



## POTENTIAL MEDICINAL PLANTS OF LAMIACEAE

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**Abstract :** *The objective of the present study was to review on few medicinally potential plants of Lamiaceae of Karnataka. Plants in this family, are herbs or shrubs often with an aromatic smell. They are common in the Mediterranean countries for the fact that some of them produce a high amount of essential oil that enables them to survive the hot summer season. Some examples from this family include Anisomeles, Colebrookea, Coleus, Hyptis, Leonotis, Leucas, Mentha, Ocimum, Oreganum and Salvia. These are important for medicinal, perfumery, culinary and ornamental purposes. Medicinal constituents include the strong aromatic essential oil, tannins, saponins and organic acids. The oil is obtained by steam distillation. In aromatherapy, the oil is used for its soothing effects. These plants have sedative, diuretic, tonic, antispasmodic, antifungal, antimicrobial, anti-inflammatory and antiseptic properties.*

**Keywords:** *Lamiaceae, Anisomeles, Colebrookea, Coleus, Hyptis, Leonotis, Leucas, Mentha, Ocimum, Oreganum, Salvia, aromatic, phytochemical, medicinal.*

### 1. Introduction

Plants have provided man with all his needs in terms of shelter, clothing, food, flavours and fragrances but not the least, medicines. Plants have formed the basis of sophisticated Traditional Medicine systems that have been in existence for thousands of years and continue to provide mankind with new remedies. Some of the oldest known medicinal systems of the world such as Ayurveda of the Indus civilization, Arabian medicine of Mesopotamia, Chinese and Tibetan medicine of the Yellow River civilization of China and Kempo of the Japanese are all based mostly on plants.

The Lamiaceae (Labiatae) is one of the most diverse and widespread plant families in terms of ethnomedicine and its medicinal value is based on the volatile oils concentration [1]. The Lamiaceae plant family is one of the largest families among the dicotyledons, many species belonging to the family being highly aromatic, due to the presence of external glandular structures that produce volatile oil [2]. This oil is important in pesticide, pharmaceutical, flavouring, perfumery, fragrance and cosmetic industries [3]. Medicinal plants have an important value in the Socio-cultural, spiritual and medicinal use in rural and tribal lives of the developing countries [4]. People around the world use between 50,000 to 80,000 flowering plants for medicinal purposes [5]. Medicinal and aromatic plants, are known to be used by 70% to 80% of global population for their medicinal-therapeutic effects as estimated by WHO [6].

The mints, taxonomically known as Lamiaceae, are a family of flowering plants. They have traditionally been considered closely related to Verbenaceae [7]. But in the 1990s, phylogenetic studies suggested that many genera classified in Verbenaceae belongs to Lamiaceae [8][9]. The currently accepted version of Verbenaceae may not be more closely related to Lamiaceae than some of the other families in the order Lamiales [10]. It is not yet known which of the families in Lamiales is closest to Lamiaceae. The plants are frequently aromatic in all parts and include many widely used culinary herbs, such as basil, mint, rosemary, sage, marjoram, thyme, lavender, orthosiphon, ocimum, leucas, anisomeles, colebrookea, coleus, hyptis, oreganum, brunella, scutellaria, lamium, teucrium and perilla. Many members of the family are widely cultivated, owing not only to their aromatic qualities but also their ease of cultivation: these plants are among the easiest plants to propagate by stem cuttings. Besides those grown for their edible leaves, some are grown for decorative foliage, such as Coleus. The enlarged Lamiaceae contains about 236 genera and 6,900 to 7,200 species. The largest genera are Salvia (900), Scutellaria (360), Coleus (325), Plectranthus (300), Hyptis (280), Teucrium (250), Thymus (220) and Nepeta (200). Clerodendrum was once a genus of over 400 species [7], but by 2010, it had been narrowed to about 15 [11].

In Karnataka about 109 plants from various genera of plant belongs to family have been identified among which many plants possess medicinal properties. Hence, this study was undertaken to explore the Lamiaceae plants which have been scientifically proved for their potential medicinal values.

## II. Materials and methods

The ten Lamiaceous plants were selected for the study and the information collected from the several scientific literatures. The ten plants selected for this particular study are Anisomeles indica, Colebrookea oppositifolia, Coleus amboinicus, Hyptis suaveolens, Leonotis nepetaefolia, Leucas aspera, Mentha spicata, Ocimum canum, Oreganum vulgare and Salvia coccinea.

## III. Results

The most common plants and their therapeutic potentials have been listed in the following table.

Sl.No.	Name of the plant	Parts used	Medicinal properties
1.	<i>Anisomeles indica</i> , O. Kze.	Whole plant	<ul style="list-style-type: none"> <li>Plant extracts and isolated constituents inhibit inflammatory mediators and tumor cell proliferation [12].</li> <li>Leaves chewed treatment for toothaches, rheumatism, cold, fever, abdominal pain, intermittent fever and dyspepsia.</li> <li>Recently, the ethanol extract of this plant exhibited antibacterial activity [13].</li> <li>Aerial parts of plant decoction used as an analgesic.</li> <li>It is used as a antimetastatic effects on human breast cancer cells [14].</li> </ul>
2.	<i>Colebrookea oppositifolia</i> , Sm.	Root, stem and leaves	<ul style="list-style-type: none"> <li>Plant juice can be used to treat fever and headache.</li> <li>Leaves used to treat dysentery.</li> <li>Roots decoction is used to treat peptic ulcers and haemostatic.</li> <li>Leaves are used in the treatment of wounds, bruises and fracture besides possessing antifertility activity; roots are used in the treatment of epilepsy; oil possesses fungitoxic property [15-17].</li> </ul>
3.	<i>Coleus amboinicus</i> , Lour.	Whole plant	<ul style="list-style-type: none"> <li>It is folkloric medicinal plant used to treat malarial fever, hepatopathy, renal &amp; vesicle calculi, cough, chronic asthma, hiccough, bronchitis, helminthiasis, colic, convulsions &amp; arthritic inflammations [18].</li> <li>Treatment for GIT complications- dyspepsia, indigestion &amp; diarrhea.</li> <li>Ethanollic and aqueous leaf extracts of the plant has been found possess significant diuretic activity [19].</li> <li>Plant contain the constituents responsible for cytotoxicity and anti-bacterial activity [20]</li> </ul>
4.	<i>Hyptis suaveolens</i> , Poit.	Stem, leaves, seeds and roots	<ul style="list-style-type: none"> <li>The leaves have been utilized as a stimulant, carminative, sudorific, galactagogue and as a cure for parasitic cutaneous diseases [21].</li> <li>Crude leaf extract is used as a relief to colic and stomachache. Leaves and twigs are considered to</li> </ul>

			<p><i>be antispasmodic and used in antirheumatic and antisuiporific baths [22].</i></p> <ul style="list-style-type: none"> <li>• <i>Seeds of essential oil used as antioxidant and antimicrobial activity.</i></li> <li>• <i>The decoction of the roots is highly valued as appetizer and is reported to contain urosolic acid, a natural HIV-integrase inhibitor [23].</i></li> </ul>
5.	<i>Leonotis nepetaefolia, R.Br.</i>	<i>Stem and leaves</i>	<ul style="list-style-type: none"> <li>• <i>This plant is used for treatment of anti-inflammatory, antidiabetic and hypoglycemia.</i></li> <li>• <i>This plant exhibited various biological activities viz. antifungal, antimalarial [24], anticancer[25] and hypotensive.</i></li> <li>• <i>Leaves are brewed as a tea for fever, coughs and womb prolapsed.</i></li> <li>• <i>Antibacterial activity of the essential oil of the plant was tested by disk diffusion method [26].</i></li> </ul>
6.	<i>Leucas aspera, Spreng.</i>	<i>Whole plant</i>	<ul style="list-style-type: none"> <li>• <i>Entire plant is used as an insecticide and indicated in traditional medicine for coughs, colds, painful swellings and chronic skin eruptions [27].</i></li> <li>• <i>It is used as antimicrobial activity of essential oils and flowers.</i></li> <li>• <i>It possesses wound healing property and is used in cobra venom poisoning [28].</i></li> <li>• <i>It is used as toxicity evaluation of herbal smoke and synthetic mosquito mat.</i></li> <li>• <i>The plant has been scientifically investigated for anti-inflammatory, analgesic activity [29].</i></li> </ul>
7.	<i>Mentha spicata, Linn. (Spearmint)</i>	<i>Stem, leaves and flowers</i>	<ul style="list-style-type: none"> <li>• <i>The leaves are used as a flavouring in salads or cooked foods, often used in mint sauce, which is used as a flavouring in meal.</i></li> <li>• <i>Essential oil is obtained from the leaves and flowers used as a flavouring agent in the foods and beverages industry. In the fragrance industry it is found in perfumes and in oral hygiene products [30].</i></li> <li>• <i>Spearmint oil showed antimicrobial activity against the broadest group of viruses, fungi and bacteria [31].</i></li> <li>• <i>The stems are macerated and used as a poultice on bruises.</i></li> <li>• <i>This oil is considered safe and non-toxic when used as directed. May cause irritation to mucous membrane [32].</i></li> </ul>
8.	<i>Ocimum canum, Sims.</i>	<i>Stem, leaves and seeds</i>	<ul style="list-style-type: none"> <li>• <i>The plant is used for treating various types of diseases and lowering blood glucose and also treats cold, fever, parasitic infestations on the body and inflammation of joints and headaches [33.]</i></li> <li>• <i>Essential oil from the leaves possesses antibacterial and insecticidal properties [34].</i></li> <li>• <i>The seeds may provide fiber or reduce constipation.</i></li> <li>• <i>The plant reduced the severity of injury-oxygen radical-initiated lipid peroxidation may contribute</i></li> </ul>

			<i>to the impaired cellular function and necrosis associated with reperfusion of ischemic tissues [35].</i>
9.	<i>Oreganum vulgare, Linn.</i>	<i>Stem, leaves</i>	<ul style="list-style-type: none"> <li>• <i>Oregano is an important culinary herb, used for the flavor of its leaves, which can be more flavourful when dried than fresh [36].</i></li> <li>• <i>Factors such as climate, seasons and soil composition may effect the aromatic oils present in this plant.</i></li> <li>• <i>Oregano is high in antioxidant activity, due to a high content of phenolic acids and flavonoids [37].</i></li> <li>• <i>Oil of oregano treated colds and flus, and that oil of oregano taken orally treated and relieved bacterial and viral infections and their symptoms [38].</i></li> </ul>
10.	<i>Salvia coccinea, Buc'hoz ex Etl.</i>	<i>Stem, leaves and flowers</i>	<ul style="list-style-type: none"> <li>• <i>Aqueous leaf extract of Salvia coccinea is medicinally using in inflammatory diseases such as ischemia, thermal or physical injury, infectious agents and antigen-antibody interactions<sup>[39]</sup> leads to release of allergic mediators, which causes injury.</i></li> <li>• <i>Use ornamental: easily grown, blooms ornamental, colour, perennial garden.</i></li> <li>• <i>Conspicuous, fragrant and nectar source flower attracts: Butterflies, Humingbirds, Bees and Insects.</i></li> <li>• <i>The leaf extract of anti-inflammatory drugs have severe side effects such as water and salt retention, cancer [40] and gastro- intestinal disturbances [41].</i></li> </ul>

#### IV. Conclusion

The detailed information in this review shows its potential therapeutic values and is a rich source of biologically active compounds. The potential of the plants to be an excellent analgesic, antipyretic, anti-inflammatory, antifungal, antispasmodic, antioxidant, antimicrobial, antidiabetic, antiasthmatic, antidiarrhea, antidote, antiseptics treatment for skin diseases, arthritic, carminative, toothaches, rheumatism, peptic ulcers, haemostatic, anthelmintic, tuberculosis, epilepsy, urinary diseases, vaginal discharges, insect bites, allergies, diarrhea and influenza.

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