



## Usage of Holy Basil for Various Aspects

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### ABSTRACT

The unique chemistry of Tulsi is highly complex. Tulsi contains hundreds of beneficial compounds known as phyto-chemicals. Working together, these compounds possess strong antioxidant, antibacterial, antiviral, adaptogenic, and immune-enhancing properties that promote general health and support the body's natural defense against stress and diseases. The essential oils in the leaves of Tulsi that contribute to the fragrance and refreshing flavor of Tulsi Tea, are a particularly rich source of valuable phyto-chemicals. It acts as adaptogen (an adaptogen is an agent that helps the body adapt more efficiently to stress. Adaptogens reduce the intensity and negative impact of the stress caused by mental tension, emotional difficulties, poor lifestyle habits, disease and infection, pollution and other factors. Tulsi is one of the most effective adaptogens known.), antioxidant (an antioxidants slow down the process of excess oxidation and protect cells from the damage caused by free radicals. When cells are attacked by free radicals, excess oxidation occurs which damage and destroy cells. Antioxidants stop this process. The cellular damage caused by free radicals can be responsible for causing and/or accelerating many diseases. Tulsi is rich in antioxidants and is recommended to guard against free radicals and protect from damaging excess oxidation.), and as an immuno-modulator which is an agent that balances and improves the immune response of the body in fighting antigens (disease causing agents such as bacteria, viruses, microbes, allergens etc.) and maintaining health. In this article various therapeutic applications of tulsi leaves have been delineated precisely.

**Keywords:** Antioxidant; Adaptogen; Immuno-modulator; Eugenol; Metabolism; COX-2

### INTRODUCTION

"The Queen of Herbs" - is the most sacred herb of India. Tulsi (*Ocimum sanctum*), although also known as Holy Basil, is a different plant from the pesto variety of Basil (*Ocimum basilicum*). Tulsi has been revered in India for over five thousand years, as a healing balm for body, mind and spirit, and is known to bestow an amazing number of health benefits. Some of Tulsi effects are quite immediate, while others develop gradually after weeks of regular use. For example, you may feel more relaxed and energized after the first cup. Although Tulsi has many specific effects on different body systems, its main benefits arise from its impressive general capacity to assist the body's natural process of healing and maintaining health. Tulsi overall health promotion and disease prevention effects are powerful, but often subtle. For example, you may simply notice that you do not seem to be bothered by stress or common illnesses, such as colds or flu, nearly as often as before. Or you may notice that you generally tire less easily. As with many other herbal supplements, it usually takes at least a week or so of consistent use for the body to experience major benefits. Recent studies suggest *tulsi* may be a (cyclooxygenase-2) COX-2 inhibitor, like many modern painkillers, due to its high concentration of eugenol [1]. One small study showed it to reduce blood glucose levels in type 2 diabetics when combined with hypoglycemic drugs [2]. The same study showed significant reduction in total cholesterol levels with *tulsi*. Another study showed its beneficial effect on blood glucose levels is due to its antioxidant properties [3].

Tulsi also shows some promise for protection from radiation poisoning [4] and cataracts [5]. It has anti-oxidant properties and can repair cells damaged by exposure to radiation. The fixed oil has demonstrated antihyperlipidemic and cardioprotective effects in rats fed a high fat diet [6]. Experimental studies have shown an alcoholic extract of *tulsi* modulates immunity, thus promoting immune system function [7]. Some of the main chemical constituents of *tulsi* are: oleanolic acid, ursolic acid, rosmarinic acid, eugenol, carvacrol, linalool,  $\beta$ -caryophyllene (about 8%),  $\beta$ -elemene (c.11.0%), and germacrene D (about 2%).  $\beta$ -Elemene has been studied for its potential anticancer properties, but human clinical trials have yet to confirm its effectiveness. *O. sanctum* extracts acts against *E. coli*, *S. aureus* and *P. aeruginosa* [8].

### HEALTH BENEFITS OF TULSI

Tulsi is rich in antioxidant and renowned for its restorative powers, Tulsi has several benefits:

- Relieves stress / adaptogen
- Bolsters immunity
- Enhances stamina
- Provides support during cold season
- Promotes healthy metabolism
- A natural immuno-modulator

“Modern scientific research offers impressive evidence that Tulsi reduces stress, enhances stamina, relieves inflammation, lowers cholesterol, eliminates toxins, protects against radiation, prevents gastric ulcers, lowers fevers, improves digestion and provides a rich supply of antioxidants and other nutrients. Tulsi is especially effective in supporting the heart, blood vessels, liver and lungs and also regulates blood pressure and blood sugar.

### DEFLUOREDATION OF CONTAMINATED WATER BY TULSI

Fluoride levels in drinking water in 196 districts of 19 Indian states are much higher than the maximum concentration of 1.5 parts per million (ppm) deemed safe. Poor people in these areas do not need expensive gadgets to get rid of the contaminant anymore. All they need is a tulsi plant. Fluorosis, which causes dental and skeletal decay, is endemic in at least 25 countries across the world. According to estimates by Fluoride Action Network, a US-based non-profit, 25 million people are affected by fluorosis in India and another 66 million are at a risk. It's simple. All one needs to do is either boil or shake a handful of holy basil or tulsi leaves with water for a while. This is enough to decontaminate about 20 litres of water. To test the efficacy of the method, we experimented with various water samples having different fluoride concentrations. When 75 mg of fresh leaves were added to 100 ml of water with a fluoride concentration of 5 ppm, nearly 95 per cent fluoride was removed in 20 minutes. Stems and dried leaves had a fluoride removal efficiency of 74 to 78 per cent for the same water sample. During a study in 2009, it was found that 24 per cent of water samples from Rajura tehsil in Chandrapur district have fluoride concentration higher than the permissible limit. Most fluorosis victims here were poor. This prompted researchers to work towards finding a fluoride removal method that is accessible even to those having little money. It was thought that a locally available plant is the best option. Due to their proven medicinal properties, tulsi leaves have been used since ages to consecrate drinking water during festivals. It was decided to experiment with the plant and see if it can remove fluoride from water. It's being planned to carry out the experiment on a larger scale. The method is safe and certainly better than drinking untreated water but more studies are still needed to find out how tulsi leaves absorb fluoride [9-13].

### CONCLUSION

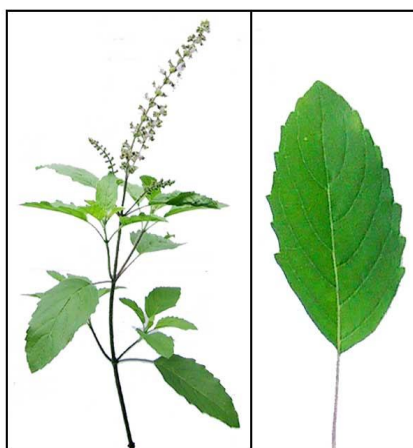
*Tulsi* has been used for thousands of years in Ayurveda for its diverse healing properties. It is mentioned in the Charaka Samhita—an ancient Ayurvedic text. *Tulsi* is considered to be an adaptogen, balancing different processes in the body, and helpful for adapting to stress. Marked by its strong aroma and astringent taste, it is regarded in Ayurveda as a kind of "elixir of life" and believed to promote longevity. *Tulsi* extracts are used in ayurvedic remedies for common colds, headaches, stomach disorders, inflammation, heart disease, various forms of poisoning, and malaria. Traditionally, *tulsi* is taken in many forms: as herbal tea, dried powder, fresh leaf, or mixed with *ghee*. Essential oil extracted from *Karpoora tulsi* is mostly used for medicinal purposes and in herbal cosmetics, and is widely used in skin preparations. For centuries, the dried leaves have been mixed with stored grains to repel insects. Recently its use has been found in fighting fluorosis.

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#### BEPLS ABSTRACTED AND INDEXED

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