

REVIEW ARTICLE

Curcuma Longa - A Propitious Future in DentistrySameera Shamim Khan¹, Renuka Verma¹, Akhtar Riaz¹, Malaykumar Baranwal¹**ABSTRACT**

Curcumin is a mild stimulant which is considered to be powerful healers and is beneficial in treatment of various health conditions like infections, cancer, diabetes, wounds and healing sores. Ancient Indian medicine has shown that curcumin has a persistent approach to provide glow, luster to skin and body parts as it contains active ingredient called curcuma. Being most beneficial ailment besides medicine it has various roles in dentistry also such as antioxidant, astringent, antiseptic and antimicrobial. It has a role in the treatment of periodontal diseases and oral cancer. Curcuma can also be used as a pit and fissure sealants, mouth wash and subgingival irrigant in different preparations. The objective of this paper is to review the efficacy of curcuma herb in maintenance of oral health, in particular and overall health in general.

Keywords: Curcuma, treatment, dentistry, ancient, natural

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INTRODUCTION

Curcuma longa traditionally known as Turmeric (haldi) is an herbaceous perennial plant of ginger family, Zingiberaceae. It is used in India for thousands of years and is major part of ayurvedic medicine, first used as dye and later as medicinal properties. It needs temperature between 68°F to 86°F and little amount of rain-

fall to thrive. It is usually found as long tube shape 3-4 inches in length with tapering ends. When dried it is made into powders by blending with various blending methods.¹ There are many benefits of curcuma including analgesic, antibacterial, anti-inflammatory, anti-tumor, anti-allergic, antioxidant, antiseptic, antispasmodic, appetizer, astringent, cardiovascular, carminative, digestive, and diuretic. The active constituent of curcuma is known as curcumin. It can be used in relief from pain and bleeding of gingiva in gingivitis and periodontitis, as colorant in pit and fissure sealant or in dental-plaque detection system. Chemopreventive activity of curcumin is observed when it is administered prior to during, and after carcinogen treatment as well as when it is given only during the progression phase of colon carcinogenesis.² It is used as spice in curries, flavouring and colouring agent in food. Chemical composition includes proteins (6.3%), fat (5.2%), minerals (3.5%), carbohydrates (69%), and moisture. It contains compounds known as curcuminoids consisting of curcumin, demethoxycurcumin and bisdemethoxycurcumin. The active constituent is diferuloylmethane, volatile oils including tumerone, atlantone and zingiberone.^{3,4} Its Latin name is derived from Persian word "Kirkum" meaning "saffron". At present it forms parts of several spice mixtures and sauces.⁵

PROFIT OF CURCUMA LONGA IN ROUTINE USE⁵

1. Natural antiseptic and antibacterial agent, useful in disinfecting cuts and burns.
2. Combined with cauliflower prevent prostate cancer and its growth
3. Reduces the risk of childhood leukemia.
4. Natural liver detoxifier.
5. May prevent metastases from occurring in many different forms of cancer.
6. Natural painkiller
7. May aid in fat metabolism and help in weight management.
8. Has long been used in Chinese medicine as a treatment for depression.
9. Natural treatment for arthritis
10. Speeds up wound healing and assists in remodeling of damaged skin.

ANTI DOTE OF CURCUMA LONGA

Anemia

1 tsp of curcumin juice mixed with honey to be taken daily.

Burns

1 tsp of curcumin with 1 tsp of aloe vera gel applies to burnt area.

Dental problems

1 tsp of curcumin with ½ tsp of salt, mustard oil makes a paste and rubs the teeth and gums with this paste twice daily.

Diabetes

½–1 tsp of curcumin 3 times a day.

Diarrhea

½ tsp of curcumin powder in water 3 times per day.

Pain

1 tsp of curcumin and 2 tsp of ginger with water to make a paste, spread over a cloth, place on the affected area and bandage. Add 1 tsp of curcuma to 1 cup of warm milk and drink before bed.

IMPLEMENTATION OF CURCUMA LONGA IN DENTISTRY

Pit and fissure sealant

It is useful for applying to tooth surfaces for reduction of dental caries. It consist of polymerizable resin and a colorant consisting of Annato extract and curcumin extract.

Dental-plaque detection system

Dental plaques are not easily identified by the naked eye, difficult to confirm their attachment site and extent so dental plaques are stained with dental-plaque staining agents containing dyes to reveal their locations in order to uncover the attached dental plaques. The dental-plaque detection system includes a dental-plaque staining agent which contains curcumin extracts and light-emitting apparatus which outputs light having wavelength of approx. 250 to 500 nm to an object in the oral cavity where the dental-plaque staining agent is attached.⁵

Dental pain

Massaging aching teeth with roasted ground curcumin eliminates pain and swelling.

Anticariogenic property

Curcumin possess anticancer behaviour because of its activity in biological pathways involved in mutagenesis, metastasis, oncogene expression, apoptosis and cell cycle regulation. It serve as enhancer of radiotherapy and chemotherapy.

Subgingival irrigant

Studies show use of curcumin in reduction of bleeding on probing and redness when compared with other irrigants, thus 1 % of curcumin solution can cause better resolution of inflammation signs and can be used as saline irrigation as subgingival irrigant.^{6,7,8,9}

Surgical wound healing

Habiboallah et al. performed study to compare effects of curcuma longa and hyaluronic acid on gingival wound healing following surgery; significant difference in inflammatory and repair parameters of healing process was noted in periodontal treatment.

Local drug delivery system

In treatment of periodontal pockets 2% of curcumin gel can be used as an adjunct to scaling and root planning alone.

Antioxidant property

Oxidative damage to oral tissues results from exposure to chemicals or biochemical found in teeth whitening products, dental restoration, tobacco and alcohol. Antioxidants are first line defence against free radical damage and maintaining of oral health. Its supplementation is excellent way of improving free radical protection.^{10,11,12}

Precancerous lesion and conditions

Curcumin extract and oil have demonstrated in onco-preventive activity in vitro and in vivo experiments as an upcoming role in treatment of few pre cancer lesions and conditions like oral submucous fibrosis, leucoplakia and lichen planus. Local symptoms of burning and pain sensation were reduced and partial opening of mouth was also observed.¹³

CURCUMIN MEDICINAL USES

Digestive Disorders

Curcumin is considered as a digestive bitter and a carminative. It can be added into foods to improve digestion, reduce gas and bloating. It is a cholagogue, stimulating bile production in the liver and encouraging excretion of bile via the gallbladder which improves

the body's ability to digest fats. Curcumin is beneficial for people who feel tired after consuming meals or who experience gas and bloating. Whatever way Curcumin is consumed it is beneficial to both the digestive system and the liver.

Atherosclerosis

Curcumin play significant role in preventing the blockage of arteries that cause a heart attack or stroke. It makes cholesterol levels low and inhibit the oxidation of LDL, prevent platelet build up along the walls of an injured blood vessel. Platelets collecting at the site of a damaged blood vessel cause blood clots and cause blockage of the artery as well.⁵

SAFETY ASPECTS

1. Cost effective
2. Human consumption of Curcumin ranges up to 100mg/ day
3. Humans can tolerate a dose of Curcumin up to 12gm/ day without any toxic side-effects

CONCLUSION

Curcumin a rich known spice has been use since ancient times for various medicinal purposes and has found to be safe and possess wide range of beneficial properties. Research studies of curcumin keeps on increasing across the globe it holds promising future in therapeutic applications including dentistry.

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