

Antimicrobial Efficacy of *Ocimum tenuiflorum* (Tulsi)

Shweta Dhanda*

Department of Biochemistry,
Kurukshetra University, Haryana



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*Corresponding Author

Shweta Dhanda*

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INTRODUCTION

Several thousand years of literature record the use of medicinal plants in traditional medicine. Vedic period (3500-1600 B.C.) books on Ayurveda explain techniques, such as the use of medicinal herbs, that served as the foundation for all later medical sciences created on the Indian subcontinent. Plants are the main source of therapies in contemporary complementary and alternative medicine, and any part of a plant, including the seeds, root, stem, leaves, and fruit, may contain bioactive components. Combinations of secondary metabolites are thought to constitute the primary bioactive elements in medicinal plants. The key benefits and drawbacks of using medicinal herbs are their affordability and accessibility anywhere in the world. Other definite benefits include their safety in comparison to other pharmaceuticals and the absence of significant adverse effects. However, because plant metabolism varies greatly, it is essential to standardise, submit to strict quality control, and evaluate medicinal plant extracts and products before approving them for use in primary healthcare.

Aromatic herbs are a valuable source of biologically active substances among therapeutic plants that can be used in both agriculture and medicine. Because of its reputed medical properties, *Ocimum tenuiflorum*, commonly known as *Ocimum sanctum*, Tulsi, or Holy Basil from the family *Lamiaceae*, has been called the "Queen of plants" and the "mother medicine of nature". Almost every component of the plant has been proven to have therapeutic effects, making it one of the most revered and holistic herbs utilised in Indian traditional medicine over the years. Tulsi is used in various ways in traditional medicine; aqueous extracts from the leaves (fresh or dried as powder) are added to herbal teas or blended with other herbs or honey to increase their therapeutic potency. Tulsi aqueous extracts have been used traditionally to treat a variety of poisonings, stomachaches, common colds, migraines, malaria, inflammation, and heart disease.

Tulsi leaves and inflorescence oil has been touted as having a variety of beneficial properties, such as expectorants, analgesics, anti-emetics, and antipyretics; stress and inflammation relievers; anti-asthmatic, hypoglycemic, hepatoprotective, hypotensive, hypolipidemic, and immunomodulatory agents; and expectorants, analgesics, and antipyretics.

The pharmacological effects of Tulsi products derived by various extraction techniques, including steam distillation, benzene extraction, and petroleum extraction, have been studied by a number of investigators. Research studies on the medicinal value of tulsi and eugenol, a key ingredient in tulsi. With regard to the pharmacological impact on the immune system, cardiovascular system, reproductive system, gastric and urinary systems, as well as the central nervous system, these pharmacological investigations may be useful in establishing a scientific basis for the therapeutic use of this plant.

Infection of skin and soft tissue, generate a great deal of morbidity and expense for the population. *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Escherichia*

coli, and SENTRY Antimicrobial Surveillance Program, 2009 are the main causes of these illnesses. Even though infections are frequently mild or moderately severe, more serious infections may necessitate hospitalisation and treatment with oral or parenteral antimicrobials. For instance, in 1995, more than 43,000 people in Scotland and 300,000 in the US required hospitalisation for the treatment of skin infection. It has become harder to treat in recent years since more organisms are becoming antibiotic resistant. Differentiating between skin infections that require antibiotic therapy and those that don't is crucial to preventing the spread of multidrug-resistant organisms in the clinical setting. According to a recent survey in Europe, a significant portion of doctors prescribe systemic antibiotics for the treatment of illnesses like MRSA-colonized ulcers or torn skin surfaces. Essential oil or its components may be effective treatments for colonised ulcers or mild to moderate skin infections, limiting the spread of more serious infections and reducing the needless use of antibiotics and the resulting rise in antibiotic resistance.