

Queen of Herbs Tulsi (*Ocimum Sanctum*) Immunomodulatory Activities and Systemic Symptomatic Treatment of Novel coronavirus (COVID-19)

Vishwakarma Ravi Kumar^{1*}, Ram Garg¹, Manish Kumar², Deepak Kumar³, Tarique Hussain⁴ and Asha Rani⁵

¹Arya Collage of Pharmacy, Ricco Industrial Area Kukas, Jaipur, Rajasthan, India

²Department of Medicinal Chemistry, National Institute of Pharmaceutical Education and Research, Ahmedabad, Gujarat, India

³Ranchi College of Pharmacy, BIIMS Campus, Ranchi, Jharkhand, India

⁴Department of Pharmacology, Global University, Delhi, Uttar Pradesh, India

⁵Government Pharmacy Institute, Ranchi, Jharkhand, India

Abstract

Holy basil or Tulsi (*Ocimum Sanctum*), Species *O. tenuiflorum* is an aromatic plant, family Lamiaceae. Cultivated for religious and traditional medicine purpose, widely used as a herbal tea and has a state within the Vaishnava era of Hinduism, means devotees perform worship like Holi basil or leaves. Contains some phytochemical constituents of Tulsi like-Oleanolic acid, Ursolic acid, Rosmarinic acid, Eugenol, Carvacrol, Linalool and beta-Caryophyllene. In this time practitioners for curing various diseases, parts like as leaves, stem, flowers, root, seed, even whole plant of *Ocimum Sanctum* Linn, Mostly Leaves and stem is very important role for medicinal purpose. *O. tenuiflorum*, Krishna and Rama Tulsi has been reported very effective and spiritual herbs. Its constituents properties reported by world health organization effectiveness in various viruses and bacterial infection, have no any side effect. Corona virus affect the respiratory system causes may be serious role in human body, recently corona virus that can spread between animals and humans begun in Wuhan, China, in December 2019. Ayurveda is the world's oldest medical system that can treat any disease without side effects. We hypothesize that holy basil may be effective in the prevention and management of novel corona virus disease also increase immune response with safety.

Keywords: Immunomodulatory activities of Tulsi; Covid-19; Treatment and symptomatic of novel corona virus; Tulsi

Introduction

Recently we studied and reported that covid-19 is pandemic infection caused by new corona virus, it can spread between animals and humans. First time it was begun in Wuhan, China in December 2019. Its common symptoms are fever, dry cough and tiredness, aches and pains, nasal congestion, runny nose, sore throat or diarrhea are rarely found. *Ocimum Sanctum* has a rich and fanciful history known since the Vedic age for its immense curative, effective and multi-purpose utilize in India even other country [1,2]. It has been the 'Herb royale' to the French, assign of love by Italians, and a sacred herb in India. In the first century A.D. Roman naturalist Pliny reported that basil relieves flatulence, which had been subsequently proven true. In the Far East, the herb had been used as a cough medicine, and in Africa, it has been used to expel worms. American colonists considered holy basil is the essential ingredients in a snuff used to ease headaches [3].

COVID-19

Recently Covid-19 has sent the world into a medical problem, one which if not contained or prevented might take serious tolls on economy condition of India and world alike. Started from Wuhan China country, very painful and pandemic situation day by day increase, there are more than 870000 confirmed Covid-19 cases cross the world; and more than 43000 lives have succumbed to it worldwide. March 26, 2020, Indian Council of Medical Research (ICMR), central government of India, has approved the use of hydroxyl-chloroquinone for prophylactic treatment of Corona virus infection. Herbs one of the world renowned forms of Indian medicine, mentions several immunity boosting therapeutics also increase immunity. And vitamin-c is very important therapeutic roll in immune system [4-6].

Symptoms of Covid-19 Positive Patients

The oral contraceptive pill has been many incarnations since the

first time production in the 1960s, this incarnation is referred to as "generation". There are 4 generations of oral contraceptive pills which are the 1st, 2nd, 3rd, and the 4th generation, the main difference between them is the type of progesterone that is used in making the pill, while the estrogen type used here are just two types they are Ethinylestradiol or estradiol [2].

Most common symptoms

Fever, Tiredness, Dry cough

Less common symptoms

Aches and Pain, Sore throat, diarrhea, conjunctivitis, loss of taste or smell, rash on skin [7].

Serious symptoms

Difficulty breathing or shortness of breath, chest pain, loss of speech.

Tulsi

Tulsi or Holi Basil (*Ocimum Sanctum*) has been used for thousands of years in Ayurveda, a Hindu form of medical science, have diverse healing features. It is mentioned in the Charaka Samhita, an ancient Ayurvedic text books. Holi basil is considered to be an adaptogen,

***Corresponding author:** Vishwakarma Ravi Kumar, Arya Collage of Pharmacy, Ricco Industrial Area Kukas, Jaipur, Rajasthan, India, E-mail: vaibhavkumar3085@gmail.com

Received September 16, 2019; **Accepted** November 12, 2020; **Published** November 19, 2020

Citation: Ravi Kumar V, Garg R, Kumar M, Kumar D, Hussain T, et al. (2020) Queen of Herbs Tulsi (*Ocimum Sanctum*) Immunomodulatory Activities and Systemic Symptomatic Treatment of Novel coronavirus (COVID-19). Clin Pharmacol Biopharm 9: 208.

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balancing various processes in the body, and very helpful features for adapting to stress, fever. Many families of Tulsi planted in a specially built structure, which has images of deities installed on all four sides, and an alcove for a small earthen oil lamp. Many households can even have up to a dozen tulsi plants on the verandah or in the garden forming a "tulsi-van" or "tulsivindavan"- a miniature basil forest. holi basil is pungent and bitter in taste, pungent in the post digestive effect and has hot potency [8]. It contains kapha and vatadoshas, but slightly aggravates the pitta dosha. It possesses light and dry attributes. On the contrary the seeds are oily and slimy in attributes and have a therapeutically cold potency. Family belongs to Lamiaceae, and aromatic plant, about 30-60cm tall with hairy stems and simple, opposite, green leaves that are strongly scented. Leaves have petioles, and are ovate, up to 5 cm long, usually slightly toothed. The flowers are purplish in elongate racemes in close whorls [9].

Name of *Ocimum Sanctum*-Tulsi

English - Holy basil/sacred basil (Figure 1)

Hindi - Tulsi, Sanskrit - Tulasi, Gujarati - Tulsi, Family: Lamiaceae, Genus: *Ocimum*

Immunomodulatory activity/ properties of Tulsi

Ocimum Sanctum are very old herbs which have cold potency, and aromatic compound, contains vitamin C and antioxidants like eugenol, which protects the heart from the harmful effect. Holy basil regulates the stress response, increase adaptive energy and vital spirit. And its medicinal merits-antifungal, antipyretic, antibacterial, antiseptic, and anticancer. The concentration of their compounds like eugenol-anti-infective and ursolic acid-anticancer activity. Two subtypes of tulsi-Rama (green leaves) and Krishna (purple leaves) have been found to contain very high concentration of these medicinally important metabolites, both leaf have high potency. Various compounds found in the tulsi plant are being evaluated for their anti-cancer properties in many clinical trials [10]. The impact study of Tulsi we observed that positive effect for better immune response, In Empty stomach tulsi leaf and their compound increase immunity, Immunomodulatory role of Tulsi leaf extract on healthy peoples.

Pharmacological activity of Tulsi (*Ocimum Sanctum*) in management of Covid-19

SARS-CoV-2 infection associated Respiratory disease-COVID-19, Into a Pandemic. Their causation is not known and drugs and vaccines against the virus are still being under process to test but no effective drugs and vaccines have been advised by regulatory authority behalf of Ministry of AYUSH to management of covid-19.

Holy basil normalize the kapha and vata from the older time. Holy basil is being used in the management of pain, cough, diarrhea and fever

which are the common symptoms of Corona virus disease and it is also used in malaria fever. Composition of ghee and tulsi is the best medicine for pneumonia. Its consumption increases the anti-oxidant molecules, Immunity and enzymes in the body and protects the cells and membrane from being damaged by the harmful and toxic compound [11]. Tulsi helps to defense the harmful virus and bacteria. Improvement in humoral and cellular immunity was observed in animal and human studies after treatment with holi basil oil. The possible mechanism for increasing immunity is a modulation of the GABA pathway and NF-Kb/TNF alfa signaling pathway, Immunological mechanisms 9humoral and cellular) that will respond to the virus infection in a coordinated way. Due to its multi-modal therapeutic effects, *Ocimum sanctum* increase haemoglobin concentration with better activity, enhance SRBC, decrease CoX-2 and LoX-5 enzymes activity, suppress NF-Kb classical pathway. we hypothesize that tulsi may be effective in the prevention, treatment and management of COVID-19 [12]. Though the existing literature supports the management of symptoms of COVID-19 using tulsi, a lack of standard formulation limits its use. Tulsi has special religious significance, also have magical medicinal qualities. Some easy way in which you can use Tulsi leaves to treat seasonal flu and viruses and increase immunity power. Such as-Chewing tulsi leaves, Tulsi juice, Tulsikadha with honey and turmeric, Tulsi tea. Tulsi has many properties-Vitamin-A, Anti-bacterial properties, Anti-fungal properties, Anti-inflammatory properties, cooling properties, Adaptogen, etc [13-15].

Conclusion

Study of Tulsideals with Rich sources to fight against viral diseases according to biomolecular studies. But still no any evidence to fight against Covid-19. Seems to be only regulate immune power/system for the prevention and normalize/minimize viral disease. Tulsi has various properties-AYUSH KWATH due to its anti-oxidant, antiviral, anti-inflammatory, anti-platelet, anti-atherosclerotic, immune-modulatory and hapato-protective properties. Before its extensive usage must be done pharmacological, Toxicological studies, and clinical trials.

Economic and environmental issues also defined by herbs products as Tulsi.

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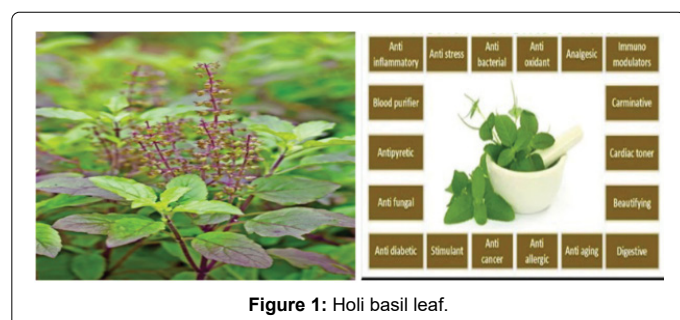


Figure 1: Holy basil leaf.

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