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EXPLORATION OF *Vitex negundo* PLANT FOR MEDICINAL VALUE

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ABSTRACT

In recent years, researchers focused on plants all over the world which has immense potential in medicines. It has been reported that various parts of plants such as leafs, fruits seeds etc. provide health and nutrition promoting compounds in human diet. In China, India and Japan, Vitex negundo is found to be a significant medicinal plant that has been utilised as a well-adapted herbal remedy with a wide range of pharmacological properties. Properties such as anti-inflammatory, anti-tumor, anti-oxidant, insecticidal, antimicrobial, anti-androgenic, anti-fungal, were found in the crude extracts and purified components of Vitex plant. The assessment of plant products based on their therapeutic and medicinal qualities creates a foundation for the identification of novel drug molecules derived from various plant sources.

KEYWORDS Drug, Health, Medical value, *Vitex negundo*,

INTRODUCTION

Plants have huge potential to produce drugs from its different parts which can be beneficial to human kind. Numerous compounds found in plants used in traditional medicine can be used to treat viral and chronic illnesses. Over 80 per cent of people worldwide rely on traditional medicine for their basic medical needs, according to World Health Organisation research. The widespread perception that "herbal medicine" is safer than pricey synthetic pharmaceuticals with side effects is the primary driver of the rise in interest in plant-derived medications. Therefore, it is necessary to look for promising biological activity in medicinal herbs. In addition, resistant types of bacteria are constantly evolving, necessitating the discovery and development of novel drugs to treat illnesses. Studies looking for potential plants with high efficacy and low toxicity against a range of microorganisms are receiving more and more attention as a result of growing public concern.

Medicinal plants have been the main source of substances used to treat human illnesses. The assessment of plant products based on their therapeutic and medicinal qualities creates a foundation for the identification of novel drug molecules derived from various plant sources.

Among the many plants under study, *Vitex negundo* is a significant one. *Vitex negundo* Linn. is a large aromatic shrub of 3 meter in length with quadrangular branches. This plant of Verbenaceae family is commonly known as Nirgundi (Hindi) and five leaved chaste plant (English). It is extensively dispersed at an elevation of 1500 metres in the outer Himalayas over the larger regions of India. The shrub is widely distributed around deciduous forests, wastelands, riverbanks, and damp areas. In addition, it is planted as an edge plant in the spaces between and beside highways. The lateral leaflets are smaller and almost glabrous, and the leaves are trifoliate or pentafoliate. The essential oil yield obtained from fresh leaves of *Vitex negundo* was reported to be 1.6 per cent (v/w). The herb's leaves and roots are the only portions that can be used medicinally.

It has historically been used to treat rheumatism and has anticancer, sedative, tonic, and diuretic qualities. It has medicinal, antibacterial and antifungal properties.

CHEMICAL CONSTITUENTS

The essential oil of *Vitex negundo* leaves contains phytochemicals such as α-pinene, camphene, caryophyllene, citral, and glycosides and others. The 5-hydroxy 3,7,3',4'-pentamethoxy flavones and the 3,5-hydroxy 6,7,3',4'-tetramethoxy flavones are among the flavanoids found in leaves. The main compounds reported from plant leaves are viridiflorol (19.55%), *β*-caryophyllene (16.59%) sabinene (12.07%), 4-terpineol (9.65%), γ-terpinene (2.21%), caryophllene oxide (1.75%) and globulol (1.05%).

MEDICINAL USES

There is a great potential for developing novel medications from plants that will benefit people. Fruits, leaves, bark, and roots are all very therapeutic.

Roots and barks	Rheumatism, snake venom antidote
Leaves	Treating indigestions, piles and jaundice. Tender fruits use as astringent, antilaxative and dysentry
Ripe fruits	Nutritious, cooling, vermifuge and improving vision

The essential oil present in the leaves is used as bathing oil and for sloughing wounds and ulcers. One of the ingredients in the medication dasmula arista, which is used to treat colitis, dysentery,

diarrhoea, fever, and diarrhoea, is roots. The flavour of the plant is strong, harsh, and caustic. It has astringent, stomachic, and anthelmintic properties and is beneficial for eye illness, consumption, inflammation, leucoderma, splenic enlargement, asthma, and hair growth. The root acts as a snake venom antidote.

In addition, it is used to treat skin conditions, ulcers, malaria, dyspepsia, leprosy, rheumatism, and dyspepsia. The vermifuge leaves have a fragrant quality. For patients suffering from catarrhal fever with heaviness in the head and dullness in the ears, nirgundi leaves decocted along with long pepper is used to provide relief. Under the head, a pillow filled with leaves is placed to relieve headaches. The juice of leaves can be used to get rid of worms and discharge from ulcers. Leaves might help spread the swelling caused by acute rheumatism in the joints. The blooms are used as an astringent, and the dried fruits serve as a vermifuge. Prior research has identified the main constituents of the essential oil of *V. negundo* seeds as 1,8-cineole, *p*-menth-1-en-8-ol, ethyl palmitate, *β*-selinene, *α*-cedrene, and germacrene. These constituents have demonstrated antibacterial and immunomodulatory effects in vitro. Several types of compounds present in plant are volatile oils, lignans, flavanoids, iridoids, terpenes (triterpeness, diterpenes, sesquiterpenes) and steroids.

In India, various species of genus Vitex such as, *Vitex glabrata*, *V. leucoxylon*, *V. penduncularis*, *V. pinnata* and *V. trifolia* possess insecticidal and antifungal properties. Chowdhury et al. (2009) reported that the methanolic crude extract of vitex showed prominent zone of inhibition against number of bacterial and fungal strains. The majority of their characteristics are from the extract generated by the secondary metabolites and the presence of essential oils. Various factors like as genetic makeup, culture conditions, habitat, and crop and post-crop processing can affect the yield of essential oil. Nowadays, the food, cosmetics, and pharmaceutical sectors rely heavily on aromatic plants and species.

CONCLUSION

Throughout the past few decades, the issue of multidrug resistance has gotten worse due to the overuse of antibiotics and inadequate management of infectious infections, endangering human health. So, the plants which are the potential source of new compounds of therapeutic value are gaining importance. They can be a source of lead compounds in drug development. Among the many plants under study, *Vitex negundo* is a significant one. It is known to possess anticancer, antimicrobial, antifeedant, anti-inflammatory, antifungal and antibacterial properties.

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