



Review on Phyto-Pharmacological and Medicinal Uses of *Hyptis suaveolens* (L) Poit

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ABSTRACT

The current review aimed to provide a comprehensive overview of Phyto constituents and ethnobotanical uses, of *Hyptis suaveolens*, and to list its the significant medicinal benefits. A lot of researchers, from their studies indicated the applications of various parts of the plant to authenticate the claims of medical professionals. A wide range of traditional uses are cited in the literature, ranging from uses for malaria, constipation, stomach problems, renal inflammation to external uses in repelling insects and treating injuries such as lacerations and burn related damage to skin and tissues. The pharmacological study data have demonstrated the vital activities of *Hyptis suaveolens* that support uses such as antimicrobial, antidiabetic, antiulcer, and antiinflammatory. Numerous important phytochemicals viz., flavonoids, terpenoids and others have been isolated, identified and reported. As a medicinal plant, *H. suaveolens* is endowed with immense exploitation and utilization value and is widely used worldwide, it was used in many regions as a medicinal tea. Therefore, an attempt was made to demonstrate its medicinal potential further.

Keywords: *Hyptis suaveolens*, Antimicrobial, Anti-inflammatory, Wound Healing, Anti-Oxidant, Antiplasmodial, Antiulcer, Gastroprotective, Antifertility.

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Family – Lamiaceae
Genus – Hyptis Jacq
Species – Hyptis suaveolens(L.) poit



Figure 1: Whole plant

INTRODUCTION

H yptis suaveolens is a very common plant in India. The plant may be collected in large quantities from the wild as well as from those cultured as a crop by the Indians. Indians used to call it "Chan/Wilaiti tulsi" and the morning soup made by mixing it with corn is called "Bate" meaning memory aid. Its aromatic phytoconstituents are destroyed by gastrointestinal secretions, but the mucilaginous property may be substantially increased. Tea made from the roots of *H. Suaveolens* is used to purify the blood, and it is also used as a remedy for the "diseases" of women. It has been used as a medicinal tea in many places in Asia,¹ and as a food and source of essential oil in South America.²

Plant taxonomy

Subkingdom – Tracheobionta
Superkingdom – Spermatophyta
Division – Magnoliophyte
Class – Magnoliopsida
Subclass – Asteridae
Order – Lamiales

Distribution

Lamiaceae or Labiatae is a common weed of roadsides and wastelands, a member of the Lamiaceae or Labiatae. The *H.suaveolens* (pignut) is usually defined as annual, permanent, or subshrub or vine or herb³ It is an annual herb that covers roadsides, railway lines, wastelands, waterways, pastures, and deciduous forest, where the soil is polluted, and it is native to tropical America. In all growth areas, it can form complex thickets. It spread widely in Australia and Queensland, China, Indonesia, Papua New Guinea, Solomon Islands (Northern Territory), French Polynesia, Chuuk and the Icelandic Federal States (Yap Islands), Niue Islands, and in Guamand, in the United States, the Hawaiian Isles.⁴ In West and Central Africa, it is widely distributed and, in some countries, it is seen as an insidious species. The spread of Hyptisis now thinnings in Northern India in the Vindhyan Forest, between the



Gangetic Plains and Narmadavalley, northern India (21°29' 25°11' N latitude and 78° 15' 84°15' E longitude).⁵

Morphology

It is an aromatic herb that reproduces by seeds, erected and strapping. The stalk is hairy with sticky points. *Hyptis* is a strong-scented herb with square hairy tumors and orbicular to obviate leaven up to the maximum height of 2 m (3-5 cm long and 2-4cm wide) (3-5 cm long and 2-4cm wide) (3-5cm long and 2-4cm wide). The leaves' edges are serrulated and the bottom is thick and hairy. Smallpox has a length of up to three cm. In tiny cymes, the flowers grow along the branch and end with leaf buds. The calyx is a flower 5mm long with a fruit length of 10 mm and is ribbed with a blue corolla. Nutlets are roughly 1.21.5 mm (a tiny nut such as fruit or seed) at the end of the container. The flow of water, livestock, and vehicles are used to disperse the seed. It offers a wide variety of pollinators and therefore is an enormous germinating seed. For several years the seed can remain dormant and after rain, the plant can aggressively blossom from rootstocks. Its features look like *Ocimum* organisms morphologically.⁵

Cultivation

The plant is often an abundant weed, sometimes forming dense thickets of considerable extent that are visited by birds. When the seeds are ripe, it commences flowering when about 8-12 weeks old, producing copious amount of seed, which can be spread by air, water, animals and humans.⁶

Seeds

Hyptis suaveolen seeds have been recognized as pignut or chan, and have been used in various countries like Mexico and Taiwan for drinking refreshments. Like psyllium seeds, it swells when it is submerged in water.⁷



Figure 2: Seeds

Swelling Characters of Seeds

When the seeds of *Hyptis suaveolens* are submerged in water, they usually swell 30 times

as much as their height, creating a thick mucilage coat on top of the seeds.⁵



Figure 3: Swelled seeds

Common Names

Horehound, Pignut, Wild spikenard, GrosBaume, Wilaititulasi (Hindi), bhustrena, darptulas, junglitulas (Marathi), siRNATulasi (Telugu), bilatitulasi (Bengali), Ganga Tulasi (Oriya), bhustrena(Sanskrit).^{7,8}

Table 1: Proximate Analysis of Leaves of *Hyptis suaveolens*

Component part analysis	% Composition(c) leaves	% Composition(n) leaves	% Composition(t) leaves
Protein	11.25	12.30	10.00
Lipids	4.20	3.00	2.00
Fibre	9.50	7.00	5.15
Carbohydrates	75.05	77.70	72.60
Moisture	80.75	83.53	82.75
Ash	12.35	18.35	11.40

Table 2: Phyto Constituents

Diterpenes	Suaveolic acid, Suaveolol, Methyl suaveolate
Steroids	β – sitosterol, β -sitosterol glycoside
Phenolic	Rosamarinicacid, Methyl rosmarinate
Pleasing aroma	α – pinene
Others	Oleanolic acid, Oleanic acid, Ursolic acid, α – phellandrene

Ethnobotanical Uses

Tumor, Malaria, Headache, cancer, expectorant, fever, stomach ache, cold, yellow fever, Rheumatism, Analgesic,

Medicinal Uses⁹

Appetizer	Boils
Anti-fungal	Headaches
Carminative	Poultic of pounded fresh materials on
Febrifuge	snake bites
Stomachic	Sores, dry and flaky skin
Flatulence	Essential oils has insecticidal activity
Fever with cold	Have better anti-inflammatory activity than
Dermatitis	diclofenac sodium
Eczema	

Pharmacological Activities

Although the biological characteristics of *Hyptis suaveolens* has not recorded, the availability of essential oil, alkaloid, flavonoid, phenol, saponin, flavorings, and sterols gives good medical benefits. The herb, a stimulant, carminative wound vine, sudorific, galactagogue, catarrhal disorder, parasite skin diseases, have been used for the use of conventional systems of medicine.

The leaves were also added with the aid of anthelmintic. Their powerful aroma, mainly insects, makes them insecticidal. *H. suaveolens* sap leaf. The leaf is added to the head for headaches or topically tomato boils. *Suaveolens* is taken throughout Sierra Leone for stomach ache.⁶

Antimicrobial Activity

The *in vitro* antimicrobial activity of *hyptis suaveolean* leaves exhibited wide spectrum against *Fusarium oxysporum*, *Aspergillus niger*, *Helmintho sporiumoryzae*, *Bacillus substilis*, and *Staphylococcus aureus*, *Escherichia coli*, and *Pseudomonas aeruginosa* as well as *Micrococcus luteus*.^{8,9}

Anti-Inflammatory

Hyptis suaveolean exhibits potential topical anti-inflammatory effect more than indomethacin.¹¹

Wound Healing

Hyptis suaveolens exhibits a substantial increase in strength, breaking strength of granulomas, contraction of wounds, hydroxyprolines, drygranulomas, and reduction in the time of epithelisation. The enhanced wound healing activity could be due to the plant's free radical cavities and increased levels of antioxidants in granuloma tissue.¹⁰

Anti-Oxidant Activity

Hyptis suaveolens consists of catalase and superoxide dismutase levels because of the antioxidant activity.¹² Granuloma tissue has been examined the lay-down pattern of Van Gieson and Masson Trichrome stains for collagen. A significantly higher value of these antioxidant enzymes has been reported.¹³

Constipation, Urethritis, Liver stimulant, Antisudorific, Depurative, Stomachic, Aperitifs, Dyspepsia, menorrhagia⁸

Antiplasmodial Activity

Hyptis suaveolens commonly used in traditional medicines for malarial medication and increased interest^{9,14} (*Hyptis suaveolens*(L.) Poit excluded dehydroabietic. Plasmodium falciparum developed in vitro erythrocytes (IC50 26 – 27 μ M) has been found to inhibit the production of both chloroquine-sensitive and chloroquine-resistant strains.¹⁵

Antiulcer Activity and Gastroprotectiveactivity

The *Hyptis suaveolens* aqueous extract showed powerful activity as an ethanolic extract, which concluded that the *Hyptis suaveolens* plant improves the curing of duodenal ulceration and inhibits the production of duodenal ulceration in rats as experiments.¹⁶

Antifertility Activity

Hyptis suaveolen extracts have been tested for their anti-fertility findings in pregnant rats. *Hyptis suaveolen* alcoholic extracts (leaves) showed a 100% anti-fertility action.¹⁷

Immunomodulatory Activity

H.Suaveolens has immunomodulatory and antioxidant properties and can be responsible for improving the immunosuppressive impact of pyrogallol.¹⁸

Anti-Diabetic Activity

The extract inducing diabetic rat's antidiabetic analysis showed that the blood glucose level decreased significantly ($p < 0.05$), and the findings indicate that methanolic extract *H.Suaveolen* is present. The results are generic. *H.Suaveolen* leaves possess antidiabetic activity in rats that are alloxan-induced.¹⁹

Antidiarrhoeal Activity

Diarrhoea. It is most prominent in crowded living conditions and poor sanitation; it contributes significantly to malnutrition and fast dehydration of infants and the elderly²⁰. This can lead to death if care is not providing²¹ Antidiarrhoeal studies have been reported²² using the method described by *Hyptis suaveolen* leaves as



antidiarrhoeal behavior against the model of laboratory castor oil-induced diarrhoea in mice²³.

CONCLUSION

This analysis offers a general evaluation of indigenous and pharmacological uses for their use as a medicinal herb. The plant was, however, particularly taken into consideration because it is antifungal, analgesic, anti-inflammatory, tissue repair, and antioxidant.

Since a broad number of phytochemicals are present. Another beneficial ability, including antiviral and chemical prevention use, along with its toxicological profile can be further examined for alkaloids, flavonoids, phenols, saponins, terpenes, and sterol. While several studies on different segments of *Hyptis suaveolens* have been carried out, new 9 compounds that are essential for their pharmacological properties still have to be isolated and established.

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