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## Medicinal property of Nirgundi

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### Abstract

*Pithecellobium dulce* has been utilized by antiquated individuals in treating various sorts of ailments due to its anti-inflammatory, anti-arthritic, insecticidal and pesticidal properties. The leaves, fruits, roots and seeds possess anti-inflammatory and anti-arthritic activity. The leaves have anti-inflammatory and analgesic activity mediated via PG synthesis inhibition, antihistamine, membrane stabilizing and antioxidant activity. *Vitex negundo* is the richest source of stable Vitamin C. This richness in Vitamin C makes the Nirgundi one of the best anti-inflammatory and anti-biotic. Nirgundi is a drug of choice for problems where inflammation has occurred like- pharyngitis, tonsillitis, endometriosis and even orchitis. The recommended dose is 3-6 gm for roots, seeds and leaves powder. The plant products of *V. negundo* are variously reported to possess insecticidal activity against stored product pests, mosquito larvae, house flies and tobacco leaf eating larvae. Leaf oil of the plant is shown to have repellent action against stored product pests. *Nirgundi* cures indigestion, brings down temperature, and is particularly recommended in typhoid. To control lice, leaves of *nagod* (*V. negundo*) are heaped in the poultry farm. It is believed that the smell of the *nagod* leaves repels lice. Leaves also cures sprain, headache, abdominal gas and pain, fever, toothache, asthma, cough, ulcers, boils and wounds.

**Keywords:** Vitex Nirgundi, anti inflammatory, fever, toothache, ecto-parasiticidal, anti diarrhoeal

### Introduction

*Vitex negundo* is a much-branched shrub up to 5 m tall or sometimes a small, slender tree with thin, gray bark. Leaves are palmately compound, 3–5 foliate; leaflets are lanceolate; margins are entire or crenate; terminal leaflets are 5–10 cm × 1–3 cm; lateral leaflets are smaller; aromatic when crushed (Fig.1). Flowers are bluish-purple, small, in peduncled cymes, forming large, terminal, often compound, pyramidal panicles. In central India, flowering occurs between June and December and fruiting from September to February. The fruit is a succulent drupe, black when ripe, 5–6 mm in diameter. Seeds are 5–6 mm in diameter. The mature seeds sown in nursery beds normally germinate within 2–3 weeks. Four- to six-month-old seedlings are used for transplanting in the field. It can be reproduced readily from shoot cuttings. *Vitex negundo* roots are strong and deep and suckers profusely. It produces root suckers which can also be utilized as planting material. Vishvavallabha (1577 CE) points out that *sindhuvara* (*V. negundo*) can be grown both from seeds and stalks (Sadhale, 2004) [34].



### History

The Sanskrit word for *V. negundo* – *nirgundi* – literally means that which protects the body from diseases. It is one of the herbs mentioned in all of the Ayurvedic *Samhitas*. People in ancient India identified two varieties of *nirgundi*, one bearing white flowers (*shwetapushpi*), called *sindhuvar*, and the other having blue flowers (*pushpanilika*) designated as *nirgundi* in Sanskrit. The *Amarakosha* (500–800 CE) lists various names assigned to *newri* as *sinduk*, *sindhuvara*, *indrasursa*, *nirgundi*, *indranika*, and *sinduar*. The ancient treatise Varahamihiras

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*Brhat Samhita* (c. 500 CE) identifies two names as *sindhuvara* (XXIX 9, LIII 103, and LIII.14) and *sindhuka* (Sharma, 1979)<sup>[38]</sup> In the Puranas, it is referred to by four names: *nirgundi*, *Matsya Purana*, *nirgundika*, *sindhuvara* and *sindhuvaraka* (Sensarma, 1989)<sup>[35]</sup>.

People in ancient India identified two varieties of *nirgundi*, one bearing white flowers (shwetapushpi), called *sindhuvar*, and the other having blue flowers (pushpanilika) designated as *nirgundi* in Sanskrit.

#### Different names:

- Botanical Name: *Vitex negundo*
- Sanskrit: *Nirgundi*, *Sindhuvara*, *Neelamanjari*
- Indrasurasa, Bhoothakeshi, Neelika
- Hindi: *Samhalu*, *Saubhalu*, *Nirgandi*
- English: Five-leaved chaste tree
- Bengali: *Nirgundi*, *Nishinda*
- Gujarati: *Nagod*
- Kannada: *Bile-nekki*
- Malayalam: *Indrani*
- Telugu: *Nallavalli*, *Vavilli*, *Tellavavilli*
- Tamil: *Nirkunuchi*, *Nallanochi*

**Parts used:** root, leaves, flowers, fruits, bark.

#### Active Compounds:

Leaves contains an alkaloid nishindine, flavanoids like flavones, luteolin-7, glucoside, casticin, iridioid, glycosides, an essential oil and other constituents like vitamin C, carotene, gluco-nonital, benzoic acid, B-sitosterol, and C-glycoside. Seeds contain hydrocarbons, B-sitosterol and benzoic acid and phthalic acid (Hussain *et al.*, 1992). Anti-inflammatory diterpene, flavanoids, artemetin and triterpenoids (Chawla *et al.*, 1991 & 1992). Fatty acids, B-sitosterol, vanillic acid, p-hydroxybenzoic acid and luteolin have been isolated from bark (Hussain, 1992)<sup>[17]</sup>. Stem bark yields leucoanthocyanidins (Hussain, 1992<sup>[17]</sup>; chopra *et al.*, 1956)<sup>[9]</sup>

Chaste berry has not been significantly investigated for its therapeutic effects. However, preliminary investigations do indeed show the presence of compounds which are able to adjust the production of female hormones. It is thought to contain a progesterone-like compound. The chemical constituents are the monoterpenes agnuside, eucalyptol, and aucubin. Chasteberry also contains the flavonoids casticin, chryso-splenol and vitexin. Animal studies have shown that extracts of *Agnus castus* can stimulate the release of Leutenizing Hormone (LH) and inhibit the release of Follicle Stimulating Hormone (FSH). Another study found that extracts of Chasteberry can stimulate the release of Leutenizing Hormone (LH) and inhibit the release of Follicle Stimulating Hormone (FSH). This hormonal effect has been confirmed in another laboratory report which suggests that the volatile oil has a progesterone-like effect. Thus, *Vitex*'s benefits stem from its actions upon the pituitary gland—specifically on the production of luteinizing hormone. This increases progesterone production and helps regulate a woman's cycle. *Vitex* also keeps prolactin secretion in check. The ability to decrease excessive prolactin levels may benefit infertile women.

#### Pharmacological activities

##### a) Anti-inflammatory activity

Different parts of plant especially leaves, fruits, roots and seeds possess anti-inflammatory and anti-arthritic activity (Chaturvedi & Singh, 1965<sup>[5]</sup>; Ravishankar *et al.*, 1985<sup>[32]</sup>;

Chawla *et al.*, 1991<sup>[7]</sup>, 1992<sup>[8]</sup>; Jana *et al.*, 1999<sup>[26]</sup>). However, possible mechanism of anti-inflammatory activity was indicated (Telang *et al.*, 1999)<sup>[42]</sup> as an inhibitory action on prostaglandin biosynthesis. Dharmasiri *et al.*, (2003)<sup>[11]</sup> suggested that leaves have anti-inflammatory and analgesic activity mediated via PG synthesis inhibition, antihistamine, membrane stabilizing and antioxidant activities. V. Negundo, which is known to act by prostaglandin inhibition, may be expected to cause gastric damage but on the contrary it produced no histomorphological changes in the stomach even in toxic doses (Tandon and Gupta, 2004)<sup>[40]</sup>. This may be due to a selective COX-2 inhibition that might be responsible for its NSAID's like activity. *Vitex negundo* is the richest source of stable Vitamin C. This richness in Vitamin C makes the *Nirgundi* one of the best anti-inflammatory and anti-biotic (not by killing the cells but by increasing the immunity of the body). *Nirgundi* is a drug of choice for problems where inflammation has occurred like- pharyngitis, tonsillitis, endometrosis and even orchitis. *Nirgundi* is a useful herb for proper hair growth and their maintenance; it should be used internally in powder or capsule. Roots, leaves and seeds are the useful parts of *Nirgundi*. The recommended dose is 3-6 gm for roots, seeds and leaves powder. File:///D:/Nirgundi/Ayurvedic%20Herb%20Nirgundi%20%20Vitex%20negundo%20%20Nirgundi%20powder%20Nirgundi%20Capsules%20..mht)<sup>[12]</sup>

##### b) Insecticidal and Pesticidal activities

The plant products of *V. negundo* are variously reported to possess insecticidal activity against stored product pests, mosquito larvae, house flies and tobacco leaf eating larvae. Leaf oil of the plant is shown to have repellent action against stored product pests (Deshmukh *et al.*, 1982<sup>[9]</sup>; Prakash and Mathur, 1985<sup>[27]</sup>; Hebbalkar *et al.*, 1992.<sup>[15]</sup>)

##### c) Stomach

*Vitex negundo* as one of the plants used in indigenous practices for the treatment of mastitis, and diarrhea diseases of animals (ICAR, 2006)<sup>[24]</sup>. In Gujarat, to check diarrhea, farmers feed the animal with 200–250 g leaves of *nagod* (*nirgundi*) with normal feeds for two to three days (Bhimsen, 1995)<sup>[4]</sup>. The Oraon and Korwa tribes of Raigarh, Madhya Pradesh, use the leaf juice mixed with seeds of *Trachyspermum ammi* (*ajwain*) to treat stomach trouble in cattle and conjunctivitis (Maheswari *et al.*, 1991)<sup>[28]</sup>. *Suvaha* (*nirgundi*) is used in the treatment of elephants, as referred in Manasollasa (Sadhale and Nene, 2004)<sup>[34]</sup>. *Vitex negundo* berries contain diterpenes, contributing the balance of sex hormones in the female body. *Vitex* increases the function of sexual glands. It is used in the treatment of mastitis, uterine fibroids, menstrual disorders, infertility. <https://www.sattva24.com/en/pro-mastadin.htm><sup>[23]</sup>.

##### d) Fever

*Nirgundi* cures indigestion, brings down temperature, and is particularly recommended in typhoid. The Lokopakara refers to the cure of fever of cows with a decoction of *nirgundi* and neem leaves. Ground leaves of *nirgundi*, *Leucas aspera*, bottle gourd, *madar*, mustard, betel pepper, and lime, made into gruel after stirring along with sesame oil and administered orally cures ninety-six types of cattle diseases. In the Medak district of Telangana (formerly Andhra Pradesh), farmers occasionally feed the animal with a handful of *Vitex negundo* leaves, 50 g of dry ground coconut, three *Musa paradisiacal* (banana) fruits, and one kilogram of

*Trigonella foenum-graecum* (fenugreek) leaves to check foot and mouth disease (Khan, 2006).<sup>[27]</sup>

#### e) Pain

*Vitex negundo* leaves, amaranth, rock salt, immature *bael* (*Aegle marmelos*) fruit, buds of the banyan tree, roots of *Datura metel*, Indian lotus rhizomes, and whole plant of Indian spinach ground in a stone mortar and applied to the belly of a cow relieves swelling. A paste of *Vitex negundo* leaves with various other ingredients cures all digestive diseases of horses (Ayangarya, 2006)<sup>[2]</sup>. In the Moradabad district of Uttar Pradesh, *nirgundi* is used as refrigerant for cattle (Ali, 1999)<sup>[1]</sup>. In the Siran valley, Pakistan, it is used as medicine for buffaloes in colic (Shah and Khan, 2006)<sup>[36]</sup>. In Haryana, villagers use leaves for cure of swelling and washing septic wounds of cattle and also given internally for digestive purposes. Tribals use a leaf decoction for washing septic wounds of cattle (Pal and Jain, 1998)<sup>[29]</sup>.

#### f) Ectoparasitocidal

In poultry birds, lice infestation occurs mainly during the *kharif* (rainy) season. The irritation caused by the biting of the lice makes the bird peck itself all over its body and this causes detachment of the feathers. To control lice, leaves of *nagod* (*V. negundo*) are heaped in the poultry farm. It is believed that the smell of the *nagod* leaves repels lice (Patel, 1994)<sup>[30]</sup>.

#### g) Wound

Five-Leaved Chaste Tree (*Nirgundi*) possesses anti-inflammatory, antibacterial and antifungal properties. It is useful in the treatment of superficial bruises, sores, injuries and skin infections. <http://www.himalayawellness.com/products/animalhealth/inflamin-vet.htm><sup>[20]</sup>

**h) Sprain (Moch in hindi):** Heat fresh leaves. Apply poultice of it on sprained area.

**i) Headache:** Take nirgundi leaves and grind with water to make paste. Apply this paste on forehead.

**j) Abdominal gas and pain:** Make decoction of its leaves and drink.

**k) Fever, toothaches:** Take Nirgundi leaves (6 tbsp) in water (2 glasses) and boil for 15 minutes. Filter the decoction and divide in three parts. Take thrice a day on gap of 4 hours.

**l) Asthma, cough:** Take 1/4th decoction three times a day (same as prepared for fever).

**m) Ulcers, boils, wounds:** Boil Nirgundi leaves in water and make decoction. Wash affected area with this decoction.

(file:///D:/Nirgundi/Medicinal%20use%20of%20Nirgundi%20(Vitex%20negundo).mht)<sup>[12]</sup>

#### Recommended Dosage

Almost all its parts like leaves, roots, bark, fruits, flowers and seeds are employed for medicinal purpose and can be used medicinally in the form of powder, decoction, juice, oil, tincture, sugar/water/honey paste, dry extract. Doses recommended in adults are: juice 10-20ml; decoction 50-100ml; leaves powder 1.5-3g; dry leaves extract 300-600 mg as per requirement in a day (Chaudhary, 1996)<sup>[6]</sup>.

#### External application

There are very less herbs as multi-talented and as versatile as Nirgundi is. Used both for external application in the form of paste / oil, and also for oral administration in the form of

powder, leaf juice extract or water. useful in intestinal worm infestation, skin diseases, eczema, ring worm relieves muscle and arthritis related pain, spleen disorder, abdominal tumour, useful in anorexia, improves intelligence, relieves anxiety, good for eyes, carminative, improves hair quality, anti-toxic, anti-poisonous, abdominal colic, anti-spasmodic, Ama (a product of altered digestion and metabolism), useful against cholesterol, heals wounds faster, cleanses wounds, running nose, asthma, bronchitis, cold cough, improves memory

Its fumes are useful in getting rid of mosquitoes.

The leave is made into paste, heated a little and applied externally to relieve headache, orchitis (swelling in testicles), rheumatoid and osteo arthritis.

Water decoction of Nirgundi is used for vaginal douche to relieve local inflammation.

Water decoction is used for mouth gargling to relieve throat pain and oral ulcers.

The dry leaves are burnt and fumes are inhaled to relieve headache and running nose.

Its oil is prepared with sesame oil and used in wound healing.

Dose: Leaf juice 10-20 ml, Root bark powder 3-6 g, Seed powder 3-6 g, in divided doses per day, is the adult dose. (<https://easyayurveda.com/2014/07/27/nirgundi-vitex-negundo-uses-dose-side-effects-research/>)<sup>[19]</sup>

Nirgundi oil is obtained from the leaves which contain resins, fragrant and volatile oil. It is mostly prepared with sesame seed oil. It is used in wound healing and grey hairs. It is categorized as anthelmintic and anti-toxin. It is a richest source of vitamin C among Indian goose berry which makes it one of the best anti-inflammatory and anti-biotic herb. It has pungent, bitter and astringent taste; hot potency and pungent post digest effect. It balances vata and kapha. It has antipyretic and anti-arthritis properties and is used in diseases like typhoid fever, malaria fever, worms, dermatose and adenitis.

- Nirgundi oil is one of the most popular, natural anti-biotic, anti-inflammatory and analgesic.
- Nirgundi oil helps in reducing congestion, inflammation and pain. It is an effective remedy used to treat anal fistula as it tones the area by correcting poor blood circulation.
- This herbal oil is widely used in treatment of lymph node enlargement around neck region. It is also used to treat vascular headache and migraine. When applied externally it relieves orchitis, rheumatoid arthritis and osteo-arthritis.
- It is a panacea remedy for vaginal douche to cure local inflammation and hence it is used to treat bacterial vaginosis, white discharge and yeast infection in females.
- Nirgundi oil is also useful to cure sinuses and scrofulous sores. It is used as bathing oil as it is beneficial for wounds and ulcers.
- The oil is widely used to treat premature greying of hair and scalp infections like pediculosis and lice.

Dosage: Nirgundi oil is used for external application only. Apply on affected skin area. Leave it for 10-15 minutes and wash with lukewarm water. It is more beneficial to apply nirgundi oil before bath to reduce swelling, pain and irritation. Sometimes it is also used for nasal therapy or nasal instillation.

Duration of Usage: Externally it can be used for a very long period of time while for nasya therapy it should not be continued for more than a month. <http://www.planetayurveda.com/nirgundi-oil.htm><sup>[22]</sup>

### Other uses of *Vitex negundo*

The leaf juice is used for soaking metallic powders before converting them into pills (Watt, 1892<sup>[43]</sup>; Jain *et al.*, 2000)<sup>[25]</sup>. Herbal shoes prepared from *nirgundi* wood are reported to be effective in the treatment of rheumatism, and the practice is popular in parts of Chhattisgarh ([http://www.ayurvedaconsultants.com/herb\\_consult.aspx?commonName=NIRGUNDI](http://www.ayurvedaconsultants.com/herb_consult.aspx?commonName=NIRGUNDI))<sup>[18]</sup>

Another interesting fact has been its use for punishment in China (Da Ming, 2004). *Tendu* (*Diospyros melanoxylon*) and *nirgundi* are believed to have magical potency and branches of these trees are used by Oroan tribes to avert the evil eye, repel evil spirits and other evil influences from standing crops (Gupta, 1991)<sup>[15]</sup>. In ancient times, *V. negundo* was used as totem plant during war. Soldiers about to occupy a fort wore the *ulingai* creeper (*Cardiospermum halicacabum*) while the occupied army was required to wear the flowers of *nocci* (*V. negundo*) (Swamy, 1973)<sup>[39]</sup>.

Flowers of *sindhuvara* (*sweta nirgundi* –white form) were used as vegetables having the property of cooling (*sita*) and the power of destroying bile (*pittanasana*) (Sharma, 1979)<sup>[38]</sup>. The Lokopakara points out that the boiled shoots of *nirgundi* with turmeric powder, roots of tree cotton and fresh lime make *sambar* very delicious (Ayangarya, 2006)<sup>[2]</sup>. Fresh leaves are credited with the power of destroying the smell of 'high meat' (decomposed meat) or tainted meat or fish when boiled with it (Watt, 1892)<sup>[43]</sup>. Dry leaves are used for storing cotton and warm clothes in Hazaribagh. Leaves are burnt in a fire during the rainy season to keep mosquitoes away from animals and human beings; the smoke repels mosquitoes and insects (Ghosh, 2000<sup>[13]</sup>; Guleria and Vasisth, 2009<sup>[14]</sup>). The Lodha tribe uses dry leaf powder for repelling bedbugs (Pal and Jain, 1998<sup>[29]</sup>). Dry leaf powder alone or mixed with *dhoop* smoke repels mosquitoes (Tarafdar, 1983<sup>[41]</sup>; <http://www.indianetzone.com/48/shivari.htm>)<sup>[21]</sup>

### Safety

Side effects of using vitex are rare. Minor gastrointestinal upset and a mild skin rash with itching have been reported in less than 2% of the women monitored while taking vitex. Vitex is not recommended for use during pregnancy. Use caution when taking any herb. Ayurvedic herbs are often taken in combination with others to neutralize the toxicity one herb with the opposing effect of other. Do not take except under the supervision of a qualified professional. (<file:///D:/Nirgundi/herb%20data,%20Vitex,%20Vitex%20negundo,%20Vitex>)<sup>[12]</sup>

### Conclusion

The *nirgundi* is rich in medicinal property. It has antiseptic, astringent, anti-inflammatory and antipyretic properties. Leaves also cures sprain, headache, abdominal gas and pain, fever, toothache, asthma, cough, ulcers, boils and wounds.

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