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### Traditional Uses and Pharmacological Action of Ocimum Kilimandscharicum : A Review

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#### Abstract

The natural products have played a vital role in curing health related problems and in ailment of various diseases. Herbal drugs are easily available and have fewer side effects. So many people are attracted towards the herbal drugs. The aim of the present review is to understand the knowledge of plants used for Ayurvedic preparations in relation of their traditional uses as therapeutic agents and pharmacological properties.

Ocimum kilimandscharicum is also known as camphor basil. It is an economically important medicinal perennial herb that is widely distributed in East Africa, India and Thailand. It is extensively grown in the Tropics Ocimum Kilimandscharicum is a useful tropical plant. It is widely used in the management of various ailments including colds, coughs, abdominal pains, measles, anti-ulcer, bronchitis, anorexia, memory Disorders and diarrhoea.

*Key words* : Ocimum kilimandscharicum, Champhor basil, Pharmacological, Measles, Diarrhoea.

#### Introduction

Plants are one of the most important sources of medicines. The large number of drugs are derived today from plants.

Herbal medicine also called botanical medicine or phytomedicine refers to using a plants seeds, berries, roots, leaves, bark or flowers for medicinal purposes. Verbalism has a long tradition of use outside of conventional medicine. As improvements

in analysis and quality control along with advances in clinical research show the value of herbal medicine in the treating and preventing disease. According to the ayurveda, plants have so many constituents which may be used for the treatment of so diverse ailment. Herbs had been used by all cultures throughout history but India has one of the oldest, richest and most diverse cultural living traditions associated with the use of medicinal plants<sup>1-7</sup>.

According to a survey of World Health

Organization (WHO), the practitioners of traditional system of medicine treat about 80% of patients in India, 85% in Burma and 90% in Bangladesh. In traditional systems of medicine the Indian medicinal plants have been used in successful management of various disease conditions like bronchial asthma, chronic fever, cold, cough, malaria, dysentery, convulsions, diabetes, diarrhoea, arthritis, emetic syndrome, skin diseases, insect bite etc. and in treatment of gastric, hepatic, cardiovascular & immunological disorders. Ocimum genus includes more than 150 species which are distributed in the tropical and subtropical regions of the world and from sea level upto 6000 feet. Ocimum sanctum L. (Tulsi), Ocimum gratissimum (Ram Tulsi), Ocimum canum (Dulal Tulsi), Ocimum basilicum (Ban Tulsi), Ocimum kilimandscharicum Guerke (Kapoor Tulsi), Ocimum ammericanum, Ocimum camphora and Ocimum micranthum are examples of known important species of genus Ocimum which grow in different parts of the world and are known to have medicinal properties<sup>8-12</sup>.



Fig. 1 Ocimum Kilimandscharicum

Ocimum kilimandscharicum known as 'Kapoori Tulsi' in Hindi and 'Camphor Basil' in English, is an exotic plant mainly cultivated in south India, both in plains and hilly areas. This plant attracted attention as a source of camphor. This species has a strong but less pleasant flavor. It is an aromatic under shrub with pubescent quadrangular branchlets. This plant is easily recognized by its shrubby habit, growing up to eight feet tall.

*Common names:*

**Sanskrit:** Kapura Tulasi, **English:** African Basil, Camphor Basil, Camphor - Scented Basil, Hoary Basil, Kilimanjaro Basil, Perennial Basil, Fever plant, **German:** Kampferbasilikum **Hindi:** Kapur Tulsi, Kapuri Tulsi.

Ocimum kilimandscharicum can be propagated by seeds and cuttings. It bears flowers with long flower stems, up to 18 inches long. Ocimum kilimandscharicum seeds are lack and very small, oval shaped and about 1mm in the middle and 2mm long. Seedlings are raised in nurseries and transplanted on the farms. Once the shrub is established, it can be harvested 3 times per annum for more than three years. It requires well-drained soils, though does well in clayey and sandy soils, with an average annual rainfall of 1250 mm, fairly high temperatures and at altitudes of up to 900 mm.

*Traditional Uses of Ocimum Kilimandcharicum:*

In traditional medicine, this plant is widely used for the treatment of various ailments including colds, coughs, abdominal pains, measles and diarrhoea. The leaves treat congested chest, cough and cold, by sniffing crushed leaves or inhaling vapour of boiling leaves. Infusion of leaves is a cure for measles. Essential oils posses biologically active constituents that act as insect repellents, particularly against mosquitoes and storage pests. Some local farmers also mix stored foodstuffs with dry leaves of Ocimum kilimandscharicum for protection against insect pest damage in storage. It show antibacterial and antioxidant activity. It also used in viral infections, foul ulcers, anorexia and for healing wounds. Ocimum kilimandscharicum in boiled water in a pot or saucepan to generate an aroma. It is also used in the Mediterranean area in interesting forms for decorative purposes.

*Pharmacological Activity:*

*Antioxidant activity*

The modulations in enzymatic and non

enzymatic antioxidants were observed in *Ocimum kilimandscharicum* exposed to UV-B stress. Recovery on lipid peroxidation and alterations in the contents of free radicals in leaves was studied. Lipid peroxidation measured in terms of MDA level increased with UV-B doses and the ratio was higher with high dose of radiations. Recovered leaves showed lower MDA content and hydroxide radicals. Ascorbate, flavanoids and proline contents increased highly in leaves recovered from UV-B stress. *Ocimum kilimandscharicum* shows, higher free radical scavenging capacity and more efficient antioxidant potential using thiobarbituric acid assay in liver and muscle assay systems of ovarian models. This shows that *Ocimum kilimandscharicum*; due to abundant presence of flavanoids have great potential to be exploited as antioxidant<sup>13-20</sup>.

#### *Antimicrobial activity :*

Essential oil from aerial parts of *Ocimum kilimandscharicum* shows antimicrobial activity against Gram +ve bacteria (*Staphylococcus aureus*, *Enterococcus faecalis*), Gram-ve bacteria (*Escherichia coli*, *Pseudomonas aeruginosa*) and also against yeast *Candida albicans*<sup>23</sup>.

#### *Wound healing activity :*

Aqueous extract of leaves shows wound healing activity at two different doses (200 and 400 mg/kg) in three types of wound models on rats: the excision, the incision and dead space wound model. Significant increase in skin breaking strength, granuloma breaking strength, wound contraction, dry granuloma weight and decreased in epithelization period was observed. Biochemical parameters obtained from histological examination of granuloma tissue determination using Van Gieson and Masson Trichome stains shows, viz; L-Hydroxyproline, Hexose amine, Ascorbic acid and Malondialdehyde which confirmed its potential wound healing activity. Thus, it was found that enhanced wound healing may be due to free radical scavenging action and the antibacterial property of the phytoconstituents present in it, either due to their individual or additive effect<sup>21-26</sup>.

#### *Antibacterial activity :*

*Ocimum kilimandscharicum* is active against a number of bacteria i.e. *Bacillus saccharolyticus*, *Bacillus stearothermophilus*, *Bacillus thurengiensis*, *Bacillus subtilis*, *Lactobacillus casei*, *Lactobacillus plantarum*, *Micrococcus luteus*, *Sarcina lutea*, *Staphylococcus aureus* etc..

#### *Antifungal activity :*

*Ocimum kilimandscharicum* is active against *Aspergillus fumigatus*, *Aspergillus niger*, *Candida albicans*, *Cryptococcus neoformans*, *Microsporium cassis*, *Sporotrichum schenkii*.

The dried ground leaves and essential oil of *O. kilimandscharicum* in doses of 25.0 g leaves and 0.3 g essential oil per 250 g grain (maize or sorghum) killed 100% of *Sitophilus zeamais*, *Rhyzopertha dominica* and *Sitotroga cerealella* in 48 h. The best repellent activity was seen by 0.3 g essential oil/250 g grains against *Sitophilus zeamais*<sup>19-25</sup>.

Using modern science and technology, a new brand of medicines called Naturub® was developed from purified extracts of *Ocimum kilimandscharicum* based on the traditional knowledge and practices. Naturub® is registered as a medicine. Naturub® is certified and registered as the first natural product by the Pharmacy and Poisons Board of Kenya - it is sold widely in corporate retail chains in Kenya. Its balm is used for alleviating flu, cold, chest congestion, aches and pain, insect bites and muscular pain. While the ointment is used for the fast relief of muscular strain, rheumatism, arthritic joint, fibrositis, bruises, lumbago, neuralgia and sciatica<sup>18-23</sup>.

#### **Conclusion**

The experimental research on *Ocimum Kilimandscharicum* convey a huge traditional uses and pharmacological action of this plant. The plant *Ocimum Kilimandscharicum* revealed that it has got a variety of medicinally significant constituents, which are being utilized in the field of different system of medicine.

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