit the growth of breast cancer cells and other cancer cells such as ovarian, cervical, gastric, colon, and lung. However, due to the possible estrogenic effect of chaste tree, the safety of chaste tree in estrogen-sensitive conditions is unknown.

In addition to hormonal effects, essential oil of chaste tree also has shown to have antibacterial and antifungal effects. Essential oil of chaste tree have exhibited in vitro activity against *Staphylococcus aureus, Streptococcus faecalis, Escherichia coli, Bacillus anthracoides, Candida species, Trichophyton mentagrophytes, Epidermophyton floccosum, Microsporum species*, and *Penicillium virdicatum*.

Clinical Review

Millewicz et al (1993) \(^{10}\) analyzed luteal phase defects due to hyperprolactinemia in 37 women in a random, double blind, placebo-controlled study. Those in the treatment group were given 20 mg of fruit aqueous, alcoholic, dry native extract every day for three months. The treatment group experienced significant reduction in symptoms compared to placebo group as well as significant reduction in prolactin release in response to thyrotropin releasing hormone stimulation. Luteal phase normalization and luteal progesterone synthesis normalization were seen in the treatment group with no observable changes in the placebo group.

Schellenberg (2001) \(^{11}\) analyzed premenstrual syndrome in a 170 women in a randomized, double blind, placebo-controlled study. Those in the treatment group were given 20 mg of dry extract in tablet form once a day for three menstrual cycles. More than 50% of those enrolled in the treatment group experienced 50% or greater improvement of PMS signs such as mood fluctuations, anger, headache, breast fullness, and bloating.


Medicinal Uses:

Chaste tree seems to decrease some signs of PMS particularly in combination with *Hypericum perforatum*\(^{12}\), especially breast pain or tenderness, edema, constipation, irritability, depressed mood or mood alterations, anger, and headache. Chaste tree may not be as effective for bloating associated with PMS or for lower abdominal cramping\(^{13}\), or in clients


\(^{13}\) Ma L, Lin S, Chen R, Zhang Y, Chen F, Wang X.
with a specific type of PMS consisting mostly of craving sweets, sweating, palpitations, and dizziness. Some evidence suggests that women who have PMS primarily due to low progesterone levels and higher estrogen levels are most likely to respond to chaste tree. There is some evidence that chaste tree might normalize menstruation in clients with secondary amenorrhea, polymenorrhea (short cycle), oligomenorrhea (infrequent menstruation), and menorrhagia (prolonged menstruation). Chaste tree might be most effective in clients with low levels of progesterone.

Chaste tree also has been used for support during menopause, and may be helpful for luteal-phase dysfunction (corpus luteum insufficiency), preventing miscarriage in clients with progesterone insufficiency, controlling postpartum bleeding, aiding expulsion of the placenta, increasing lactation, and supporting fibrocystic breasts. It is used for promoting urination, supporting benign prostatic hyperplasia (BPH), and reducing sexual desire. Chaste tree may be effective for acne, nervousness, dementia, rheumatic conditions, colds, dyspepsia, spleen disorders, headaches, body inflammation and swelling, and insect bites and stings.

There is some preliminary clinical evidence that chaste tree can increase the potential of pregnancy in women who are infertile due to relative progesterone deficiency, but chaste tree does not seem to work quickly.

**Contraindications**

Because chaste tree seems to have hormonal effects and might affect estrogen levels, women with hormone sensitive conditions should avoid chaste tree. Some of these conditions include breast, uterine, and ovarian cancer, and endometriosis and uterine fibroids.

There is some evidence that using chaste tree during in vitro fertilization procedures might prevent an ensuing pregnancy despite having a viable embryo.

**Adverse Effects**

Orally, chaste tree is usually well tolerated and side effects are relatively rare. However, some clients can experience gastrointestinal upset, headache, nausea, itching and urticaria, rash, acne, and intramenstrual bleeding. Some clients have also had alopecia, fatigue, agitation, tachycardia, and dry mouth while taking chaste tree. Changes in menstrual flow can also occur when chaste tree is first started. Allergic reactions can occur in some clients, but typically resolve spontaneously when chaste tree is stopped.

During pregnancy or lactation, chaste tree is may be unsafe. Chaste tree can have uterine stimulant properties and should be avoided during all stages of pregnancy. Some clinicians use chaste tree during the first trimester of pregnancy to prevent miscarriage in clients with progesterone insufficiency. However, because it is not known if chaste tree is helpful or safe in these clients, its use is controversial. If a decision is made to withdraw chaste tree before four months, progesterone levels should be closely monitored.¹⁴

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Chaste tree is thought to be a dopamine agonist and inhibit prolactin secretion. This might result in decreased breast milk production. However, this is controversial. Some clinicians actually use low doses of chaste tree to increase milk production with some reports of success. However, until more is known, avoid using chaste tree in breast-feeding mothers.

Drug and Supplement Interactions

It has been suggested that chaste tree might potentiate the actions of dopaminergic agonists such as bromocriptine (Parlodol), pergolide (Permax), and others due to dopaminergic effects of chaste tree. It also might interfere with the action of dopamine antagonists such as antipsychotics, such as metoclopramide (Reglan).

Because chaste tree seems to have hormone regulating activity it has also been suggested that chaste tree can interfere with the efficacy of oral contraceptives and hormone replacement therapy.

Regulatory Status

Canada: 32 homeopathic drugs containing chaste tree have marketing authorization with Drug Identification Numbers assigned (Health Canada, 2001). No chaste tree-containing traditional herbal medicines are presently authorized though there are no known restrictions.

United Kingdom: Herbal medicine on General Sale List (GSL), Table A (internal or external use), Schedule 1 (requires full Product License) (GSL, 1994). There is no monograph in the British Pharmacopoeia (Meier, 1999), but one is found in British Herbal Pharmacopoeia.

United States: Dietary supplement (USC, 1994). Tincture of the dried or fresh berries, 1:10 (w/v) in 65% alcohol (v/v), is official in the Homeopathic Pharmacopoeia of the United States (1989). There is no monograph in the USP-NF.

American Herbal Products Association (AHPA) Safety Rating: Chaste tree is a Class 152B -- Should not be used during pregnancy. It is also rated as a Class 2D -- may counteract the effectiveness of birth control pills. A co-editor of the AHPA rating guidelines has since challenged this. Upton (2001), who has since reviewed the pharmacology and clinical trials of chaste tree, says this precaution lacks evidence.16