

***Ocimum*- Taxonomy, medicinal potentialities and economic value of essential oil.**

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Abstract: From ancient times, medicinal and aromatic plants have been of great use for curing various diseases and ailments. Because of multifarious potentialities and fine aroma chemicals, *Ocimum* possesses tremendous medicinal properties like anti-biotic, anti-stress, diaphoretic, diuretic, anti-pyretic, stomachic, anti-microbial, insecticidal, etc. The present communication gives a brief account of medicinal potentialities and economic uses of both exotic and indigenous species of *Ocimum*.

Key words: *Ocimum*; taxonomy; medicinal potentialities; essential oil; economic uses.

India is a heritable emporium of many medicinal and aromatic plants. It has one of the oldest, richest and most diverse cultural traditions associated with use of medicinal plants. The classical Indian Literature, The Vedas, which are more than 300 years old, mention the use of medicinal and aromatic herbs, shrubs and flowers in treating various ailments.

Ocimum like other medicinal plants are highly valued for their medicinal and aromatic properties in the traditional as well as modern pharmacological system. The genus *Ocimum*, of Family Lamiaceae, has tropical distribution with nearly two- third of the 160 species reported from West Africa and the remaining one- third from Asia and America. India is represented by nine species of *Ocimum*, mainly confined to tropical and peninsular regions (Anonymous, 1966). *Ocimum* includes aromatic herbs, under shrubs and shrubs yielding essential oils of various aroma chemicals which are of tremendous value in pharmaceutical, modern perfumery and food processing industry. The present communication thus summarizes the taxonomy, medicinal potentialities and economic values of some species of genus *Ocimum*.

1. *Ocimum sanctum* L.

O. sanctum, commonly known as 'Sacred Tulsi', is among a few wonder herbs for having enormous medicinal properties. It is an indigenous South Indian species.

Taxonomy: The plant is erect, annual or biennial, herbaceous, much branched with elliptic-oblong, pubescent,

brownish-green or purplish leaves. Flowers are small, purplish or crimson, pentamerous, sub-sessile, bisexual, zygomorphic and bilipped. Seeds are globose to sub globose, pale brown to reddish brown with black markings and slightly mucilaginous on wetting.

Medicinal potentialities and economic value of essential oil:

The plant is pungent, bitter in taste and is reported to possess anti-tuberculosis, anti-septic, anti-biotic, anti-stress and anti-cancerous properties. The leaves have diaphoretic, stimulant and expectorant properties. Their juice is applied in catarrhal bronchitis, indigestion, cold, cough, throat and chest troubles. Fresh leaves are taken with milk or tea to checks vomiting, acidity and heart burn. The dried powdered leaves are mixed with mustard oil to form a paste which is useful in curing pyorrhea, foul smell and other tooth troubles. The seeds are used in genito-urinary system disorders (Anonymous, 1966; Khosla et al., 2000).

Essential oil obtained after hydro-distillation is rich in high quality essential oil isolate, Eugenol, which is of great value in flavouring of all kinds of food products in food processing industry. Eugenol is also used in the synthesis of vanillin, the World's mostly used flavour of all kinds of food products. The oil is applied to reduce joint pains, inflammation and body rashes (Mhaskar and Calas, 1931; Kirtikar and Basu, 1935; Gupta and Vishwanathan, 1955; Chopra et al., 1956; Khosla et al., 2000).

2. *Ocimum gratissimum* L.

O. gratissimum, commonly known as 'Ram Tulsi', is an indigenous South Indian species.

Taxonomy: The plant is perennial, under shrub with ovate-lanceolate green leaves. Flowers are small, pale yellow. Seeds are dark brown, rugose, sub-globose and slightly mucilaginous.

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Medicinal potentialities and economic value of essential oil: The plant has bitter sharp taste and is useful in diseases of brain, heart, liver and spleen, strengthens the gums and removes foul breath. It is diaphoretic, stomachic, laxative and is good for the treatment of fever.

Essential oil is pale yellow with high percentage of Eugenol. It is used in flavouring of food products, beverages, detergents, dental preparations and as mosquito repellent besides its anti-fungal and anti-bacterial properties (Kirtikar and Basu, 1935; Bradu et al., 1939; Nandkarani and Nandkarani, 1954; Said and Sofowara, 1969; Sawhney et al., 1977; Khosla et al., 1999).

3. *Ocimum viride* Willd.

O. viride, commonly called 'Van Tulsi', is an exotic West African species.

Taxonomy: The plant is perennial, erect, much branched, under shrub with elliptic lanceolate brownish green leaves. Flowers are pale yellow. Seeds are globose, brownish and non-mucilaginous.

Medicinal potentialities and economic value of essential oil: The plant is extensively used as a poultice for rheumatism and lumbago. A decoction of leaves is used in fever and cough. The fresh juice of leaves is used for catarrh and as eye drops for conjunctivitis (Anonymous, 1966).

Essential oil is pale yellow, viscid with characteristic odour of Thymol, having pungent and spicy flavour. It is extensively used in perfume, flavour and pharmaceutical products and as a powerful anti-septic, anti-oxidant, preservative and disinfectant. It is also used in compounding of synthetic essential oil besides as a starting material for making synthetic menthol (Gupta and Vishwanathan, 1955; Khosla et al., 2000).

4. *Ocimum basilicum* L.

O. basilicum, commonly known as 'Indian basil', is an indigenous South Indian species.

Taxonomy: The plant is erect, under shrub with ovate leaves. Flowers are white pinkish or purplish. Seeds are dark brown to black, ellipsoid and mucilaginous.

Medicinal potentialities and economic value of essential oil: The plant is stomachic, stimulant, carminative, anti-pyretic, diaphoretic, expectorant, diuretic and also useful in heart, brain and blood diseases asthma, inflammations and enlarged spleen (Chopra et al., 1956). The infusion of seeds is given in

gonorrhoea, diarrhoea and chronic dysentery (Mhaskar and Calas, 1931).

Essential oil is pale yellow, slightly viscid with a sweet spicy herbal odour, having Methyl chavicol as a main constituent. The oil is used in flavour and perfume industry (Khosla et al., 1999).

5. *Ocimum americanum* L.

O. americanum, commonly known as Kali Tulsi, is an indigenous species.

Taxonomy: The plant is sweet scented, pubescent, annual herb with elliptic lanceolate leaves. Flowers are white pink or purplish. Seeds are black, narrowly elliptic and mucilaginous.

Medicinal potentialities and economic value: The plant has carminative, diaphoretic and stimulant properties. A decoction of leaves is used for cough, dysentery, cold, bronchitis and a mouth wash for relieving tooth ache (Mhaskar and Calas, 1931; Chopra et al., 1958).

Essential oil is pale yellow with characteristic odour of lemon, having Citral as main constituent. The oil is used extensively in perfume, flavour and pharmaceutical industry. It is mainly used in the synthesis of vitamin-A besides yielding important perfumery grade isolates from *B-ionones* (Pushpangadan et al., 1979).

6. *Ocimum canum* Sims.

O. canum is an indigenous South Indian species.

Taxonomy: The plant is annual herb with ovate leaves. Flowers are pinkish white. Seeds are dark brown, narrowly ellipsoid and mucilaginous.

Medicinal potentialities and economic value of essential oil: The plant is used to cure fever, dysentery and haemorrhage from nose. Leaves and seeds are used in migraine (Kirtikar and Basu, 1935; Chopra et al., 1956).

Essential oil is light yellow and is a rich source of Linalool. It is used in perfume, flavour and cosmetic industry. The oil has been reported to possess potent anti-bacterial and anti-fungal activities (Khosla et al., 2001).

7. *Ocimum carnosum* LK. et. Otto.

O. carnosum is an exotic West African species.

Taxonomy: The plant is perennial, much branched, under shrub with simple ovate-oblong leaves, dark green

leaves. Flowers are small purplish. Seeds are ellipsoid, purplish to dark brown and slightly mucilaginous.

Medicinal potentialities and Economic value: the plant has carminative, anti-pyretic and anti-bacterial properties.

Essential oil is light yellow, viscid with strong spicy earthy odour and is a rich source of Elemicin. It is highly prized for its immense pharmaceutical and flavouring properties. Elemicin is used in the production of 3,4,5-trimethoxy-benzaldehyde which forms the starting material for the synthesis of trimethoprim, an ingredient used in the production of an important anti-bacterial drug, Septran (Khosla and Bhasin, 2000).

8. *Ocimum kilimandscharicum* Guerke.

O. kilimandscharicum, commonly known as 'Kapur Tulsi', is an exotic West African species.

Taxonomy: The plant is perennial, under shrub with simple ovate-oblong leaves. Flowers are light purplish or white. Seeds are ovoid-oblong, black to brown and mucilaginous.

Medicinal potentialities and economic value of essential oil: The plant has carminative, stimulant, anti-pyretic, anti-fungal and anti-bacterial properties.

Essential oil is light yellow with strong odour of Camphor. The oil is widely used in perfume, flavour and pharmaceutical industry. Also used in local application on sprains, in diarrhoea and in various dental and oral preparations (Anonymous, 1966; Khosla et al., 2000).

9. *Ocimum suave* Willd.

O. suave, is an exotic West African species

Taxonomy: The plant is much branched, highly pubescent, perennial, under shrub with ovate to ovate-lanceolate grey green leaves. Flowers are small pinkish white. Seeds are globose, dark brown and non-mucilaginous

Medicinal potentialities and economic value of essential oil: The plant is used for the treatment of cough, abdominal pain, nasal congestion and inflammation of ear and eye (Chopra et al., 1958; Pushpangadan et al., 1979).

Essential oil is highly viscid, light yellow with balsamic woody dusty odour. It is a rich source of sesquiterpene alcohols and is mainly used in flavouring of tobacco and snuff, as a body perfume and mosquito repellent (Khosla et al., 2000).

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