

Use Of Triphala Mouthrinse In Periodontal Disease

1. Dr. Kalicheti Deepika

Postgraduate

Department Of Periodontics

Sree Balaji Dental College

Chennai

deepika.kalicheti44@gmail.com

Phone No: 9700638656

2. Dr. J. Bhuvaneshwarri

Professor

Department Of Periodontics

Sree Balaji Dental College And Hospital

Chennai

drbhavana22@gmail.com

Phone No: 9994044047

ABSTRACT:

Triphala is a combination of 3 medicinal plants, used extensively in Ayurveda since ancient times. Triphala mouthwash is used for treating periodontal diseases because of its antimicrobial and antioxidant properties. This article reviews the use of Triphala as a mouthrinse in periodontal disease.

KEYWORDS: *Ayurveda, Triphala, Mouthwash, periodontal disease*

INTRODUCTION :

Periodontal disease occurs when the pathogenic microorganisms present in plaque acts on a susceptible host.¹ Supragingival plaque control is needed for prevention and management of periodontal diseases², either mechanically or chemically. Mechanical plaque control is difficult in medically compromised patients because of poor tooth-cleaning habits. Certain teeth surfaces will not be able to reach while tooth brushing. Thus, an adjunctive use of chemical agents is performed. Chemical supragingival plaque control has been focused for extensive research for 3-4 decades now. Various agents like antimicrobial and prevent the bacterial proliferation phase of plaque development have been introduced. Chlorhexidine (CHX), a cationic bisbiguanide is a gold standard among all mouthwashes^{3,4,5}, particularly because of its substantivity and broad-spectrum antibacterial activity but it has several side effects on long term use like brown discoloration of teeth, taste perturbation, oral mucosal erosions, and enhanced supragingival calculus formation.

Triphala is a combination of 3 medicinal plants, **Amalaki** *Phyllanthus emblica* (syn. *Embolia officinalis*) *Phyllanthaceae* family, **Haritaki** (*Terminalia chebula*), and **Bahera** (*Terminalia*

bellirica) Combretaceae family, and has been used in Ayurveda since ancient times extensively. It plays a very important role by acting as a tool for improving the body's immunity as it readily promotes the body's ability to form antibodies and fight against invasion of antigens.⁶ Amalaki is a good source of vitamin C and contains nicotinic acid, carotene, D-fructose, riboflavin, D-glucose, empicol, and mucic and phyllemblic acids. Haritaki, a traditional medicine has wide spectrum of pharmacological actions associated with the presence of biologically active chemicals. It contains anthraquinone glycoside, terchebin, vitamin C, and arachidinic, linoleic, oleic, palmitic, stearic, chebulinic and tannic acids. It inhibits the rate of cell proliferation and cell death in the cancer cells. Bahera contains chebulagic and ellagic acids and its ethyl ester, gallic acid, fructose, galactose, glucose, mannitol, and rhamnose⁷. The antioxidant activity of the extract was indicated by reduced lipid peroxide levels in treating wounds⁸. The dried fruit of the 3 plants and triphala are easily available and cost effective. Antioxidants in triphala will slower the process of excess oxidation and protect cells from the damage by free radicals^{9,10}. The antioxidant property is very helpful in treating oxidative stress-related diseases, mainly precancerous/premalignant conditions, and helps in prevention of cancers and is proven. These antioxidants have also been proven to be a safe and effective medicine against various oral health problems such as bleeding gums, halitosis, and mouth ulcers, and for preventing tooth decay. The major strength of these natural herbs is that thus far, no side effects of their use have been reported.¹¹ *Sushruta Samhita*, in its 20th shloka, states that triphala can be used for gargling in dental diseases. Abraham et al. reported the strong inhibitory action of triphala against the PMN leukocytes-type collagenases, particularly MMP9, and is confirmed to use triphalain treating periodontal diseases. Triphala has been reported to have antioxidant, anti-inflammatory, antiseptic and antimicrobial properties. Its other advantages are easy availability and cost effective.

MARKED FORMULATION OF TRIPHALA :

Triphala tablet, Triphala choorna

Formulation of choornam: A dry fine powder form of the drug choornam, can be used both externally and internally.

Preparation: The drug is selected, then washed, cleaned, dried and crushed to a fine powder using a crusher. To improve the therapeutic effect, fine powder is to be prepared. In case of compound choorna, each drug is powdered separately, and then all individual drug powders are mixed together finally. The choorna should be fine of at least 80 mesh sieves.

Decoction form : It can be used as an eyewash or mouthwash.

Preparation: After cleaning the dried fruits, seeds are removed, the powder is made separately from the three dried fruits. All the 3 powders are mixed in equal amounts to form a uniform mixture. This mixture is to be added to 16 times water for an hour and then boiled till half of the water remains. The mixture is filtered through fine cotton cloth and stored in a clean bowl or jug. Slightly warm decoction can be used for washing eyes after its preparation at the earliest.

Effect On Triphala Mouthwash On Dental Biofilm:

Microorganism was first observed in human dental plaque. Dental plaque is referred as bacterial cell aggregates embedded in a polysaccharide and protein matrix that adheres to teeth by a characteristic bacterium, *Streptococcus mutans*. This organism metabolizes sucrose in a peculiar way, producing an extracellular adhesive polysaccharide (dextran), a sticky insoluble glucan which promotes the firm adherence of the organisms to the tooth surface contribute the formation of dental plaque, which leads to localized decalcification of the surface of the enamel. Several anti-plaque agents are being available. However, due to several undesirable side effects associated with these agents stimulated the search for alternate agents. In recent years, there has been focus on plants or plant products used in dental practice or in Unani, homeopathic or Ayurvedic remedies. One such herbal cocktail is Triphala, the herbal product of equal proportion of dry powder of *Terminalia chebula*, *Terminalia*

belerica and *Emblca officinalis* being used extensively in Indian system of medicine having anti-diabetic and antioxidant activity. It has also been used as laxative in Siddha and Ayurveda medical systems.

Triphala As A Mouth Rinse :

Ayurvedic drugs have been used since ancient times. Oral rinses made using triphala and other 3 plants are used in periodontal therapy. Triphala has a wide spectrum of activity. Triphala can be used as gargling agent in dental diseases.

0.6% Triphala mouthwash shows anti-caries activity and is compared to chlorhexidine that doesnot havedisadvantages like staining and less cost and there was no evidence of re-mineralization of tooth.

Triphala mouth rinse when used while scaling and root planing showed significant reduction in the plaque, gingival, and oral hygiene indices without any evidence of staining of teeth at 7, 30, and 45 days, which was compared to reduction obtained by chlorhexidine mouth rinse used along with scaling and root planing.

Triphala mouthwash can be used twice-daily combined with metronidazole 400 mg thrice-daily when compared with 0.2% chlorhexidine with metronidazole 400 mg thrice-daily and Triphala mouthwash with oral powder of Triphalain a study showed improvement in reduction in mobility, pocket depth, bleeding gums, hypersensitivity, and calculus formation with minimal recurrence.

DISCUSSION :

The efficacy of triphala in treating the periodontal disease was proved as identical when compared to any modern drug. A study done using triphala decoction ,concluded that triphala has a good antibacterial property and it is sensitive to 16 (72.7%) bacteria out of 22. Although triphala is used for curing periodontal diseases without any side effects or toxicity , a detailed scientific enquiry is required to explain various aspects of pharmacological and clinical effects of triphala before recommending for the treatment of periodontal disease. However, it is further suggested that triphala and metronidazole can be used as a combined treatment regimen for local (like gargling and mouthwash) and systemic administration.

The unique aspect of the work is to confirm the importance of herbal product for its medicinal, antioxidant and antimicrobial relation. The results showed that Triphala (equal proportions of *Terminalia chebula*, *Terminalia belerica* and *Emblca officinalis*) had potent antioxidant and antimicrobial activities and inhibits the growth of *S. mutans*, gram positive cocci, those are involved in causing plaque formation when it is adsorbed to the tooth surface. The antioxidant activity of Triphala can be partially responsible for many of the biological properties. *T. belerica* was the most active antioxidant which is then followed by *E. officinalis* and *T. chebula*. The major ingredients of *T. belerica* are ellagic and gallic-acid; *E. officinalis* has gallic acid derivatives and epigallocatechin gallate and in *T. chebula* gallic acid is the major ingredient . The presence of these active ingredients of phenolic nature may be responsible to scavenge the free radicals generated by ABTS.+ in a solution. Tannic acid is the major constituent of the fruit of *T. chebula*, *T. belerica* and *E. officinalis*. Earlier studies reported that tannic acid is bacteriostatic or bactericidal to some gram positive and gram-negative pathogens. Similarly, the ethanol extract of herbal powder showed antibacterial activity in minimum concentration of 50µg/ml against *S. mutans* in this study. *S. mutans* adheres to the tooth surface by virtue of its glucan binding protein that leads to the formation of dental plaque. An in-vitro study on the formation of a pellicle over the human tooth surface was performed before and after exposure to the drug. Adherent and non-adherent cells could be measured for the relative effectiveness of the drug. The results showed the effectiveness of Triphala as a strong antiplaque agent. Probably the tannic acid (in Triphala), can be adsorbed well to the hydroxyapatite of the tooth or to the salivary mucins, alternately it can be bound to anionic groups on the surface of the bacterial cells, which results in protein denaturation and lead to bacterial cell death. The increased oxidative stress has been postulated in the diabetic state. Hence, the effective antioxidant property present in the extract may be useful in the treatment of diabetic patients having dental carries; whereas the

sweetener present in the commercial pastes can delay the healing process or can harm the tooth. The extract of Triphala can be employed as an effective agent to treat dental carries and to prevent the formation of dental plaques. Since the formulation is of herbal nature, it is renewable and can be made cheaper.

CONCLUSION:

From this article it was concluded that , 0.6% triphala prevents plaque formation and shows its effect on gingival health and has inhibitory effect on microbial count like Streptococcus mutans and Lactobacillus.

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