

Pudina (Mentha Arvensis): Review on a Medicinal Uses

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ABSTRACT: Pudina, commonly known as mint, is a versatile herb widely recognized for its aromatic leaves and numerous medicinal, culinary, and therapeutic properties. Rich in menthol, it offers a refreshing taste and is often used in beverages, sauces, and desserts. Beyond its culinary uses, mint is known for its digestive benefits, including soothing stomach discomfort, alleviating indigestion, and reducing nausea. Additionally, its anti-inflammatory and antioxidant properties make it valuable in holistic wellness practices. Pudina's essential oils have antimicrobial effects, making it a natural remedy for respiratory issues and skin irritations. With a long history of use in traditional medicine, pudina continues to be a popular choice for enhancing both flavor and health. In culinary applications, pudina is used to enhance the flavor of dishes, beverages, sauces, and salads. It pairs well with both sweet and savory recipes and is often used in chutneys, teas, and cocktails like the classic mojito.

Beyond the kitchen, pudina has a long history in traditional medicine for its therapeutic qualities. The herb is known for its digestive benefits, such as relieving indigestion, bloating, and nausea. Its active compound, menthol, is widely recognized for its cooling sensation and soothing effect on the stomach and respiratory system.

KEYWORDS: Pudina, Mint, Antioxidant, Anti-Inflammatory.

I. INTRODUCTION:

Pudina, commonly known as mint, is a fragrant herb belonging to the Mentha genus, which includes several species, with spearmint (*Mentha spicata*) and peppermint (*Mentha × piperita*) being the most widely used. Native to Europe and Asia, mint has been cultivated for centuries for both culinary and medicinal purposes. Known for its vibrant green leaves and refreshing aroma, pudina has found its place not only in kitchens around the world but also in traditional medicine, offering a wealth of health benefits.

Almost all population has been using plant drugs for over thousand continued years at present. The term is used, it was derived from an old Dutch word drogge from "dry" when usually society used to dry the herbs in case they were in need of medicine at that early time by the pharmacists, physicians and experts. Nowadays, there are even 25 percent of drug components discovered from shrubs, trees or herbal plants. Since many ancient times chemists and pharmacists have isolated the "active" compounds from the plant and "substance purify", they probably produce effective pharmaceutical drugs. Medicinal properties of the plant brought "active colonies" in leaf, stem, flowers, seeds, fruit, or all the other parts.. (1)

The herb's distinctive flavor, attributed to the compound menthol, makes it a popular ingredient in various dishes, beverages, and desserts. Mint is also a key component in many herbal remedies, valued for its digestive, anti-inflammatory, and antimicrobial properties. In addition to its therapeutic uses, pudina is commonly used in the production of essential oils, which are incorporated into aromatherapy, cosmetics, and personal care products.

This versatile herb is celebrated for its ability to enhance flavor, promote wellness, and provide natural relief from common ailments. As a result, pudina remains a staple in both the culinary and medicinal worlds.

Taxonomical classification Of Pudina:

- 1) Kingdom-Plantae
- 2) Division-Magnoliophyta
- 3) Class-Magnoliopsida
- 4) Order-Lamiales
- 5) Family-Lamiaceae
- 6) Genus-Mentha
- 7) Species-Mentha arvensis

Botanical Description of Mentha

Mentha arvensis, commonly known as field mint, wild mint, or corn mint, is a perennial

herb belonging to the Lamiaceae (mint) family. This species of mint is native to Europe, Asia, and parts of North America, and is known for its aromatic properties and medicinal uses.

Stem: Erect–ascending branched stem

Leaves: Arranged in opposite pairs, sparsely hairy, shortly petiole or sessile, oblong-ovate or lanceolate in shape and shiny dark green in color, serrated margins

Flowers: Mauve in color, occur in whorls and borne on leaf axils(2)

Fruit: *Mentha arvensis* produces tiny, nutlet-like fruits, known as achenes, which are typically smooth and brownish in color. These fruits contain the seeds for propagation of the plant.

Roots: The plant has a shallow root system, with rhizomes that allow it to spread vegetatively and establish colonies in moist, well-drained soils. This aggressive growth habit makes *Mentha arvensis* a common weed in many areas.

Geographical Place of *Mentha arvensis*:

Mentha arvensis is native to **Europe, Asia, and North Africa**. In these regions, it thrives in moist, temperate climates, particularly in grasslands, meadows, and riverbanks.

Phytochemical Constituents of *Mentha arvensis*

- 1) Volatile Oil
 - 2) Menthol
 - 3) Methyl acetate
 - 4) Cineol
- scopoletin(3)

Menthol: The primary constituent of the essential oil, menthol (C₁₀H₂₀O) is responsible for the cooling and soothing effects of mint. It has analgesic, anti-inflammatory, and antispasmodic properties and is widely used in medicinal products for its ability to relieve headaches, muscle pain, and respiratory congestion.

No significant reduction occurred in the number of glandular trichomes on the leaves of pennyroyal when roots were subjected to impedance while the amount of Pulegone, one of the main essential oils, increased 20-fold. Hence, application of 8 l/m² of olive mill wastewater as organic amendment could be made before plantation of *M. spicata* cuttings that showed a significant increase of 94% and 17% of the yield in biomass and essential oil, respectively, together with significant changes in the composition of the oil.(4)

Mentha species are abundant in polyphenols and also contain caffeic acid along

with its derivatives, such as caftaric acid, cinnamic acid, ferulic acid, and oleanolic acid. Additionally, flavonoids like luteolin and its derivatives—apigenin, acacetin, diosmin, salvigenin, and thymonin—have been identified in these plants, contributing to around 10–70 compounds within the total phenolics. Flavanols, including catechin, epicatechin, and coumarins like esculetin and scopoletin, are also present.(5)

Peppermint leaves generally contain between 1.2% and 3.9% (v/w) of essential oil, which includes over 300 identified compounds. The terpenic class is the most prevalent, making up about 52% of monoterpenes and 9% of sesquiterpenes. Other groups are present in smaller amounts, including aldehydes (9%), aromatic hydrocarbons (9%), miscellaneous compounds (8%), lactones (7%), and alcohols (6%). Among the monoterpenes, menthol is the primary component, accounting for 35% to 60%, followed by menthone (2% to 44%), menthyl acetate (0.7% to 23%), 1,8-cineole (eucalyptol) (1% to 13%), menthofuran (0.3% to 14%), isomenthone (2% to 5%), neomenthol (3% to 4%), and limonene (0.1% to 6%). In terms of sesquiterpenes, β-caryophyllene is the most significant, comprising 1.6% to 1.8%. The medicinal properties of peppermint oil are largely attributed to menthol, its main active ingredient, while esters like menthyl acetate contribute to the characteristic minty flavor and aroma. (6)

Pharmacological Activities:

Antioxidant Activities:

Santos et al. reported that cineole exhibits antioxidant activity against ethanol-induced gastric mucosal damage in rats. Their findings indicated that the cineole extract from the *Mentha arvensis* plant has significant antioxidant properties. Additionally, another study highlighted that flavonoids, such as quercetin found in mint, also demonstrate antioxidant activity. The results showed that these compounds can scavenge hydroxyl and superoxide free radicals while inhibiting lipid peroxidation. Kong et al. also noted the strong antioxidant activity of eugenol, terpenes, and flavonoid extracts from the leaves of the *Mentha arvensis* plant.(7)

Anti-angiogenic/Inflammatory effects:

Angiogenesis is the process through which new arterioles develop from existing blood vessels. This complex event involves several steps, including the breakdown and restructuring of the underlying basement membrane and the surrounding extracellular matrix. Following this,

vascular endothelial cells proliferate and migrate into the tissue that requires new blood supply.

(8)

Anti-asthma properties

Asthma, a widespread respiratory disorder affecting both kids and adults all over the world, is a cause of serious morbidity, mortality, and financial burden. Asthma, a chronic inflammatory immune disorder, is primarily characterized by excessive mucus production in the lungs and inflammatory responses involving different cell types. The latest researches on *M. haplocalyx* have been increasingly recognizing its role as an anti-asthmatic agent. Lee et al. studied the protective effects of *M. haplocalyx* ethanol extract in an OVA-induced allergic asthma mouse model. Mice were given *M. haplocalyx* ethanol extract orally at a dose of 100 mg/kg, along with montelukast (30 mg/kg) as the positive control. The findings of the study indicate that *M. haplocalyx* ethanol extract remarkably reduced the levels of immunoglobulin (Ig) E and IgG2a in bronchoalveolar lavage fluid (BALF) and lung tissue and the amalgamation of T-helper 2 (Th2)-type cytokines such as IL-4 and IL-5. This action of Th2 cytokines led to the inhibition of the infiltration of inflammatory cells into the airways. Apart from that, the antioxidant property of the extract was also visible in situ, when the extract was found to reduce the levels of reactive oxygen species (ROS) in BALF. The microscopic examination also confirmed these results, showing less eosinophil and macrophage count together with epithelial hyperplasia and mucus accumulation. These findings mean that *Phellodendron amurense* bark is a potential medicine in treating allergic asthma.(9)

Antimicrobial activity

Amboinicus (Lour) Spring, dried leaves from Archipelago of Comoros. Capillary gas chromatography (GC) and gas chromatography/mass spectrometry (GC/MS) were used to examine the oil. The primary components of the oil were carvacrol (23.0 percent), camphor (22.2 percent), Δ -3-carene (15.0 percent), λ -terpinene (8.4 percent), O-cymene (7.7 percent), and α -terpinene (4.8 percent). P has antimicrobial qualities. *amboinicus* sultine. Using agar gel diffusion, they researched leaf essential oil. The outcomes revealed that the fundamental oils of *P. thyme*, maybe (Lour.) Spring, on Gram-positive (*Staphylococcus aureus*), the substance had more antimicrobial activity than on Gram-negative (*Escherichia coli*). For *E. coli*, the minimum inhibitory

concentration was 0.2 percent and 0.1 percent. *coli* and *S. aureus*, respectively.(10)

Anti-tumour effect

Medicinal plants and combination therapies play an important role in cancer control. Type of work. Significant cytotoxic effects were consistently observed, most notably with lemon verbena. The cytotoxic effect was found to be dose- and time-dependent. Regarding the mechanism of cytotoxicity, the generation of O₂ ions was increased and the activity of antioxidant enzymes was increased..(11)

II. CONCLUSION:

Peppermint, also known as mint (*Mentha*), is a well-known herb with a variety of medicinal properties. As an herb, it has a long history of use in traditional medicine such as Ayurveda, Chinese medicine, and Western herbal medicine. Some of the major health benefits of peppermint include its ability to aid digestion, relieve headaches, reduce nausea, and provide anti-inflammatory and antimicrobial effects. Peppermint is a versatile and useful herb with a variety of medicinal properties. While it is generally safe for most people, it is important to use it in moderation, as excessive consumption can cause problems such as heartburn or social isolation. As herbal medicine becomes more popular, more scientific research is needed to confirm and expand the health benefits of peppermint in modern medicine. However, its traditional and modern uses show that it holds great promise as a natural, herbal medicine.

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