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ROLE OF TRIPHALA MOUTHWASH IN GINGIVITIS AND PERIODONTITIS: A NARRATIVE REVIEW

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ABSTRACT
Aim:To assess the effectiveness of Triphala against gingivitis and periodontitis. Triphala is a mixture of three myrobalans known as Emblica officinalis (Amalaki), Terminalia bellerica (Bibhitaki), Terminalia chebula (Haritaki)
Methods: A search of the PubMed, Google Scholar, Web of Science and Scopus database was conducted.
Results: Triphala possess varying therapeutic potentials. Particularly antimicrobial and anti-inflammatory, anti collagenase and anti oxidant properties are of greater importance in dentistry. Various studies show that Triphala is equally as effective as a standard chemotherapeutic agent that is chlorhexidine in treatment and prevention of gingivitis and periodontitis respectively.
Conclusion: Triphala can be a promising therapeutic agent in treatment of gingivitis and peridontitis with no side effects on long term use.

Keywords: Triphala, gingivitis, periodontitis, chlorhexidine

INTRODUCTION

For ages societies and cultures had developed and practiced their own medical system. Ayurveda, apart from unani siddha, homoeopathy, yoga, and naturopathy, it is one of the traditional ancient medical systems used in all parts of India..The Ayurvedic system of medicine propagates the "Tridosha theory" of disease and its treatment includes internal purification followed by customising their diet, herbal remedies, massage, yoga and medication. Plant based preparation are used as medicamants in the Ayurvedic healing process [1].

One important mile stone in public health during the 19th century is the Alma Ata Declaration of "Health for All" in 1978. Primary health care was taken as a key for this attainment, and WHO endorsed traditional herbal medicine to improve the health benefits of the population [2]. Practice of herbal medicine for more than thousand years and sharing of its experience by generations increased the reliance of the people on these herbal remedies. Whereas the safe and appropriate use of the herbal medicine was questionable due to its lack of scientific evidence and many of its properties are remaining unexplored.

After 21th century the Ayurvedic schools started to work on the scientific rooting of the Ayurvedic principles and today they are successfully playing a vital role in the evidence based

medicine. For their basic healthcare needs, 80% of the population today relies on herbal medicine. Twenty five percent of medical drugs in developed countries are based on plant products, which are cost effective. In most of the national healthcare settings it is the reality that most of the people take herbal medicine and their products for their health care [3].
Natural ingredients have increasingly played an important role in the control and treatment of oral diseases. Because of its varying therapeutic value herbal extracts has gained its importance in preventing and treating varying diseases of oral cavity like gingivitis, periodontitis and dental caries. Of which Triphala is one promising drugs in Ayurveda which strengthen its role in health promotion in India over 1000 years. It is composed three myrobalans (Terminalia bellerica (Bibhitaki), Emblica officinalis (Amalaki), Terminalia chebula (Haritaki)). [4], [Table 1].

Table 1 Components of Triphala and theirproperties [4-8]

S. No	Herbs	Botanical Name	Properties
1.	Amla	Emblica officinalis	Immunomodulatory, anti-oxidant, anti-pyretic, anti-inflammatory, analgesic, cytoprotective, anti-tussive, anti-plaque, anti-microbial and gastroprotective agent.
2.	Bibhitaki	Terminalia bellerica	Laxative, astringent, anthelmintic, antipyretic, antioxidant, antiemetic, anti-inflammatory, anti-diabetic, anti-diarrheal, analgesic, antispasmodic and anti microbial.
3.	Haritaki	Terminalia chebula	Cytoprotective, antidiabetic, Reno protective, anti-inflammatory, antiarthritic, adaptogenic, antianaphylactotic, hypolipidemic, hypocholesterolemic, gastro intestinal motility, antispasmodic, antiulcer, wound healing, purgative, anti allergic, anti bacterial, anti- caries, and immunomodulatory.

LITERATURE SEARCH

The literature search was performed in the electronic data base such as Pub Med, Google Scholar, Web of Science, and Scopus. The literatures pertaining to the role of Triphala in health and oral health were collected using the scientific key words. Randomized controlled trials assessing the effectiveness and efficacy of Triphala against chlorhexidine were collected to summarize the existing evidence of use of Triphala in treatment of gingival and periodontal diseases

Triphala and Its Role in Health

In Ayurveda, Triphala is used as a cornerstone in treating various diseases. Triphala is a strong polyherbal preparation which also helps in maintaining the equilibrium of the body. Triphala has its role in treating gastrointestinal disordes, stress-induced disorders, diabetic, obesity, cardiovascular diseases and various studies proven that Triphala has an antimicrobial, radio protective, anti-neoplastic, antioxidant, anti-inflammatory and anti aging Properties. [9-17]

Emergence of Triphala in Dentistry

Shalyatantra and shalakyatantra are branches in Ayurveda which deals with the oral diseases. The study of innumerable plants in traditional medicine leads to the development of alternative methods for prevention in oral health. The novelty of using plant extracts has been incorporated in dentistry, particularly for treating and preventing gingivitis, dental caries and periodontal

disease. Triphala has a satisfactory and superior effect on prevention of dental diseases. Various studies show that individual ingredients of Triphala (haritaki, bibitaki and amlaki) also been found to be effective for the same.[18].
The phytochemicals of Tripahala are tannins, quinones, flavonoids and flavonols, gallic acid and vitamin C, and the antimicrobial action of tannins, quinones, flavones, flavonoids, and flavonols. Hepatoprotective and antioxidant activity occurs in gallic acids. In the healing process, vitamin C and bioflavonoids serve as a catalyst. [18].

Triphala and its preparation

Triphala is prepared by powdering the myrobalans that is haritaki, bibitaki and amlaki in the ratio of 1:1:1 or 1:2:4 respectively [19].
Preparation: The Triphala choorna is prepared by powdering all the three dried fruits into fine powder using a pulverize and mixing it together in the recommended ratio. The fineness of the powder enhances its efficacy. The fineness of the choorna should be of 80 mesh sieve [20].

Therapeutic Uses of Triphala

Triphala has gained popularity with it being used as a supplement in diet, a source of energy and a product to bring about weight loss [4]. In recent times dentistry also began to use Triphala for satisfactory treatment of 'oral diseases'. Studies have shown that Triphala has an anti-microbial, antibacterial, antioxidant and anti-inflammatory properties in their formulation which is of wide spread interest in dentistry [18]. As a result of opening up of novel functions of herbal agents in global dental therapy, Triphala also gained its importance in dentistry for its abundant therapeutic values.

Effect of Triphala on Plaque and Gingivitis

An organized biofilm found on the surfaces of the teeth is a dental plaque. Dental decay and teeth-supporting tissue disease are multi factorial in origin, and dental plaque acts as a dominant etiological agent for the initiation and progression of these diseases. Inflammatory processes are initiated by the dental plaque on the gingival margin and become chronic in nature. Protein profile conversion and changes in microbial colony shifts are reported from healthy to diseased status during tissue transition. [21].
Two conventional methods practiced in dentistry for control of gingivitis are mechanical and chemical plaque control. The challenges faced in the mechanical plaque removal were variation in oral health practices, individual's efficiency in cleaning all tooth surface and inadequate time for brushing [22]. On account of which mechanical plaque removal alone seems to be ineffective and there was an increase in the prevalence of gingivitis. Chemical plaque control has been used as an adjuncts but it has its own drawbacks such as tooth staining, decreased taste sensation in long term use and permanent damage to hard tissue. Therefore traditional herbal agents are suggested as an alternate to chemical agents [23].
Clinical trials have been postulated in different age groups to prove the antiplaque efficacy and effectiveness of Triphala on gingivitis. Results show that Triphala is similar or superior to the gold standard medicament chlorhexidine (CHX) in preventing plaque formation with no adverse effects [Table 2], [24-30].

Table 2 Randomized clinical trials comparing the effect of Triphala with chlorhexidine in gingivitis

S.No	Author and Year	Type of study	Concentration	Outcome measures	Result
1.	Neeti Bajaj et al (2011)	In-vivo study	0.6% of triphala mouth rinse	PI and GI	As effective as chlorhexidine
2.	Ritesh Bhattacharjee et al (2014)	In-vivo study	0.6% of triphala mouth rinse	PI and GI	As effective as chlorhexidine
3.	Neha Kadian et al (2016)	In-vivo study	6% Triphala mouthwash	PI and GI	As effective as chlorhexidine
4.	Dr. A R Pradeep et al (2016)	In-vivo study	6% triphala mouthwash	PI and GI	As effective as chlorhexidine
5.	Sahana Umesh Baratakke et al (2017)	In-vivo study	0.6% of triphala mouth rinse	PI and GI	As effective as chlorhexidine
6.	Ananth Raghav Sharma et al (2018)	In-vivo study	0.6% of triphala mouth rinse	PI and GI	As effective as chlorhexidine

PI- Plaque Index
GI- Gingival Index

Effect of Triphala on periodontitis

Periodontitis has a multifactorial etiology involving group or specific group of microorganism, host response, local, environmental and genetic factors. Periodontitis has a broad range of therapies which involves more than one form of treatment approach for treating either one or all periodontal diseases. Chemotherapeutic agents, resective procedures, regenerative procedure, plastic surgery and occlusal therapy are the following courses of treatment suggested for periodontitis based on its severity [31]. Systemic antibiotic was the traditionally used as non surgical chemotherapeutic agents. Patient compliance to dose; varying absorption in gastrointestinal tract; raising antimicrobial resistance and use in conjunction with mechanical debridement were some of the short comings of this treatment approach. The use of Local antibiotics had only minimal differences when compared to scaling and root planning. Chemical agents (chlorhexidine, triclosan, cetylpyridinium chloride) have only limited value [32]. Due to its multifactorial etiology it becomes a formidable task for dentist to provide treatment for periodontitis.

Triphala is a strong antimicrobial, anti- collagenase and antioxidant medicamant. It can prevent free radicals from causing cell damage. In periodontal disease patients of all age classes, the effectiveness of triphala as a mouthwash was compared with 0.2 percent chlorhexidine. Studies have shown that mouthwash with Triphala is as effective as 0.2% chlorhexidine mouthwash [33-36], [Table 3].

Table 3 Randomized clinical trials comparing the effectiveness of Triphala with chlorhexidine in treatment of periodontitis

S.No	Author and Year	Type of study	Concentration	Outcome measures	Results
1.	D.K MAURYA et al (1997)	In-vivo study	3 gms of triphala mouth rinse	PI, GI, mobility of tooth and sensitivity of teeth	As effective as chlorhexidine
2.	Anupama Desai et al (2011)	In-vivo study	Triphala powder to water in the ratio of 1:16.	PI, GI, , russels periodontal index and oral hygiene index	As effective as chlorhexidine
3.	Ritam S. Naiktari et al (2014)	In-vivo study	10 g of triphala powder to 10 ml of boiling water	PI and GI	As effective as chlorhexidine
4.	Mohammed Irfan et al (2017)	In-vivo study	-	PI and GI	As effective as chlorhexidine

PI- Plaque Index
GI- Gingival Index

CONCLUSION

Ayurveda is a centuries-old Indian medicinal system. Triphala has been an important medicine used in ayurveda from antiquity. Triphala is one important drug gifted by Ayurveda to the world. Triphala is a powerful polyherbal formula which helps to maintain the body equilibrium and is effectively used in prevention and treatment of diseases. Researchers found that Triphala has effective therapeutic properties that treat oral diseases such as gingivitis, and prevent periodontitis by significantly reducing the oral bacteria in the dental plaque. As per the scientific literature it is an appropriate medicament for promotion of oral health at minimal cost. Hence Triphala is of high medicinal value as it is both affordable and accessible in developing countries like India

FOOT NOTES

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