



TURMERIC AND ORAL HEALTH- A REVIEW

Dr Mohnish Muchhal^{1*}, Dr Sanchit Pradhan², Dr Mayank Das³

Abstract:

Turmeric has been used for thousands of years as a dye, a flavoring agent, and a medicinal herb. It has been extensively used in strengthening the body and as an immunity booster along with milk popularly known as 'Golden Milk'. Ancient Indian medicine has touted turmeric as an herb with the ability to provide glow and luster to the skin as well as vigor and vitality to the entire body. Since turmeric has antimicrobial, antioxidant, astringent, anticancerous and other useful properties, it is quite useful in oral health also. The objective of this article is to highlight various effects of turmeric in oral health along with its use in medical problems.

Keywords: Turmeric, Oral Health, Medicine, Disease.

^{1*}Assistant Professor, Department of Public Health Dentistry, Subharti Dental College and Hospital, Swami Vivekanand Subharti University, Meerut, Uttar Pradesh

²Associate Professor, Department of Public Health Dentistry, Subharti Dental College and Hospital, Swami Vivekanand Subharti University, Meerut, Uttar Pradesh

³Assistant Professor, Department of Public Health Dentistry, Subharti Dental College and Hospital, Swami Vivekanand Subharti University, Meerut, Uttar Pradesh

***Corresponding Author-** Dr. Mohnish Muchhal,

*Assistant Professor, Department of Public Health Dentistry, Subharti Dental College and Hospital, Swami Vivekanand Subharti University, Meerut, Uttar Pradesh Mail id -mohnishmuchhal@gmail.com

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Introduction: Turmeric has been used for thousands of years as a dye, a flavoring agent, and a medicinal herb. Turmeric, otherwise known as *Circuma longa*, is a member of the ginger family, Zingiberaceae. It has various species mainly *Circuma longa* *Circuma aromatica* *Circuma zedoaria* *Berberis aristata*.^[1]

The Latin name is derived from the Persian word, "kirkum," which means "saffron," in reference to the rhizome's vibrant yellow-orange color. It is indigenous to southeast Asia, but has long been used and cultivated throughout India.^[2] India produces most of the global supply of turmeric (Leung and Foster, 1996)^[3], but turmeric is cultivated also in southern China, Taiwan, Japan, Burma, and Indonesia as well as all through the African continent. In Brazil, the use of turmeric has increased mainly due to its coloring properties and ability to enhance the flavor of foods.^[4] The commercially available material (i.e., turmeric powder) in Europe is obtained mainly from India and somewhat from other south eastern Asian countries.^[5] It is most common in southern Asia and particularly in India. Apart from its culinary uses, turmeric has been used widely in the traditional medicine in India, Pakistan, and Bangladesh because of its several beneficial properties.^[6] According to Susruta Samhita, a traditional Ayurvedic Granth (Book), turmeric plant was an excellent natural antiseptic, disinfectant, antiinflammatory, and analgesic, while at the same time the plant has been often used to aid digestion, in improving diabetes, to improve intestinal flora, as well as topically to heal sores/injuries and also how can anyone forgot about golden milk which was tremendously used to increase immunity during this pandemic times. Also, our Ancient Indian medicine has touted turmeric as an herb with the ability to provide glow and luster to the skin as well as vigor and vitality to the entire body. In South Asia it has been used as a readily available antiseptic for cuts, burns, and bruises. However, several other beneficial properties are reported in folk medicine. The rhizome is widely used in Ayurveda and traditional medicine. Curcumin, the yellow colour pigment of turmeric, is produced industrially from turmeric oleoresin. Turmeric is commonly used as a spice and is well documented for its medicinal properties in India and Chinese system of medicine. It has been widely used for treatment of several diseases.^[4]

Chemical composition: It has various useful properties with antioxidant activities and is useful in conditions such as inflammation, ulcer and

cancer. The presence of various metabolites such as curcuminoid (curcumin) mainly 3-4%, volatile oil 3-6%, flavonoids, phenolics, some important amino acids, protein 3.8-6.8%, Vitamin A and high alkaloid content reveals its co-relation with medicinal uses.^[1,7]

Turmeric as antioxidant: Curcumin protects against free radical damage because it is a powerful antioxidant.^[8] Antioxidants scavenge molecules in the body known as free radicals, which damage cell membranes, tamper with DNA, and even cause cell death. Antioxidants can fight free radicals and can reduce or even help prevent some of the damage they cause.

Controlling Diabetes: Turmeric boosts glucose control and augments the effects of the medications which are used in the treatment of diabetes. It also reduces the body's resistance to insulin, which can prevent the development of type 2 diabetes.^[4]

Bacterial and Viral Infections: Curcumin and oil fraction suppress the growth of different bacteria such as Streptococcus, Staphylococcus, Lactobacillus, etc. Curcumin has also been shown to have antiviral activity.^[9] It acts as an efficient inhibitor of Epstein-Barr virus (EBV). More importantly, curcumin also exhibits anti-HIV (human immunodeficiency virus) activity by inhibiting HIV1 integrase necessary for viral replication. It also inhibits UV light induced HIV gene expression¹²⁷. Thus, curcumin and its analogues may have the potential for novel drug development against HIV.^[4]

Anticancerous Property Nitric oxide (NO) and its derivatives play a major role in tumor promotion. Curcumin also increases NO production in NK cells after prolonged treatment, resulting in a stronger tumoricidal effect.^[10] Curcumin also suppresses tumor growth through various pathways. Additionally, it appears to arrest cancer cells in the G2/M phase of the cell cycle, in which cells are more susceptible to the cytotoxic effects of radiation therapy.^[11]

Turmeric in periodontal disease: Curcumin demonstrates anti-inflammatory efficacies in terms of reducing gingival index (GI), sulcus bleeding index (SBI) compared with non-surgical periodontal therapy NPT alone. Additionally, curcumin is a natural herbal medicine with few side effects and is a good candidate as an adjunct treatment for periodontal disease.^[12] Also a meta-analysis done by Zhang et al., 2021 revealed that

local delivery of curcumin showed similar clinical efficacies to chlorhexidine, the gold standard as an adjunct to SRP [13]

Turmeric in oral submucous fibrosis Turmeric has promising results in the management of OSMF because of its potent anti-inflammatory and anti-oxidant pharmacological actions. [14]

Turmeric in mouthwash: Chlorhexidine gluconate as well as turmeric mouthwash can be effectively used as an adjunct to mechanical plaque control in prevention of plaque and gingivitis. Both the mouthwashes have comparable anti-plaque, anti-inflammatory and anti-microbial properties. [15]

Antifungal Property: Ether and chloroform extracts and oil of turmeric have antifungal effects (Apisariyakul et al., 1995) [16]. Crude ethanol extract also possesses antifungal activity. Turmeric oil is also active against *Aspergillus flavus*, *A. parasiticus*, *Fusarium moniliforme* and *Penicillium digitatum*. [17]

Oral candidiasis is common in dentistry and general practice. It is mainly caused by *C. albicans*. Several factors, including iatrogenic, pathophysiological and behavioral, may promote oral candidiasis. Study results showed *C. longa* is anticandidal in nature and also Alcoholic extract of *C. longa* is effective against *C. albicans*. [18]

CONCLUSION

“Turmeric,” we can say the drug with minimum or less side effects is being used effectively in various oral and medical problems.

Its use in oral health is also documented in several studies. Its easy availability, low cost and affordability make it a suitable candidate for use in various oral health remedies, especially in developing countries such as India. The anti-oxidant, anti-inflammatory, anti-microbial, antiviral, antifungal and anticancerous properties of turmeric and its other multiple therapeutic applications can be utilized to a wide extent not only in oral health, but also in improving various systemic disease.

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