

Holy Herb Tulsi as a cure for Oral and Periodontal Disease – A Review

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Abstract

In dentistry, herbal medicines are used for treating various oral lesions such as lichen planus, oral submucous fibrosis, leukoplakia, pemphigus vulgaris, aphthous ulcer, candidiasis, herpes virus and oral infections. It is also used in preventing tooth decay as well as in reducing dental pain. It has a wide variety of uses even in the field of Periodontics. Periodontitis has been proven to occur due to various periodontopathic bacteria's which has direct effect on periodontal tissues. Herbal medicine has an active role in reducing periodontitis. These can be used as a mouthwash, local drug delivery system in treating gingivitis, halitosis, for surgical wound healing, even in reducing inflammation around dental implants.

Keywords: Tulsi; Periodontitis; Herbs; Gingivitis

Introduction

Long before the advent of modern medicine, herbs were the mainstream remedies for nearly all ailments [1]. In ancient times, plants were assigned curative powers based on shape or color. Phytotherapy, also sometimes referred to as phytomedicine, has been a part of both Eastern and Western medical traditions since approximately 2000 BC [2]. Herbs are one of the remedial agents which God has created for afflicted humans. Herbal medicines are being used increasingly as dietary supplements to fight or prevent common diseases [1]. These medicines were in great demand in the developed as well as developing countries for primary health care because of their wide biological and medicinal activities, higher safety margin and lower costs [3]. Most allopathic practitioners have traditionally considered herbal treatments to be innocuous or alternately, potentially problematical. Three decades ago only a few had any appreciation of the number of remedies that had their origins in herbal medicine and most had a vague impression of what herbalism, or other forms of alternate medicinal practices implied [4]. During the last decades, there is increasing interest to unlock the secrets of ancient remedies [5].

Nowadays health care professionals are aware of alternative medicine and of its great advantages. They are indeed of great importance which improves the individual's health and quality of life [5]. Medicinal plants are potential renewable natural resources and are generally considered to play a beneficial role in human health care. Herbal medicines have immense scope in various fields of medicine and dentistry. With increased awareness, the use of herbal medicine has gathered significant importance over the past years. Herbal medicines can be used for treating many health ailments like diabetes, heart condition, skin problems, allergy, cancer and respiratory problems. Herbs can also help one deal with the problem of obesity, and they also promote good health.

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reducing dental pain. It has a wide variety of uses even in the field of Periodontics. Periodontitis has been proven to occur due to various periodontopathic bacteria's which has direct effect on periodontal tissues. Herbal medicine has an active role in reducing periodontitis. These can be used as a mouthwash, local drug delivery system in treating gingivitis, halitosis, for surgical wound healing, even in reducing inflammation around dental implants.

***Ocimum sanctum* Linn. (Tulsi)**

Tulsi was recognized thousands of years ago by ancient Rishis to be one of the India's greatest healing herbs. They saw this herb is so good for health and healing that it was declared as a God in itself [6]. Tulsi, the Queen of herbs, the legendary 'Incomparable one' of India, is one of the holiest and most cherished of the many healing and healthy giving herbs of the orient. The sacred basil, Tulsi, is renowned for its religious and spiritual sanctity, as well as for its important role in the traditional Ayurvedic and Unani system of holistic health and herbal medicine of the East [7].

Tulsi is a herb with its mythological background. It is supposed to be beloved of Lord Krishna, a reincarnation of Lord Vishnu. Tulsi was then established as one of the eight indispensable items in Vedic worship ritual to ensure that every house and temple had at least one Tulsi bush in its proximity. Still today Tulsi can be found planted in most homes in India and is most respected and honoured herb due to its continuing importance in healing, spirituality, culture and decorative aesthetics [6].

Oro-Dental Uses of *Ocimum Sanctum* Linn [8]

Oral infections

Tulsi leaves are quite effective in treating common oral infections. Also, few leaves when chewed help in maintaining oral hygiene. Carracrol and Tetsene are antibacterial agents present in this plant. Sesquiterpene b-caryophyllene also serves the same purpose. This constituent in FDA approved food additive which is naturally present in Tulsi.

Tooth Ache

Tulsi can act as COX-2 inhibitor, like modern analgesics due to its significant amount of eugenol (1-hydroxyl-2-methoxy-4 allyl benzene) *Ocimum sanctum* leaves contain 0.7% volatile oil comprising about 71% eugenol and 20% methyl eugenol.

Anticariogenic agent

Streptococcus mutans is a microorganism which has been well implicated in causing dental caries. In an in vitro study the various concentrations of the Tulsi extracts have been assessed against *Streptococcus mutans* and concluded that the composition of tulsi extract 4% has maximum antimicrobial potential.

Candidiasis

The antifungal activity of the essential oil of *Ocimum sanctum* and its two components i.e Eugenol and linalool have been investigated against two species of Candida (i.e *C. albicans* and *C. tropicalis*) which are known to cause oral candidiasis in a study and concluded that linalool is more promising and effective against candida.

Lichen planus

Ocimum sanctum have the unique property of acting on the skin and blood tissue and also bring about the desired immunomodulation and it is one of the treatment options in Ayurveda for treating lichen planus.

Leukoplakia and oral submucous fibrosis

Polyphenol rosmarinic acid present in tulsi can act as a powerful antioxidant so this property can therapeutically utilized in treating common oral precancerous lesions and conditions.

Pemphigus

Ayurvedic treatment aims at boosting the immune system and promotes healing of blisters and sores. Due to its immunomodulating property *Ocimum sanctum* may find its potential use in treating immunologically mediated mucosal condition called pemphigus.

Aphthous ulcerations

Ocimum sanctum at a dose of 100mg/kg was found to be effective antiulcer agent in a study. Anti-ulcer effect of *Ocimum sanctum* may be due to its cytoprotective effect rather than antisecretory activity. Conclusively *Ocimum sanctum* is found to possess potent anti-ulcerogenic as well as ulcer-healing properties and could act as a potent therapeutic agent against peptic ulcer disease. This property may also prove beneficial in oral ulcers.

Nutrient

Tulsi contains Vitamin A and C, calcium, zinc and iron. It also has chlorophyll and many other phytonutrients. Deficiency of these nutrients has been associated with variety of oral diseases.

Uses of *Ocimum sanctum* in Periodontitis [8]

The herb is useful in teeth disorders. Its leaves, dried in the sun and powdered, can be used for brushing teeth. It can also be mixed with mustered oil to make a paste and used as toothpaste. This is very good for maintaining dental health counteracting bad breath and for massaging the gums. It is also useful in pyorrhea and other gum disorders. The anti-inflammatory and anti-infectious properties of tulsi make it a powerful treatment for gum disease.

Chewing of tulsi leaves helps clear ulcers and infections of the mouth. As a mouthwash, it is useful against bad breath and for maintaining healthy gums. *Ocimum sanctum* seed oil appears to modulate both humoral and cell-mediated immune responsiveness and these immunomodulatory effects maybe mediated by GABAergic pathways. A study showed increase in antibody production due to the release of mediators of hypersensitivity reactions and tissue responses in the target organs by *Ocimum sanctum*. *Ocimum sanctum* has been shown to inhibit acute as well as chronic inflammation. The essential oil and seed extract act by the inhibition of cyclo-oxygenase and lipoxygenase.

Conclusion

Therapies involving plants have existed for thousands of years and some may be as old as human civilization itself. One such medicinal plant is "Tulsi" which is regarded as the "Queen of Herbs" because of its varied medicinal properties and mythological value too. Several pharmacological studies have established a scientific basis for therapeutic uses of this plant. It can prove beneficial in treating oral diseases also because of its antibacterial, anti-inflammatory, ulcer healing, antioxidant, immunomodulatory properties. Future studies should be directed to explore and evaluate therapeutic significance of this miraculous plant in periodontal diseases.

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