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## Review

# Phytopharmacological Review on *Vitex agnus-castus*: A Potential Medicinal Plant

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### ABSTRACT

*Vitex agnus-castus* is a small tree or shrub, belonging to the family Verbenaceae. It is a deciduous shrub native to European, Mediterranean, and Central Asian countries. *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. The major constituents in *V. agnus-castus* are flavonoids, essential oils, diterpenes, and glycosides. The flavonoids (casticin, quercetagenin, and isovitexin) have been shown *in vitro* to affect estrogen receptors. *V. agnus-castus* could be used to treat acne, digestive complaints, menstrual irregularities, premenstrual syndrome (PMS), mastalgia, and infertility, and also for lactation support. Although *V. agnus-castus* has been used for centuries and enjoys wide support from practitioners and the general public for many gynecological complaints, few clinical studies support its documented uses. The presence of phytochemical and pharmacological activities has proved that the plant has a leading capacity for the development of new good efficacy drug in future.

#### Key words

clinical pharmacology; contraindication; *Vitex agnus-castus*

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## 1. Introduction

It is estimated that 75%–80% inhabitants of the under developed countries rely on herbal drugs. Nowadays, interest towards herbal medicines is increasing for the reason that people have an idea that these medicines are much safer, cost effective, and have no side effect (Muhammad et al, 2012). So it is a requirement of time to maintain the documentation of all research efforts made on conventional drugs. Along with this, the correct identification and standardization of drugs by means of pharmacognostic and phytochemical evaluation are the necessary steps to produce an efficient herbal drug all along with complete safety profile (Prasad et al, 2012).

*Vitex agnus-castus* L. (Figure 1) is a small tree or shrub, belonging to family Verbenaceae. This plant has important

medicinal properties and is especially used for treatment of premenstrual problems and hyperprolactinemia because of its hormone-like effect (Milewicz et al, 1993; Odenthal, 1998). This purple flower shrub grows in creek beds and on river banks in valley and lower foothills in the Mediterranean countries, Central Asia, and North America. It is also cultivated in several different subtropical areas all around the world (Donald, 1994). The common names of *V. agnus-castus* are Sambhalu (Urdu), Chaste tree (English), Arbre au poivre, Gattilier (French), Sambha (Hindi), Abrahamsstrauch (German). In folk medicine, *V. agnus-castus* is used as diuretic, digestive, antifungal, anti-anxiety, early birth, stomachache, aphrodisiac, anti-oestrus cycle effect, relieves pain, eupeptic, emmenagogus, antispasmodic, aperitif, soporific action, mastopathies, inhibition of prolactin synthesis,

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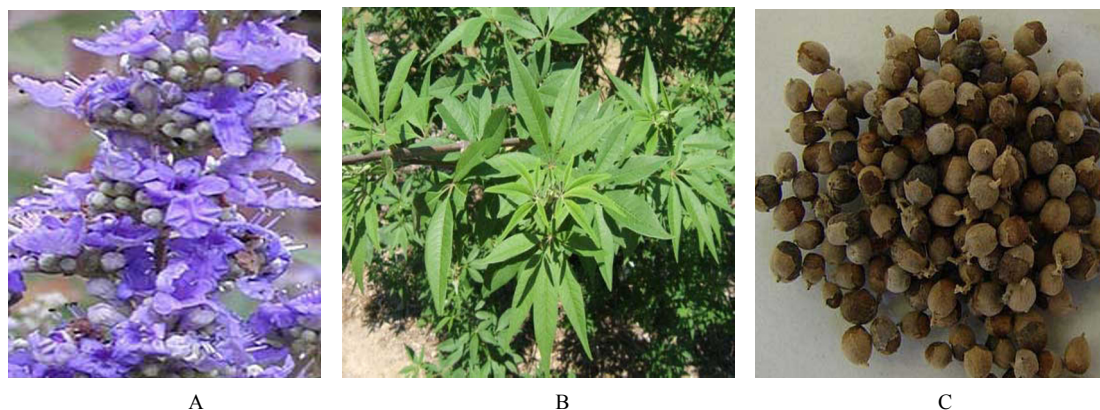


Figure 1 Flowers (A), leaves (B), and fruits (C) of *V. agnus-castus*

and inhibitor for dopamine D<sub>2</sub> and opiod (Baytop, 1984; Hobbs, 1991). *V. agnus-castus* contains iridoids, flavonoids, diterpenoids, essential oils, and ketosteroids. The methanolic extract of the flowering stems of *V. agnus-castus* yielded three new iridoids: 6'-*O*-foliamenthoyl-mussaenosidic acid (agnucastoside A), 6'-*O*-(6,7-dihydro-foliamenthoyl) mussaenosidic acid (agnucastoside B), and 7-*O*-trans-pcoumaroyl-6'-*O*-trans-caffeoyl-8-epiloganic acid (agnucastoside C) in addition to four known iridoids (aucubin, agnuside, mussaenosidic acid, and 6'-*O*-phydroxybenzoyl-mussaenosidic acid) and one known phenylbutanone glucoside (myzodendrone) (Kuruuzum et al, 2003; Saden-Krehula et al, 1990; Chopra et al, 1958).

## 2. Botanical description

*V. agnus-castus* is a deciduous shrub, approximately 1–6 m in height, with aromatic odour. Leaves are opposite, long-petiolate, palmately-compound with 3–9 stipulate leaflets; leaflet blade linear-lanceolate, apex, and base acuminate, 1.5–10.0 cm long, 0.5–2.0 cm wide; The central leaflet is the longest, dark green, and glabrous above, velvety white-tomentose below; margin entire to sparsely toothed. Inflorescence is terminal panicle, 12.0–17.5 cm long, and composed of many sessile-subsessile cymes. Flower is perfect, campanulate symmetric, white-tomentose; calyx 5-toothed, campanulate, 2.0–2.5 cm long; corolla blue, pink, yellowish or white, salverform, tube 6–7 mm long, limb 2-lipped, upper lip 2-lobed, lower lip 3-lobed; stamens 4, exerted, 2 long, 2 short, inserted near top of corolla tube, alternate with corolla lobes; ovary superior, style exerted, and stigma bifid. Fruits are drupe, globose to subglobose, 2–4 mm in diameter, reddish (Abel et al, 1994; Upton, 2001).

### 2.1 Taxonomy

Kingdom: Plantae – Plants  
 Subkingdom: Angiosperm  
 Division: Eudiotis  
 Class: Asterids  
 Order: Lamiales  
 Family: Verbenaceae  
 Subfamily: Viticoideae

Genus: *Vitex* L.

Species: *Vitex agnus-castus* L.

### 2.2 Microscopic character

Main diagnostic features observed in powdered fruit of *V. agnus-castus* are scattered fibro vascular tissue, slightly lignified fibers, thin walled oil cells, endoplasmic cell, simple and complex starch granules, rectangular cork tissues, rosette shaped calcium oxalate, bordered pitted vessels, and stone cells (Figure 2). Cross section of bovid fruit reveals that the entire peripheral layer beneath the cuticle is composed of thin walled barrel shaped epidermal cells. The whole central

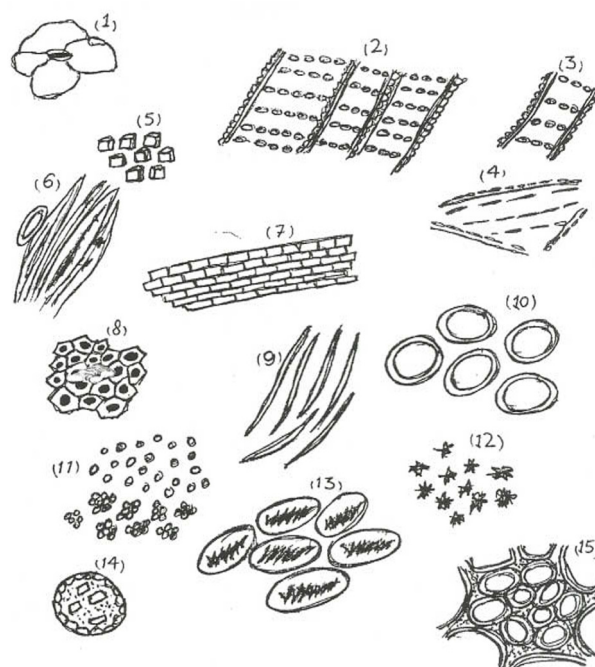


Figure 2 Microscopic examination of powdered fruit of *V. agnus-castus* in chloral hydrate, glycerine, and iodine solution

(1) stomata; (2) group of bordered pitted vessels; (3) bordered pitted vessel; (4) matured pitted vessel; (5) prism of calcium oxalate; (6) phloem fiber with calcium oxalate; (7) cork tissues; (8) bast cell; (9) protoplasmic strands; (10) oil cells; (11) simple and complex starch grains; (12) calcium oxalate crystals; (13) stone cells; (14) oil gland; (15) endoplasmic cells

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