Research Journal of Medicinal Plant

ISSN 1819-3455

Academic
Journals Inc.

www.academicjournals.com

Research Journal of Medicinal Plant 6 (3): 203-213, 2012
ISSN 1819-3455 / DOI: 10.3923/rjmp.2012.203.213

Medicinally Potential Plants of Labiatae (Lamiaceae) Family: An Overview

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ABSTRACT

A very important medicinal plant family is the Labiatae family, also known as the mint family. Plants in this family, are herbs or shrubs often with an aromatic smell. They are common in the Maltese Islands and other 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 mints, thyme, tulsi, spearmint and coleus. It is widely cultivated 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. The plant has sedative, diuretic, tonic, antispasmodic and antiseptic properties.

Key words: Labiatae, tulsi, coleus, spearmint, aromatic

INTRODUCTION

Lamiaceae or Labiatae, also called as the mint family, is a family of flowering plants. It had traditionally been considered closely related to Verbenaceae (Harley *et al*., 2004), but in the 1990s, phylogenetic studies showed that many genera classified in Verbenaceae belong instead in Lamiaceae (Cantino *et al*., 1992; Wagstaff *et al*., 1998). The currently accepted version of Verbenaceae may not be closer to Lamiaceae than some of the other families in the order Lamiales. It is not known which of the families in Lamiales is closest to Lamiaceae. The family has a cosmopolitan distribution (Yuan *et al*., 2010). The enlarged Lamiaceae contains about 236 genera and 6,900 to 7,200 species. The largest genera are *Salvia* (900), *Scutellaria* (360), *Stachys* (300), *Plectranthus* (300), *Hyptis* (280), *Teucrium* (250), *Vitex* (250), *Thymus* (220) and *Nepeta* (200). *Clerodendrum* was once a genus of over 400 species but by 2010, it had been narrowed to about 150 (McKay and Blumberg, 2006). The plants are frequently aromatic in all parts and include many widely used culinary herbs, such as basil, mint, rosemary, sage, savory, marjoram, oregano, thyme, lavender and perilla. Some are shrubs, trees, such as teak, or rarely vines. 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. Others are grown for food purposes, but seeds are utilized instead of leaves, such as with chia. The original family name is Labiatae, so given because the flowers typically have petals fused into an upper lip and a lower lip. Although, this is still considered an acceptable alternative name, most botanists now use the name Lamiaceae in referring to this family. The leaves emerge oppositely, each pair at right angles to the previous one (called decussate) or whorled.

Table 1: Medicinally important plants of labiatae family

Name of the drug	Part of the plant	Biological source	Chemical constituents	Uses
Tulsi	Fresh leaves	*Ocimum sanctum*	Volatile oil, cineole	Flavouring agent, expectorant
Pepperment	Fresh flowering tops	*Mentha piperita*	Menthaol, limonene	Flavouring agent
Thyme	Dried leaves and flowering tops	*Thymus vulgaries* *Thymus zygis*	Thymol, carvachol, α and β terpinene	Flavouring agent
Spearmint	Fresh aerial parts of flowering plants	*Mentha spicata* *Mentha cardiaca*	45-60 % carvone, cineole	Flavouring agent
Coleus	Dried root	*Coleus forskohlii*	Forskolin, coleonol-B, coleonol-C, deoxycoleonol	Vasodilator and cardio stimulant effects, glaucoma

The stems are frequently square in cross section but this is not found in all members of the family and is sometimes found in other plant families. The flowers are bilaterally symmetrical with 5 united petals, 5 united sepals. They are usually bisexual and verticillastrate (a flower cluster that looks like a whorl of flowers but actually consists of two crowded clusters). Medicinally important plants of labiatae family has been presented in Table 1.

Systematic position:

- Division Spermatophyta
- Sub-division Angiospermae
- Class Dicotyledone
- Sub-class Gamopetalae
- Series Bicarpellate
- Order Lamiales
- Family Labiatae

Vegetative characters:

Habit : Mostly aromatic herbs and shrubs, few tree
Root : Tap-root
Stem : Herbaceous, usually erect, squarish and hairy
Leaf : Simple, opposite and decussate, edstipulate, whorled in few species, due presence of gland secreting volatile oils

Floral characters:

Inflorescence : Verticillaster
Flower : Bisexual, irregular, zygomorphic some time regular (*Mentha*), hypogynous
Calyx : Five, gamosepalous, bilabiate ringent, inferior
Androecium : Four, posterior one suppressed polyandrous, epipetalous, usually in two sets, inferior
Gynoecium : Bicarpellary suncarpous; ovary superior, bilocular; Placentation: axile, each loculus with one ovules: style: gynobasic: stigma: two-lobed
Fruit : Schizocarpic carcerulus
Seeds : Non-endospermic

Tulsi

***Ocimum sanctum*:** *O. sanctum* (Holy basil), called tulsi in India, is ubiquitous in Hindu tradition. Perhaps its role as a healing herb was instrumental in its sacred implication. *O. sanctum* (tulsi) is perhaps the most common and most revered of all household plants in India. Tulsi is an erect sweet -scented pubescent herb, 30-100 cm in height , growing in abundance near cultivated field gardens and waste lands. Its leaves, seeds ands whole plant is useful.

Varieties of Tulsi

- Krishna Tulsi (*O. sanctum*)
- Rama Tulsi (*O. sanctum*)
- Vana Tulsi (O. *gratissimum*)

- **Synonyms:** Sacred basil, kali-tulsi, veranda
- **Biological source:** Tulsi consists of the fresh and dried leaves of *Ocimum* Species like *O. sanctum* L. and *Ocimum basilicum* L. etc.
- **Family:** Labitae

Macroscopical characters

Green type of *O. sanctum* leaves: Exstipulate, opposite, petiolate. Petiole 2.6 to 3.1 cm long, slender, thin, pubescent with narrow adaxial groove; lamina elliptical to ovoid, oblong 5-6 cm long and 2.6 to 2 cm broad, pubescent . Margin: Entire, irregularly undulated or bluntly serate. Apex: Acute or obtuse. Adaxial surface: bright green, abaxial surface: pale green with prominent veins. Venation: pinnately reticulate with 5-6, alternate pairs of lateral veins. Taste: pungent.

Purple type of *O. sanctum* leaves: Opposite, exstipulate, petiolate. Petiole green with purlish tinge, 3.6 cm long, slender thin, less pubescent with narrow inconspicuous adaxial groove. Laminaelliptic to oblong, 5-8 cm long, 2.6 to 3.6 cm broad. Margin: Narrowly or distantly serrate. Apex: acute or obtuse, almost glabrous except at veins, aromativ with pungent taste, venation pinnately reticulate with 5-7 lateral alternate pairs of veins, adaxial side dark green, abaxial side dull green, veins prominent on both surface. Odour: aromatic and taste: pungent.

Chemical constituents: Volatile oil (0.8%)

- Eugenol, nerol, eugenol methyl ether, caryophyllene, terpinene-4-ol-decyladehyde, α-selinene, α and α-pinene, camphor and carvacrol, cineole, linalool

Tulsi medicinal properties/uses:

- **Pharmacological effects-in traditional ayurvedic system of medicine:** Several medicinal properties have been attributed to this plant
- **Recent pharmacological studies have established the anabolic, hypoglycemic:** Smooth muscle relaxant, cardiac depressant, antifertility, adaptogenic and immunomodulator properties of this plant

- **Antimicrobial effects:** Essential oil of tulsi have antibacterial, antifungal and antiviral properties. It inhibites the growth of *E. coli*, *B. anthracis*, *M. tuberculosis* etc. It's antitubercular activity is one-tenth the potency of streptomycin and one-fourth that of isoniazid. Preperations containing Tulsi extract significantly shorten the course of illness, clinical symptoms and the biochemical parameters in patients with viral hepatitis and viral encephalitis
- **Antimalarial effects:** Essential oil of tulsi has been reported to possess 100% larvicidal activity against the *Culex* mosquitoes. Trials have shown excellent antimalarial activity of tulsi. It's extracts have marked incecticidal activity against mosquitoes.It's repellant action lasts for about 2 h
- **Antiallergic and immunomodulator effects:** Essential oil of tulsi was found to have anti-allergic properties. When administered to laboratory animals, the compound was found to inhibit mast cell degranulation and histamine release in the presence of allergen. These studies reveal the potential role of *O. sanctum* extracts in the management of immunological disorders including allergies and asthma
- **Antistress/adaptogenic effects:** Extracts from the plant have been found to reduce stress
- **Antifertility effect:** One of the major constituents of the leaves, ursolic acid has been reported to possess antifertility activity in rats and mice, This effect has been attributed to it's antiestrogenic effect which may be responsible for arrest of spermatogenesis in males and inhibitory effecton implantation of ovum in females. This constituent may prove to be a promising antifertility agent devoid of side effects
- **Anti diabetic effect:** A randomized, placebo-controlled cross-over single blind trial on 40 human volunteers suffering from Type II diabetes was performed. During the four week trial, subjects alternately received a daily dose of 2.5 g of tulsi leaves powder or a placebo for two week periods. The results showed 17.6% reduction in fasting blood glucose and 7.3% decline in postprandial blood glucose on treatment with tulsi as compared to the blood glucose levels during treatment with placebo
- **For heart ailments:** As 'tulsi' (basil) has a positive effect over blood pressure and also a de-toxicant, its regular use prevents heart attacks. A tonic may be prepared by mixing 1 g of dry 'tulsi' leaves with a spoonful of butter and some candy sugar or honey. Take twice a day; first thing in the morning and before going to bed at night. The drinking of tulsi-leaf tea keeps the blood pressure even
- **Other effects:** The leaves in the form of a paste are used in parasitical diseases of the skin and also applied to the finger and toe nails during fever when the limbs are cold. The juice of the leaves is given in catarrh and bronchitis in children. The plant is said to have carminative, diaphoretic and stimulant properties. A decoction of the plant is used for cough and also as mouth wash for relieving tooth ache. It is good for headache, convulsions, cramps, fevers and cholera

The drinking of Tulsi tea keeps one free from cough and colds and other ailments associated with 'Kapha' dosha in the body. This tulsi tea is an instant pick-me-up (energy drink).

Pepperment *Mentha piperita*

Plant description: Peppermint plants grow to about 2-3 feet tall. They bloom from July through August, sprouting tiny purple flowers in whorls and terminal spikes. Dark green, fragrant leaves grow opposite white flowers. Peppermint is native to Europe and Asia, is naturalized to North America and grows wild in moist, temperate areas. Some varieties are indigenous to South Africa, South America and Australia.

Synonyms: Oleum menthe piperita, colpermin, mentha oil.

Biological source: The oil is obtained by steam distillation of the fresh flowering tops of the plants known as *Mentha piperita* Linn.

Family: Labiatae.

Geographical sources: *Mentha* species are cultivated in various parts of the world. It grows wild in Europe, while it is cultivated in japan, England, France, Italy, U.S.A., Bulgaria and U.S.S.R. In India, it is cultivated near jammu and in Tarai region of Uttar Pradesh.

Cultivation and collection of *Mentha*: For the cultivation of mint, well drained fertile, sandy-loam soil with neutral pH is required. The rainfall in the range of 95 to 105 cm and temperature in between 15 to 25°C are the other requirements for cultivation. The altitude of 250 to 400 m is supposed to be ideal location. The cultivation is done by vegetative propagation method by using suckers. The treatment of mercury compounds as fungicides encourages better sprouting. Suckers are placed at a distance of 10 cm in January/February. The distance maintained between two rows is approximately 50 to 60 cm. The plants should be kept free of weeds by hoeing frequently. Folliar spray of urea (2 to 3%). Along with other fertilizers like free of weeds by hoeing frequently. Folliar spray of urea (2 to 3%) alongwith other fertilizers like superphosphate, potash etc. are found to be advantageous. Harvesting is done when crop reaches the flowering stage. The menthe plant is very susceptible to pests. The treatment with thiodan (1:700), endrine 20EC (1:700), BHC (10%), sulphur (0.5%) and malathion (5%) are found to be very effective for pest control.

Preparation of oil: To reduce the bulk, menthe plants are dried to 1/4th of their weight. It helps in saving the time required for distillation and reduces its cost of production. Drying directly in sunlight results in loss of volatile oil. Fermentation should not take place during drying of the herb, as it adversely affects the quality of the oil. The air-dried material is charged into galvanized iron or mild-steel still. The still designed for this purpose has a false perforated bottom. The steam under pressure, generated with the help of boiler, is then passed through the drug. It takes about 3 to 4 h for distillation. More than 80% of the oil is distilled off during the first half of distillation. Distillation should be completed carefully, as menthol of medicinal and commercial importance come over in the latter part of distillation. The condenser should be made up of either aluminium or stainless steel and should be coiled, so as to increase the area of condensation. The distillate i.e., menthe oil is collected in separtating can. Mentha oil is insoluble in water and also lighter than water which keeps it floating in a separating can. The oil is then decanted and filtered.

The average oil content of the herb is found to be 0.5 to 1% (v/w) approximately. About 100 kg of the oil per hectare of the crop per year is supposed to be satisfactory for commercial purposes.

Description:

- Colour : Colourless to yellow
- Odour : Characterestic and pleasant
- Taste : Pungent followed by cooling sensation

Solubility: It is soluble in 70% alcohol, ether and chloroform and insoluble in water.

Standards:

- It is neutral to litmus paper
- Weight per ml is 0.9 to 0.912 g
- Optical rotation at 25°C is 16 to 30°C

Chemical constituents: Peppermint oil contains chiefly l-menthol to the extent of 70% in free, as well as, in the form of esters, depending upon variety (like American, Japanese, Indian). American peppermint oil contains 80% menthol while Japanese oil contains 70-90%. Other important constituents of the peppermint oil are menthone, menthofuran, jasmine, menthyl isovalerate, menthyl acetate and several other terpene derivatives. The other terpenes include l-limonene, isopulegone,cineole, pinene, camphene, etc. Jasmone and esters are responsible for pleasant flavor, while menthoguran causes resinification and develops dirty smell.

Mentha oil is obtained by steam distillation from Mentha arvessis var-piperascens (Japanese Mint), commercially cultivated in U.P., Himatchal Pradesh, Punjab, Haryana, Jammu and Kashmir and Central India. It contains about 80% l-menthol. It is also cultivated in japan, Brazil and California. The yield of oil is upto 1.2%v/w, as compared to 0.8%v/w *M. piperita*.

Chemical test: Few drops of peppermint oil are mixed with 5 mL of nitric acid solution (Prepared by adding 1 mL of nitric acid to 300 mL of glacial acetic acid. Heat on water batch. Within five minutes liquid develops-blue colour which on further heating deepens and shows copper colours fluorescence after some time it befomes golden yellow.

Peppermint medicinal properties/uses (Herro and Jacob, 2010; Cappello *et al*., 2007; Kokate *et al*., 2010): Peppermint (*M. piperita)*, a popular flavoring for gum, toothpaste and tea, is also used to soothe an upset stomach or to aid digestion. Because it has a calming and numbing effect, it has been used to treat headaches, skin irritations, anxiety associated with depression, nausea, diarrhea, menstrual cramps and flatulence. It is also an ingredient in chest rubs, used to treat symptoms of the common cold. In test tubes, peppermint kills some types of bacteria, fungus and viruses, suggesting it may have antibacterial, antifungal and antiviral properties. Several studies support the use of peppermint for indigestion and irritable bowel syndrome.

Indigestion: Peppermint calms the muscles of the stomach and improves the flow of bile which the body uses to digest fats. As a result, food passes through the stomach more quickly. However, if your symptoms of indigestion are related to a condition called gastroesophageal reflux disease or GERD, you should not use peppermint.

Flatulence/bloating: Peppermint relaxes the muscles that allow painful digestive gas to pass.

Irritable Bowel Syndrome (IBS): Several studies have shown that enteric coated peppermint capsules can help treat symptoms of IBS, such as pain, bloating, gas and diarrhea (Enteric coated capsules keep peppermint oil from being released in the stomach which can cause heartburn and indigestion). However, a few studies have shown no effect. One study examined 57 people with IBS

who received either enteric coated peppermint capsules or placebo twice a day for 4 weeks. Of the people who took peppermint, 75% had a significant reduction of IBS symptoms. Another study comparing enteric coated peppermint oil capsules to placebo in children with IBS found that after 2 weeks, 75% of those treated had reduced symptoms. Finally, a more recent study conducted in Taiwan found that patients who took an enteric coated peppermint oil formulation 3-4 times daily for one month had less abdominal distention, stool frequency and flatulence than those who took a placebo. Nearly 80% of the patients who took peppermint also had alleviation of abdominal pain.

Itching and skin irritations: Peppermint, when applied topically, has a soothing and cooling effect on skin irritations caused by hives, poison ivy, or poison oak.

Tension headache: One small study suggested that peppermint applied to the forehead and temples helped reduce headache symptoms.

Colds and flu: Peppermint and its main active agent, menthol, are effective decongestants. Because menthol thins mucus, it is also a good expectorant, meaning that it helps loosen phlegm and breaks up coughs. It is soothing and calming for sore throats (pharyngitis) and dry coughs as well.

Available forms: Peppermint tea is prepared from dried leaves of the plant and is widely available commercially.

- Peppermint spirit (tincture) contains 10% peppermint oil and 1% peppermint leaf extract in an alcohol solution. A tincture can be prepared by adding 1 part peppermint oil to 9 parts pure grain alcohol
- Enteric coated capsules are specially coated to allow the capsule to pass through the stomach and into the intestine (0.2 mL of peppermint oil per capsule)
- Creams or ointments (should contain 1-16% menthol)

How to take it

Pediatric: Do not give peppermint to an infant or small child. Peppermint oil applied to the face of infants can cause life-threatening breathing problems. In addition, peppermint tea may cause a burning sensation in the mouth. For digestion and upset stomach in older children: 1-2 mL peppermint glycerite per day.

Adult

Tea: Steep 1 tsp. dried peppermint leaves in 1 cup boiling water for 10 min; strain and cool. Drink 4-5 times per day between meals. Peppermint tea appears to be safe, even in large quantities.

Enteric coated capsules: 1-2 capsules (0.2 mL of peppermint oil) 2-3 times per day for IBS.

Tension headaches: Using a tincture of 10% peppermint oil to 90% ethanol, lightly coat the forehead and allow the tincture to evaporate.

Itching and skin irritations: Apply menthol, the active ingredient in peppermint, in a cream or ointment form no more than 3-4 times per day.

Substitutes and adulterants: Several species of Mentha are known to contain oil. Many a time, these oils are de-mentholized and used as adulterants to the drug.

Storage: Peppermint oil should be stored in well-filled and air-tight containers protected from light and in cool place. Peppermint oil darkens and becomes viscous on storage. If cooled, separation of menthol crystals occurs. Other species of *Mentha* such as *M. longifolia*, *M. roundifolia* and *M. spicata* (spearmint) also yield volatile oils for flavouring purpose.

Thyme
Thymus vulgaris* and *Thymus zygis
Synonym: Garden thyme, French-thyme, mother of thyme, red thyme.

Biological source: This consists of dried or partially dried leaves and flowering tops of the plant *Thymus vulgaris* Linn.

Family: Labiateae (Lamiaceae)

Geographical source: It is indigenous to Mediterranean region i.e., Greece, Italy, Spain and extensively cultivatyed in France, Spain, Portugal and USA.

Macroscopic characters: It is an aromatic perennial shrub about 20-45 cm in height, with quadrangular, grayish brown to purpule brown lignified twisted stems.

Leaves: Leaves are 3-10×3 mm in size, sessile, or with very short petiole, entire, lanceolate to ovate; lamina is tough, grayish green in colour, pubescent on the lower surface.

Calyx is green with violet spots, calyx tube is covered with long stiff hairs. Corolla is twice in length as compared to calyx, bilobiate, pinkish or whitish in colour and verticillaster.

Chemical constituents: Thyme contains 1.0-2.5% of volatile oil, flavonoids, caffeic acid, labiatic acid, ursolic acid, resins and tannins. Volatile oil contains mainly thymol (20-80%), carvacrol, terpineol and linalool.

Standards:

- Total ash : Not more than 12.0%
- Acid insoluble ash : Not more than 4.0%
- Foreign organic matter : Not more than 2.0%
- Content of stalks : Not more than 15.0%

Thyme medicinal properties/uses: The origin of the name thyme has been traced to two possible sources. Thymus is a Greek name for courage, but to the Greeks it also meant to fumigate. It has been used through the centuries as a remedy for many ailments, from epilepsy to melancholy. Nowadays, it is prescribed by herbalists for intestinal worms, gastrointestinal ailments, bronchial problems, laryngitis, diarrhea and lack of appetite. It has antiseptic properties and can be used as a mouthwash, skin cleanser, anti-fungal agent for athlete's foot and as an anti-parasitic for lice,

scabies and crabs. For skin inflammations and sores, make a poultice by mashing the leaves into a paste. To use Thyme as an anti-fungal agent or as a parasitic, mix four ounces of Thyme to a pint of alcohol, or buy the essential oil and use sparingly on the affected area. For bronchitis and gastric problems, make a tea to be used once per day. Add honey as a sweetener, if desired.

The essential oil of thyme (thymol) can cause adverse reactions if taken in it's pure form, so use Thyme-based medications sparingly. If taken in a tea, drink only once or twice per day and if used on the skin, be aware that it may cause irritation.

Substitutes

Wild thyme: Thymus-serpyllum (Labiateae) is a substitute for thyme. It contains 0.5 to 2.5% volatile oil and constitutes about 45-75% of thymol. It also contains carvacrol.

Coleus

Coleus forskohlii

Synonym: Forskolii

Biological source: It consist of roots of Coleus forskohlii.

Synonym: *Plectranthus barbalus*

Family: Labiatae (Lamiaceae)

It should contain not less than 0.4% of forskolin on dried basis.

Macroscopic characters: It is a branched, aromatic perennial herb 1-2 feet in height leaves have camphor-like flavor with several, fasciculated, succulent, radially spread roots.

Cultivation and collection: About 2500 tonnes of leaves and roots are harvested every year from commercial cultivation in Gujarth and kanchipuram district of Tamil nadu.

It is propagated by using stem cuttings in spring. All types of soil are suitable for cultivation. Coleus is harvested in autumn. Irrigation once in ten days is enough. It is highly disease resistant crop. Yield per hectare is about 10-12 tonnes. Fresh roots fetches the value of Rs.5000 per tone.

Traditionally, it has been used in india for pickles and for this purpose it is cultivated to some extent.

Chemical constituents: The diterpene forskolin (colenol) was discovered at the Hoechst Research centre, Mumbai, India and Central Drug Research Institute (CDRI), Lucknow, India. It also contains various diterpenoid derivatives. The leaves coleon (methylenequinone), barbatusin and coleon R. The roots contain coleonol B, coleonol C, deoxycoleonol and labdane diterpenoids (I, II and III).

Therapeutic uses of coleus forskohlii: Coleus is a not a particularly remarkable plant to look at, yet is has a 3000 year history in Ayurvedic medicine and is mentioned in ancient Sanskrit texts as a tonic for healthy heart and lungs. Today, coleus is not just a herb for cardiovascular ailments but is increasingly being used to assist weight loss by breaking down adipose tissue and preventing production of fatty tissue. In addition, coleus mildly stimulates the metabolism by increasing thyroid

hormones and increases the secretion of insulin. These therapeutic indications for coleus are due to its principal active compound, a diterpenoid called forskolin. This is the only plant derived compound known to directly stimulate the enzyme, adenlylate cyclase and in turn, stimulates cellular cyclic AMP which boosts our metabolism. *Coleus forskohlii* (Evans *et al*., 2009) preparations used as eye drops are known to reduce eye pressure in glaucoma.

Like all good tonics, coleus directly stimulates digestion and is thought to assist in the absorption of nutrients in the small intestine. Increased cellular cyclic AMP reduces histamine, making coleus beneficial in the treatment of allergies. Coleus is also a bronchodilator with an anti-histamine action, making it useful in treating asthma.

Conditions such as hypothyroidism, eczema, psoriasis are also improved by using coleus; largely due to its ability to increase cyclic AMP. Popular herb for angina and for the health of the hearth. Coleus increases stroke volume which is the amount of blood pumped in each heart beat and reduces the risk of blood clots, coleus lowers high blood pressure by acting to relax the arterial walls. Indian and Chinese studies in the last two years have isolated a number of diterpenoids in the stem and leaves of coleus forskohlii with a focus on treatment of gastric cancer and preventing metastatic (secondary) cancers (Kar, 2008). These have been carried out on animal models with considerable success.

CONCLUSION

The labiatae family stands for about more than 3000 species of plants spread in the warm and temperate region all over the world. They are mainly grasses and shrubs, very fragrant and rich in medicinal properties of great worth in natural medicine and pharmacopoeia. Some medicinally potential plants on labiatae family they are following like Volatile oil of Cineole presenting Tulsi, Menthol and limonene having Peppermint, 45-60% carvone, limonene, cineole presenting spearment, thymol, caravachol, having the thyme and forskolin, coleonol-B, coleonol-C deoxcoleonol presenting the coleus forskohlii also described.

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