Vitex agnus castus

Chaste Tree Berry

Indications

Polycystic Ovarian Syndrome (PCOS)[1,2,3]

Mechanism of Action

Vitex agnus castus fruits contain flavonoid glycosides such as casticin, vitexin, penduletin, orientin, and apigenin; the iridoid compounds aucubin,[4] agnuside,[5,6] agnucastosides A, B, and C, mussaenosidic acid, and hydroxybenzoylmussaenosidic acid[7]; and labdane diterpene alkaloids such as vitexlactams A, B, and C[8] and clerodadienol.[9]

Vitex influences dopaminergic transmission. It also regulates prolactin, follicle-stimulating hormone, and luteinizing hormone (LH), which may regulate testosterone levels, as well as levels of other reproductive hormones. *Vitex* has also been shown to bind opiate receptors,[10,11,12] which in turn promotes dopamine activity.

Casticin and the diterpenes are believed to reduce elevated prolactin levels.[9,13] Dopaminergic activity will also reliably reduce hyperprolactinemia,[14] and radioligand studies of *Vitex* extracts confirm that diterpenes bind to type 2 dopamine receptors and to all subtypes of opiate receptors.[11] Animal studies suggest that casticin at a dose of 1 μmol/L inhibits estradiol stimulation of prolactin secretion via suppression of pituitary α-estrogen receptor mRNA expression, while increasing β-estrogen receptor mRNA expression at the higher dose of 10 μmol/L.[15] *Vitex* also blocks thyrotropin-releasing hormone-stimulated prolactin secretion in rat pituitary cells.[13] The diterpene clerodadienol binds dopamine receptors and suppresses prolactin release as effectively as dopamine.[9]

Because dopamine suppresses pituitary secretion of both LH and prolactin, *Vitex* also reduces LH release and thereby reduces serum testosterone levels.[16] This can be therapeutic in women with polycystic ovary syndrome (PCOS) and elevated androgens. This may also be one of the mechanisms contributing to its anticomedogenic effects in adolescent acne.

Evidence-Based Research

Vitex can increase progesterone levels[4] and reduce elevated prolactin[9,17] and testosterone[16] levels, all of which contribute to the restoration of regular menstruation in women with amenorrhea. Stress,[14] elevated estrogens, and thyrotropin-releasing hormone[18] can promote prolactin release, which may suppress ovulation and lead to amenorrhea. *Vitex* reduces elevated prolactin,[19,20] helping to restore menstrual regularity and improve fertility.

An ethanolic extract of *Vitex* dosed at 0.6 and 1.2 g/kg body weight significantly increased uterine weight in ovariectomized rats. This was associated with significant increases in plasma progesterone and total estrogen levels and a significant reduction in LH and plasma prolactin hormone at both dosages.[4] Animal studies have also shown that *Vitex* normalizes elevated testosterone levels,[16] which are often found in women with PCOS, and contributes to hirsutism and amenorrhea.

Vitex may exert a dopaminergic effect equal to the pharmaceutical agent bromocriptine.[21] A randomized controlled trial conducted by Stanford University's Department of Obstetrics and Gynecology compared the use of *Vitex* and other supportive nutrients to placebo in 93 women with infertility. After 3 months, progesterone levels in women on *Vitex* had increased compared with those receiving placebo. Furthermore, 13 of the 53 women receiving *Vitex* became pregnant compared with none in the placebo group.[22]

Another randomized controlled trial of women with luteal-phase defect menstrual cycle irregularities attributable to elevated prolactin found that 20 mg of *Vitex* lowered prolactin levels and normalized menstrual cycles after 3 months. Luteal-phase estradiol levels also increased with *Vitex*, with no effect on other hormonal parameters.[3]

Safety in Pregnancy and Breastfeeding

Vitex is presumed to be contraindicated in pregnancy and lactation, although evidence for its impact on lactation is contradictory.[23] Given that *Vitex* affects numerous hormones, it is advisable to avoid it during pregnancy until more evidence is available.

General Safety

Vitex is generally well tolerated, the main side effects being nausea and gastrointestinal irritation, dizziness, dry mouth, headache, menstrual disorders, acne, pruritus, and erythematous rash, all of which reversed upon cessation of the medication.[24,25,26]

Vitex may reduce fertility in males. The flavonoid fraction of *Vitex negundo*, a species related to *Vitex agnus castus*, has been shown to diminish citric acid in the prostate, fructose in seminal vesicles, and epididymal α-glucosidase activity in male rats. These changes were also associated with a decrease in sperm count and motility.[27] *Vitex negundo* has been shown to have antiandrogenic effects on dogs at a dose of 10 mg/kg parenterally, blocking the effects of testosterone propionate supplementation.[28]

No herb–drug interactions have been reported, but it is possible that *Vitex* may have additive effects if combined with dopaminergic drugs, or interfere with the action of dopamine antagonists.

Dosage

Traditionally, 20–1800 mg/day of the crude herb powder in divided doses is used.

Doses from 4 to 40 mg of the extract have been used in clinical trials.

Traditional Uses

Vitex agnus castus has been used for centuries to treat menstrual, menopausal, and fertility disorders in women, and it is a valuable medicine to consider in a broad treatment protocol for PCOS. *Vitex* is also known as monk's pepper, a name that stems from the use of its peppercorn-like fruits to help maintain chastity in men's religious orders. *Vitex* has a long history of use in formulas to treat premenstrual syndrome, mastalgia, male gynecomastia, adolescent acne, amenorrhea, ovarian cysts, hot flashes, bleeding irregularities, and menopausal complaints.

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