

THE REVIEW OF

NATURAL PRODUCTS

SCIENTIFIC NAME(S): *Vitex agnus-castus* L. Family: Verbenaceae

COMMON NAME(S): Chaste tree, chasteberry, monk's pepper

PRODUCT(S): eg, Chaste Tree Capsules (Nature's Way);
Chaste Tree Tincture (Rainbow Light)

BOTANY: The chaste tree is a shrub that grows in moist river banks in southern Europe and in the Mediterranean region.¹ It can grow to 22 feet in height. The plant blooms in summer, developing light purple flowers and palm-shaped leaves. The dark brown to black fruits are the size of a pepper corn; these fruits have a pepperish aroma and flavor and are collected in autumn.^{2,3}

HISTORY: The dried ripe fruit is used in traditional medicine. The plant has been recognized since antiquity and has been described in works by Hippocrates, Dioscorides, and Theophrastus.² In Homer's epic, the Iliad, the plant was featured as a "symbol of chastity, capable of warding off evil."³ Early physicians recognized its effect on the female reproductive system, suggesting its use in controlling hemorrhages and expelling the placenta after birth. The English name "chaste tree" derives from the belief that the plant reduces unwanted Libido. Monks have chewed its parts to decrease sexual desire.^{2,3} At least one report is available discussing the chaste tree's use in ancient medicine to the present.⁴

CHEMISTRY: The chaste tree contains iridoids, flavonoids, progestins and essential oils.⁵ Two iridoid glycosides have been isolated: Agnuside (0.6%) and aucubin (0.3%).^{6,7} Another report confirms iridoid presence from the leaves of the plant using TLC and spectral data.⁸

Flavonoid content has been determined in chaste tree leaves (0.99% to 2.7%), flowers (1.01% to 1.47%) and fruits (0.45% to 0.97%).⁹ Components of flavonoids include flavonol derivatives kaempferol and quercetagenin, the major constituent being casticin.⁷ An earlier report isolates and identifies additional flavonols from the fruits including 6-hydroxykaempferol – 3,6,7,4 – tetramethyl ether (penduletin 4'-methyl ether), penduletin and chrysoplenol.¹⁰ Other flavonoids present in the plant include orientin and isovitexin.²

Progesterone and hydroxyprogesterone, in the free and conjugated forms, have been found in chaste tree leaves and flowers. Progesterone, testosterone and epitestosterone were detected from flower parts. Androstenedione was found in the leaves.¹¹

Essential oils present in chaste tree include mainly the monoterpenoids, cineol and pinene (alpha and beta) along with limonene, sabinene, castine, eucalptol, myrcene, linalool, citronellol, cymene and camphene. Sesquiterpenoids such as caryphyllene, farnesene, cardinene and ledol are also present.^{5,7,12}

The alkaloid vitricine is also present in the plant.⁷ An overview of the chaste tree is available, including chemical composition, pharmacology and side effects.¹³

PHARMACOLOGY: Chaste tree berries are thought to be antiandrogenic, inhibiting these make hormonal actions. In females, the berries exert progesterogenic effects, balancing progesterone and estrogen production from the ovaries and regulating menstrual cycles. A preparation of chaste tree (0.2% w/w) has been available in Germany since the 1950s and is used in treatment of breast pain, ovarian insufficiency (some cases resulting in pregnancy) and uterine bleeding.⁷ Crude herb or alcoholic or aqueous extracts of pulverized fruit are used in commercial preparations.¹⁴

Chaste tree preparations inhibit basal and TRH-stimulated prolactin secretion of rat pituitary cells in vitro, suggesting its possible use in treatment of hyperprolactinemia.¹⁵ In addition, animal studies have found an increase in lactation and mammary enlargement, indicating an effect on prolactin release.²

Chaste Tree, continued...

When studied in 52 women with luteal phase defects caused by latent hyperprolactinemia, a chaste tree preparation reduced prolactin release, normalized luteal phases and eliminated deficits in luteal progesterone without side effects.¹⁶ Chaste tree extract contains an active principle that binds to dopamine (D₂) receptor sites, inhibiting prolactin release. This suggests therapeutic usefulness of the plant for treatment in premenstrual breast pain associated with prolactin hypersecretion.¹⁷

A case report in a female patient evaluated chaste tree therapy in multiple follicular development. Hormone levels after administration of the herb became "disordered;" thus, the authors concluded not to use chaste tree to promote normal ovarian function.¹⁸

Chaste tree is reportedly effective in treating endocrine abnormalities such as menstrual neuroses and dermatoses. It has also been used to treat acne.⁷

In lactating women, extracts of the plant have

also been used to increase milk production.² When analyzed chemically, the breast milk revealed no compositional changes after chaste tree use.⁷

TOXICOLOGY: Chaste tree administration has not been associated with significant adverse events. In one large German market surveillance study, 17 of 1542 women discontinued treatment because of an adverse event.² Minor side effects include gastrointestinal reactions, allergic reactions (eg, itching and rash), headaches and menstrual flow increase.^{2,7} The safety of the plant has not been determined in children.

SUMMARY: The chaste tree is a popular European plant that is used in traditional medicine for the management of disorders of the female reproductive tract. Chemical analysis indicates the presence of components that can affect the function of these systems, and the results of preliminary human investigations indicate that extracts of the plant have measurable pharmacologic activity. This plant should be further investigated for its potential medicinal effects.

PATIENT INFORMATION – Chaste Tree

Uses: Chaste tree has been used in females to balance progesterone and estrogen production and regulate menstruation. It has been used for breast pain, ovarian insufficiency and uterine bleeding and to increase breast milk production.

Side Effects: Minor side effects include GI reactions, itching, rash, headaches and increased menstrual flow.

¹ Mabberley DJ. The plant-book: A portable dictionary of the higher plants.

Cambridge: Cambridge University Press, 1987.

² Brown DJ. Quarterly Rev Nat Med 1994; Summer: 111.

³ Chevallier A. Encyclopedia of Medicinal Plants. New York, NY: DK Publishing 1996;149.

⁴ Hobbs C. Pharmacy in History. 1991;33(1):19-24.

⁵ Kustrak D, et al Farmaceutski Glasnik 1992 May; 48:149-58.

⁶ Gomaa CS. Planta Medica 1978;33:277.

⁷ Newall C, et al. Herbal Medicines. London, England: Pharmaceutical Press 1996;19-20.

⁸ Kustrak D, et al. Farmaceutski Glasnik 1992 Nov;48:305-10.

⁹ Kustrak D, et al. Farmaceutski Glasnik 1993 Nov;49:299-303.

¹⁰ Wollenweber E, et al. Planta Med 1983 Jun; 48:126-27.

¹¹ Saden-Krehula M, et al. Acta Pharm Jugosi 1991;41(3):237-41.

¹² Kustrak D, et al. Farmaceutski Glasnik 1992 Nov;48:305-10.

¹³ Houghton P. Pharm J 1994 Nov 19; 253:720-21.

¹⁴ Leung, AY. Encyclopedia of Common Natural Ingredients. New York, NY: John J. Wiley & Sons 1996;151.

¹⁵ Silutz G, et al. Horm Metab Res 1993;25(5):253-55.

¹⁶ Milewicz A, et al. Arzneimittelforschung 1993;43(7):752-56.

¹⁷ Jarry H, et al. Exp Clin Endocrinol 1994;102(6):448-54.

¹⁸ Cahill D, et al. Hum Reprod 1994;9(8):1469-70.