

A brief review on nirgundi plant (vitex negundo Linn.)

Gore Sonam Vinayak
prof. Dnyaneshwar .S. Vyavhare
Principal – Dr. Megha T.Salve

*Department of bachelor of pharmacy
Shivajirao Pawar college of pharmacy, pachegaon
Ahmednagar – 413725*

Date of Submission: 27-10-2023

Date of Acceptance: 08-11-2023

ABSTRACT :-

Nirgundi is a large aromatic shrub or small tree up to 4.5 m high, widespread throughout the country. Due to its diverse medicinal properties, Nirgundi is used clinically for many diseases by most traditional medical systems. This medicine was mentioned as early as the Vedic period and has been used in Ayurveda for various diseases since the times of Samhita Kala. Nirgundi has Katu Tikta Kashaya Rasa, Laghu Ruksha Guna, Ushna Veerya and Vata Kaphahara. Nirgundi has Deepen, Kushtaghna, Krimighna, Medhya, Shothahara, Shulahara Karma and is mainly used in Vatavyadhi, Karna Roga, Krimi Kushta, Rajyakshma and Gulma Chikitsa. For carrying out treatment in Ayurveda, it is very important to know Dravya, including its synonyms Rasapanchaka, without knowing which treatment is not possible. Nirgundi is one such medicine with different properties and the opinion of different authors on the use of this medicine is indispensable in the treatment of diseases ranging from common fever to anxiety. Thus, synonyms and their interpretation, native names, Rasapanchaka, Rogaghata and Karma, Yoga of Nirgundi in Brihatraya and various Nighantus Dhanwantri Nighantu, Shodhala Nighantu, Madanpala Nighantu, Kaiyadeva

Nighantu, Raja Nighantu and Bhavprakash Nighantu are described and a review is presented in the classical sense of this Article Vitex negundo Linn. Mentioned in Ayurveda.

KEYWORDS:

Nirgundi, Vitex Negundo, Ayurved

I. INTRODUCTION :-

Ayurveda, a science of life, deals with various connections between the body, mind and soul. Maintaining a healthy person's health and preventing diseases in the individual is the main motto of this ancient science. There are many such medicines used in Ayurveda to fulfill the purposes of Ayurveda, one such medicine is Nirgundi, botanically identified as vitex nirgudi linn. , family Verbenaceae.

Vitex trifolia is native to Southeast Asia and Melanesia (Meena et al., 2010). Vitex Trifolia, a three-leafed chasteberry, also known as Indian yew or Indian wild pepper, has properties similar to V. negundo. Vitex Trifolia grows in India along the coast, called "pani-ki-sanbhalu" and "sufed-sanbhalu" in Hindi and "Lagunding-dagat" in the Philippines (Kulkarni, 2011).



Mimosa species are native to warm regions of the Old World. *Vitex Agnus-castus* grows naturally from the Mediterranean Sea east to Central Asia. The leaves consist of five to seven radiating leaflets. *Vitex negundo*, the five-leaf chaste tree, is more cold-resistant than the *Agnus* species. *Vitex* is present in Kenya, Tanzania, Mozambique,

Madagascar (in Africa) and Afghanistan, Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Taiwan and Vietnam. (in Asia) It is also found in similar habitats along the coast through Mauritius, Japan and south through Malaysia to tropical Australia and Polynesia



Chaste tree species are native to the Warm regions of the Old World. *Vitex Agnus-castus* grows naturally from the Mediterranean Sea eastward to central Asia. The leaves are composed of five to seven Radiating leaf etc. *Vitex negundo*, the five-Leaved chaste tree is more cold hardy than The

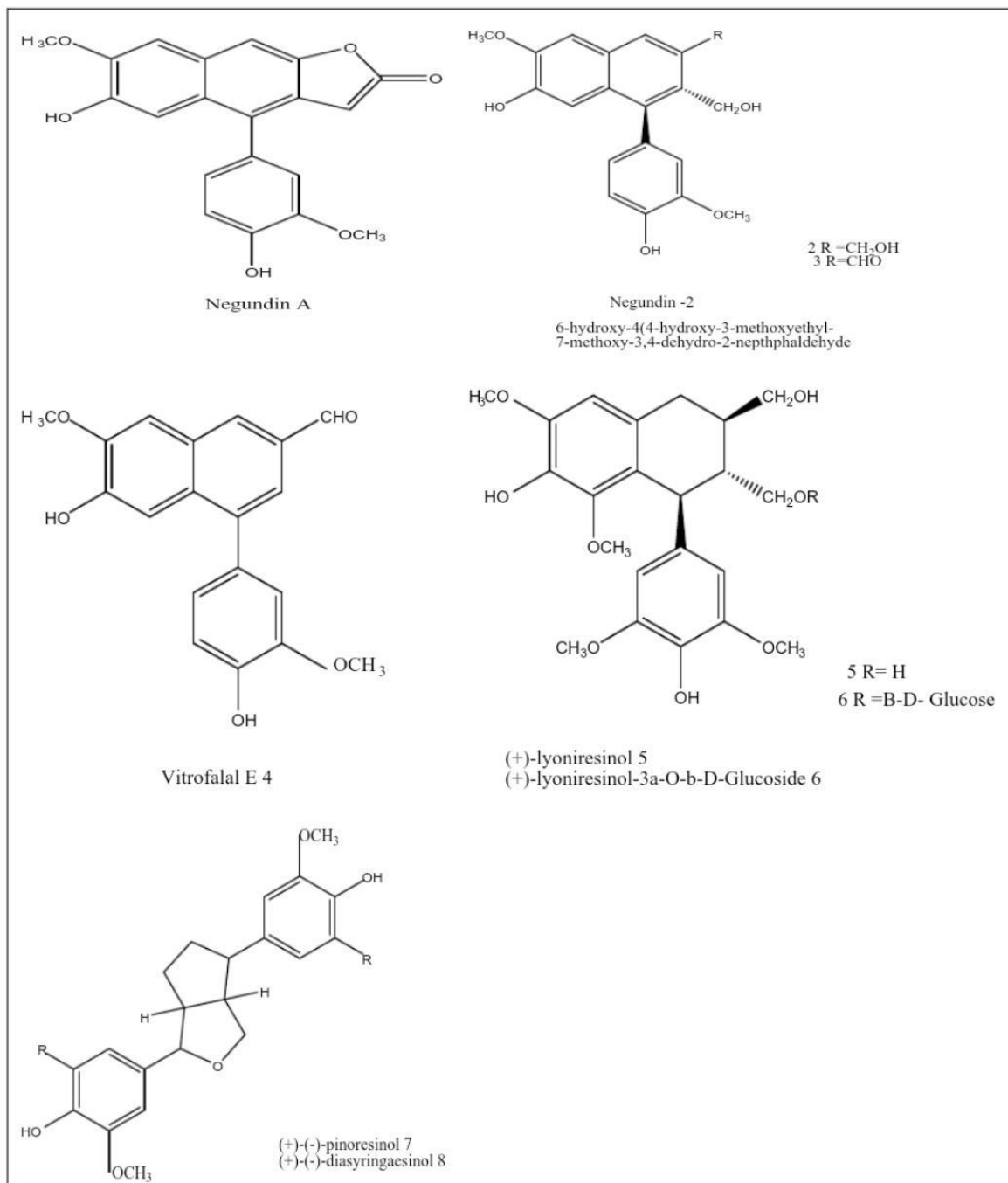
Agnus species. *Vitex* occurs in Kenya, Tanzania, Mozambique, Madagascar (in Africa), and in Afghanistan, Bangladesh, Bhutan, Cambodia, China, India, Indonesia,

PHYTOCHEMISTRY:-

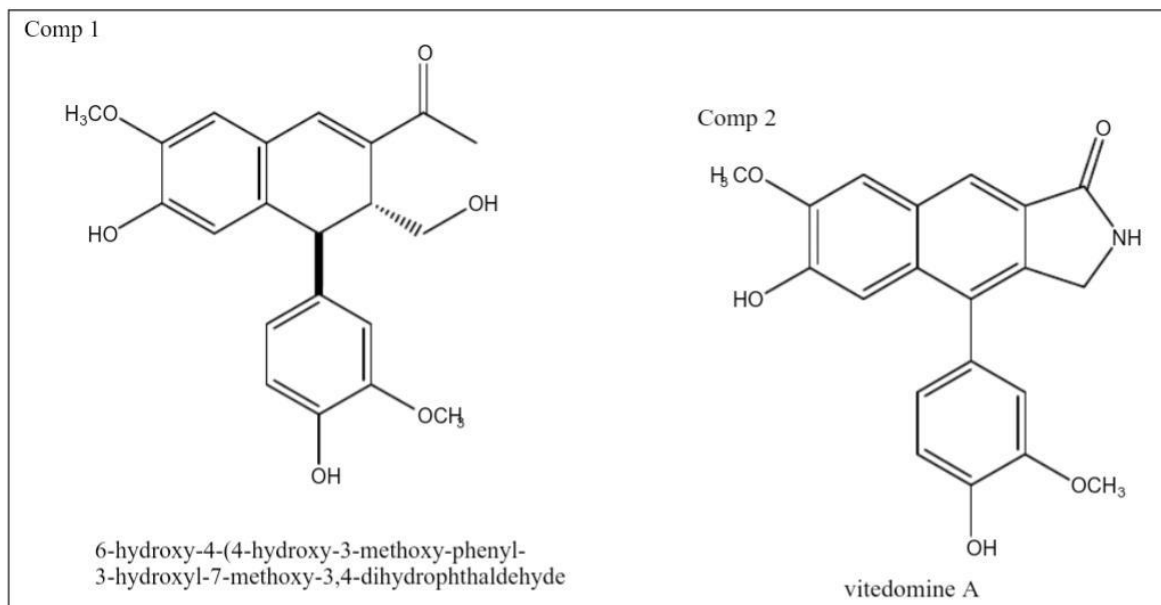
Phytochemical analysis of this plant revealed the presence of agnuside monoterpenes, flavonoids-casticin, chryso-splenol and vitexin, flavonoids (vitexicarpin), 5,3'-dihydroxy-3,6,7,4'-tetramethoxyllavone and 3,6, 7,3',4'-hydroxy-penta methoxy flavone from leaves . Vitex negundo L granules contain a new lignan characterized by 6-hydroxy-4-(4-hydroxy-3-methoxyphenyl), 3-hydroxymethyl-7-methoxy-3,4-dihydro-2-naphthaldehyde by spectrophotometry

And triterpenoids (betulinic acid and ursolic acid), lignans (negundins, vitedonin), alkaloids (vitrafalal) and diterpenes (vitedoin) were studied Figure 2 . Isolation of the acetoacetate fraction yielded two major lignans: 6-hydroxy-4-(4-hydroxy-3-methoxy-phenyl)-3-hydroxymethyl-7-methoxy-3,4-dihydro-2 naphedodyde and andvitedoamine. Chromatography of the ethanolic extract of Vitex negundo L. allowed the isolation of another new iridoid glucoside characterized in as 6'-p-hydroxybenzoylmussaenosidic acid with derivatives of 2-p hydroxyl benzylmussaenosidic acid , acid 6 -phydroxybenzoylmussaenosidic (la),

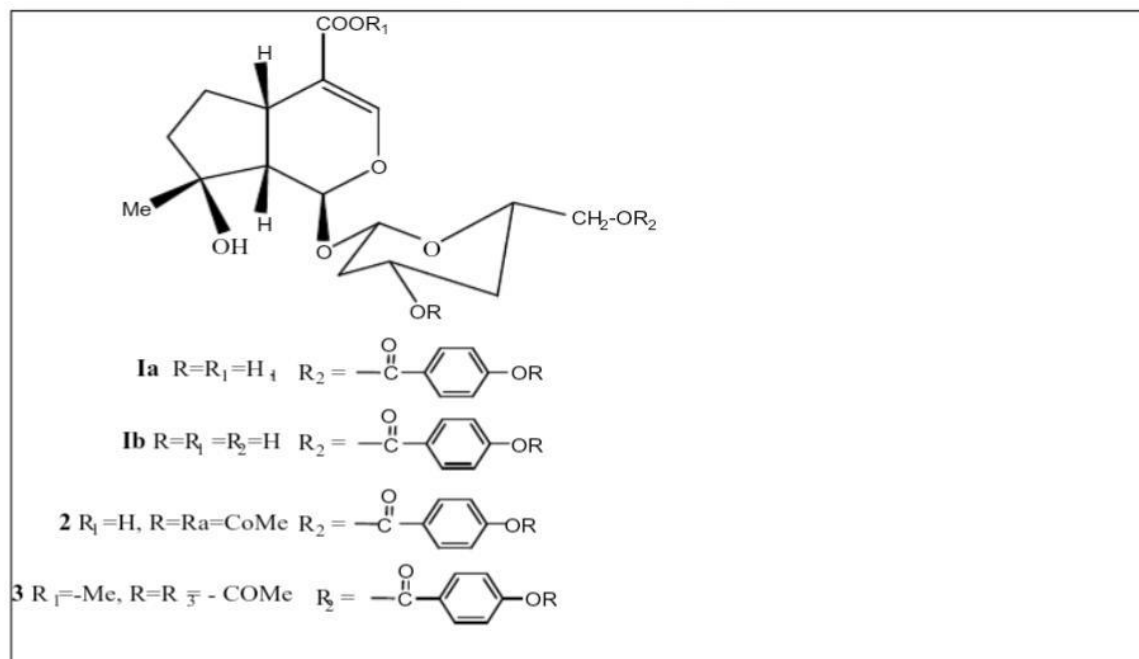
p-hydroxybenzoyl ester of mussaenosidic acid , p-hydroxybenzoyl methyl ester of mussaenosidic acid .Sesquiterpenes , flavone glycosides, iridoid glycosides, euroside aucubin , stilbenes have been isolated from the roots of Vitex negundo L. Chasteberry which are believed to contain progesterone type Compounds. Vitex negundo L leaves are known to have various antioxidant chemical constituents such as flavonoids , vitamin C and carotenes that may have oxidative stress modulating or endogenous antioxidant effects . Tannins are found in the aboveground part of Vitex negundo L; Triterpenoids present in Vitex negundo L and Emblica officinalis may participate in the venom neutralization process . Flavonoids are known to inhibit prostaglandin synthase , more specifically endperoxidase and are thought to have significant anti-inflammatory effects .Bioassay-guided fractionation of the soluble chloroform extract of Vitex negundo L leaves after isolation yielded the known flavone vitexicarpine, which showed widespread cytotoxicity in human cancers



Structure of the lignans (negundin A, negundin 2 , vitrofalal lyoniresinol and pinoresinol) isolated from the roots of vitex negunda L.



chemical structure of two isoflavonol phenyl naphthalene – type ligands isolated from vitex negundo L. Seeds (6-hydroxy – 4-(4- hydroxy-3- methoxy- phenyl)-3-hydroxymethyl-7-methoxy-3,4-dihydro-pthaldehyde(1) and vitedoamine.



Structure of 6-p-hydroxybenzoylmussaenosidic acid-an iridoid glucoside isolated from Vitex negundo L (2-p-hydroxybenzoylmussaenosidic acid (1 b). 6'-p- hydroxybenzoylmussaenosidic acid (1a), p-hydroxybenzoyl ester of mussaenosidic acid (2), p-hydroxybenzoyl methyl ester of mussaenosidic acid(3).

Medicinal Uses:-

The plant is bitter, pungent, astringent, has cephalic, gastric, antiseptic, alternative, thermogenic, cleansing, rejuvenating, ophthalmic, anti-gonorrhoeic,

Anti-inflammatory, antipyretic action and is useful in bronchitis, asthma and spleen enlargement. The roots have a tonic, antipyretic, antirheumatic, diuretic and expectorant effect and are suitable as a soothing agent for dysentery, headaches and earaches, spinal pain, uropathy, wounds and ulcers. The bark is useful in treating toothache, worms and ophthalmopathy. The leaves are aromatic, bitter, pungent, astringent, harmless, anti-inflammatory, antipyretic or antipyretic, sedative, relaxing on bronchial smooth muscles, antiarthritic, anthelmintic and anthelmintic. The flowers are fresh, astringent, carminative, hepatoprotective, digestive, antipyretic, anthelmintic and useful in bleeding and heart disease. The fruits have a calming, aphrodisiac, cephalic effect.

Biological Activities:

Some of the biological activities include:-

Antibacterial activity:

The bacteria used for antibacterial tests were Gram (+) *Staphylococcus aureus* (MTCC 3160), *Bacillus subtilis* (MTCC 0121) and Gram (-) *Escherichia coli* (MTCC 0051), *Pseudomonas aeruginosa* (MTCC 0741). All the strains used for these studies were procured from MTCC, IMTECH, Chandigarh, India. Antibacterial potential of all three samples of essential oils and successive extracts was evaluated by agar well diffusion method. Nutrient agar plates were swabbed with the broth culture of the respective microorganisms (diluted to 0.5 McFarland Standard) and were kept at room temperature for 15 min for absorption to take place

The main Chemical constituents identified in leaves which are chiefly responsible

For their antibacterial activity includes; guaiene, carryophyllene

Epoxide and ethylhexadecenoate; in flower α -selinene, germacrene-4-

Ol, carryophyllene epoxide and ϵ -nerolidol while in fruit β -selinene,

B-cedrene, germacrene D and hexadecanoic acid.

1) Anti-inflammatory:

Nirgundi has anti-inflammatory properties and is used to alleviate conditions such as arthritis and joint pain.

Various studies are available to support the anti-inflammatory activity

Of *V. negundo* in different models. Jana et al. (1999) and Yunus et

Al. (2005) demonstrated anti-inflammatory properties of *V. negundo*

Extracts in acute and sub-acute inflammation. The effect is due to the

Inhibitory action on prostaglandin synthesis. Moreover, few

Other studies suggest that the anti-inflammatory potential of leaves of

V. negundo might be due to the inhibition of prostaglandin synthesis,

Anti-histaminic, membrane stabilizing and antioxidant activity.

Vinuchakkaravarthy et al. (2011) isolated a novel anti-inflammatory

Compound Tris(2,4-di-tert-butylphenyl) phosphate from the leaves of

V. negundo which reduced the carrageenan-induced raw paw oedema

Volume at both the tested doses (50 mg/kg and 70 mg/kg body weight)

Significantly. Choksi et al., (2012) tested different extracts from

The plant combined with oil for their anti-inflammatory activity.

2) Analgesic (Pain-Relieving):

It is traditionally used to relieve pain and discomfort, making it useful for conditions like headaches and body aches.

Essential oil, leaf and other parts of *V. negundo* possess significant peripheral and central analgesic activity

In experimental animals. Further, it was also suggested that sub-

Therapeutic doses of *V. negundo* plant can possibly potentiate the effect

Of analgesic drugs such as aspirin, meperidine etc.,

3) Antipyretic (Fever-Reducing):

It can help reduce fever in cases of illnesses like malaria.

4) Anti-oxidant:

Nirgundi contains compounds with antioxidant properties, which can help protect cells from oxidative stress.

Antioxidant Activity of *V. negundo* both in vivo and in vitro models Kulkarni et al. (2008) evaluated the radical scavenging activity of methanolic leaf

extract of *V. negundo* by 2,2-diphenyl-1-Picrylhydrazyl (DPPH) assay and lipid peroxidation inhibitory activity.

Antifungal Activity:-

Bioactivity guided fractionation of ethanolic extract of leaves of *Vitex negundo* resulted in the Isolation of new flavone glycoside. The new flavone glycoside was found to have significant.

Antifungal activity against *Trichophyton mentagrophytes* and *Cryptococcus neoformans* at MIC 6.25 µg/ml.

5) Anti-microbial:

It has demonstrated antimicrobial properties and can be used to treat skin infections and wounds.

6) Anti-spasmodic:

It may help relieve muscle spasms and abdominal cramps.

7) Anti-asthmatic:

Some traditional systems of medicine use Nirgundi to manage asthma and respiratory conditions.

8) Anti-diabetic:

There is some evidence to suggest that it may help in managing diabetes by regulating blood sugar levels.

9) Anti-cancer:

Research has shown that certain compounds in Nirgundi have potential anti-cancer properties, although more studies are needed.

10) Wound Healing:

It's used topically for wound healing and to alleviate skin conditions like eczema.

Contraindications:-

Vitex negundo Linn should be used with caution with the concurrent use of psychotropic drugs, Including analgesics, sedatives, antidepressants, anticonvulsants and antipsychotics. *Vitex Negundo* is quite similar botanically to the better studied *Vitex agnus castus*, and thus may have a similar range of contraindications, including the concurrent use of progesterogenic drugs and Hormone replacement therapies.³⁸

• Health Benefits of Nirgundi

Mentioned below are the best health benefits of Nirgundi :-

1) Nirgundi oil relieves pain and is anti-inflammatory: -

Nirgundi has anti-inflammatory effects. It reduces symptoms of pain and inflammation due to various causes. Nirgundi oil is used in massage to reduce inflammation, especially caused by arthritis. Hot pads are also used to relieve pain and sprains.

Nirgundi helps reduce problems related to arthritis such as pain, inflammation, sprains, etc. Nirgundi oil and leaves can be used for this purpose.

2) Nirgundi Herbal Medicine to Support Fertility:-

Fertility is a major concern for many women. This not only limits a person's health and bodily functions but also their emotions and social conditions. Consuming nirgundi oil has been shown to improve the fertility of many women and help them conceive.



3) Nirgundi helps treat skin diseases:-

A variety of skin diseases can be treated with the help of nirgundi leaf oil. Vitis, vitiligo, leukemia and leprosy are treated with this plant and its products.

4) Nirgundi Oil to control PMS:-

Women often experience severe emotional, mental and physical disturbances in the days before the start of their period. PMS symptoms such as anxiety, depression, and fluid retention can be treated more easily with nirgundi. With regular consumption, a person can also recover completely and not experience other symptoms of PMS.

5) Nirgundi helps digestion: -

Consumption of Nirgundi facilitates digestion. It has a medicinal effect, helping to deal with various digestive problems such as bloating, nausea, constipation, flatulence, vomiting, etc. A decoction of nirgundi leaf juice helps prevent digestive disorders.

Digestive disorders can be successfully treated with nirgundi juice. This goal can be achieved through regular consumption.

6) Soothes the respiratory system: -

Using the nirgundi plant as herbal tea helps clear the respiratory tract by eliminating phlegm. This helps pave the way for air to pass through, improving ventilation and normalizing breathing.

This property of nirgundi makes it a popular ingredient in Ayurvedic products targeting respiratory diseases such as bronchitis, asthma and pneumonia.

7) Nirgundi treats symptoms of menopause: -

Menopause is a period of physical and emotional suffering for many women. The body undergoes a significant change after a certain age and the woman stops menstruating. This change is due to changes in the hormonal balance in the woman's body.

Nirgundi promotes progesterone secretion and thus facilitates the transition process and prevents its side effects such as mood swings, vaginal dryness and hot flashes.

8) Anti-acne properties of Nirgundi oil:-

Nirgundi has several essential nutrients as well as abundant antioxidants. It helps improve skin texture and prevent warts, acne and pimples. Nirgundi juice is often recommended to treat bacterial skin infections.

Nirgundi has anti-acne properties. It prevents the entry of bacteria that cause acne and pimples.

9) Use Nirgundi for wound healing:-

The antibacterial, analgesic and anti-inflammatory properties of nirgundi leaf oil make it an excellent

ingredient for wound healing. It prevents wound infections and also helps prevent odor. It helps reduce pain and inflammation in the affected area.

10) Improves fertility: -

Nirgundi juice is believed to improve the fertility of women. It helps women to conceive in a shorter period of time. It maintains hormonal balance in the body. Pregnant women should not consume as it may lead to miscarriage.

Nirgundi is known to improve fertility levels in women particularly. It increases conceiving chances.

How to Use Nirgundi Plant?

The following parts of the Nirgundi plant can be used:

Flowers:

- Nirgundi flower extracts can be used to treat fever, diarrhea and liver diseases. 3

Seeds:

- Seeds can be used with sugarcane or vinegar to treat swelling.

- The powdered seeds can be used as a salad dressing and, when combined with dried ginger and milk, act as an aphrodisiac. 4 The seeds can be made into a paste and applied to broken bones by adding salt and pepper.

Roots:

- Powdered tincture of the root can be used to treat dysentery. The root powder has anthelmintic properties.

- The root extract can be dissolved in fresh coconut water for a week to relieve kidney problems.

Fruits:

- The dry fruit powder can be taken orally with roasted table salt and warm water to treat complaints such as period pain, urinary tract problems and digestive disorders.

Leaves:

- Nirgundi leaves can be boiled with water and the vapor obtained for inhalation.

- Nirgundi leaves can be ground into a paste and applied on the forehead to relieve headaches.

Side-Effects & Allergies of Nirgundi

Nirgundi has a string of side effects and problems attached to its consumption-

- Particularly in women, its ability to regulate hormone secretion makes it an unsuitable choice for pregnant women, interferes with oral contraceptives and may reduce their effectiveness.
- Nirgundi affects heart function and should be taken under medical supervision if a person suffers from heart disease.
- Changes in menstrual flow can occur and also trigger allergies.
- It has also been observed that lactating women experienced changes in the amount of milk produced.
- Although there is controversy about the nature of the change, it is certain that the change will actually occur.
- Accelerates hormone secretion during pregnancy which is quite harmful
- Reduces the effectiveness of oral contraceptives
- Effects on heart functionality
- Might be allergy-triggering
- Reduces milk production of new mothers
- Headache
- Nausea
- Stomach issues
- Rashes
- The common side effects of consuming nirgundi are dry mouth, headache, nausea, stomach upset, tachycardia, and urticaria although in a small number of cases.
- Nirgundi may lead to some serious side effects such as interfering with hormonal balance in pregnant women, altering the menstruation cycle, dry mouth, etc.
- Mild stomach upset can sometimes occur post ingesting nirgundi juice or powder.
- Skin irritation can develop upon application of nirgundi oil or paste.

II. Conclusion:

Nirgundi is truly a unique and versatile Ayurvedic herb, used for both external and internal applications of the body, to treat a multitude of ailments such as arthritis and menstrual cramps. The traditional use of Nirgundi is also supported by the isolation and identification of some essential chemical constituents, especially flavanoids, etc. from different parts of leaves, branches, bark, seeds and roots. Growing and promoting plants and the medicinal values they possess is the key for the future

Generation to develop into a healthier society in all aspects. Vitex negundo has many biological activities proven by many experimental studies. It represents a group of herbal medicines that has a very strong conceptual or traditional basis as well as a solid empirical basis for its use. Thus, this plant has great potential to be developed as a medicine by the pharmaceutical industries, but before recommending clinical use in these conditions, it is necessary to conduct clinical trials and demonstrate its effectiveness. Its clinical use.

Reference:-

- [1]. Bansod M.S, Harle V.N : vitex negundo L. Phytochemical constituents, traditional uses and pharmacological prop. Pharmacologyonline -1 2009
- [2]. Jayashree K.S, Ashwini S.M, Shridhar .S : A critical review of Nirgundi International Journal Of Ayurveda and Pharma Research vol.11 issue 2 : 2023
- [3]. Zahoor ullah, Riaz ullah : Phytochemical and Biological evaluation of vitex negundo linn. IJPSR (2012) vol.3 issue 08 2012
- [4]. Khokra SL, Prakash O, Jain S Antibacterial studies of vitex negundo linn. extracts Indian J pharma science 2008:70(4)
- [5]. Waghmode A.B Phytochemical and medicinal uses of vitex negundo linn. The pharma innovation journal 2020
- [6]. PL ladda, C S Magdun ; vitex negundo linn PHYTOCHEMISTRY & Pharmacology review IJAPBC volume 1(1) January – 2012
- [7]. SC Ahuja, Siddharth Ahuja, Uma A : Nirgundi (vitex negundo)- Nature's gift to mankind, Asian Agri- history volume 19. 2015
- [8]. Fauziya Basin, H P Sharma : A review of ethnomedicinal plant – vitex negundo linn. International Journal of advance research (2014) volume -2 issue 3
- [9]. Vishwanathan A, R. Basavaraju : A review on vitex negundo L. Environmental science 2010.
- [10]. Divya Bharat Nirgundi – incredible Health benefits of this powerful medicinal herbs : 30 2021
- [11]. V : vitex negundo : medicinal values biological activities in IJPPR (International Journal of pharm. phytopharmacology research) 2012-2 (2)
- [12]. Lubna abidin, Aftab Ahmad : Ethanobotany, phytochemistry and pharmacology potential



- of vitex negundo L. , Journal of coastal life medicine : 2015.
- [13]. K.sharma , akansha : Pharmacology and Therapeutic potential of vitex negundo (nirgundi) , International journal of scientific research and review, volume-7, issue 6 2018.