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Original Research Article

Rinsops; Towards better gingival health

Apoorva Salve[1]*, Salman Ansari[1], Prajakta Heda[1], Rutuja Dani[1], Apeksha Gajghate[2], Yugeshwari Rathod[3]

[1]*Dept. of Periodontology, Swargiya Dadasaheb Kalmegh Smruti Dental College and Hospital, Nagpur, Maharashtra, India*
[2]*Dept. of Periodontology, Private Practitioner, Nagpur, Maharashtra, India*
[3]*Dept. of Conservative Dentistry and Endodontics, Government Dental College and Hospital, Mumbai, Maharashtra, India*

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ABSTRACT

Introduction: Although CHX is considered the most effective oral antiseptic agent, the use of CHX for extended periods of time is related to some side-effects, such as tooth and tongue staining, bad taste and reduced taste sensation. The current study is designed to evaluate effectiveness of Mimusops elengi (Bakul) extract for chemical plaque control in the form of mouthwash for plaque control and treatment of gingivitis.
Materials and Methods: In this double-blind intervention, 60 subjects were selected and randomly divided to two groups: 1) Group A: Chlorhexidine mouthwash 2) Group B: Rinsops (Mimusops elengi) mouthwash. Before taking the mouthwashes and two weeks later plaque index, gingival index and tooth staining index were recorded. Independent t-test was used for data analysis.
Results: Both CHX and Rinsops reduced the amount of plaque and gingival indices ($P < 0.001$). The CHX mouthwash had greater efficiency in reducing plaque and gingival indices compared to Rinsops, although the difference was not statistically significant ($P > 0.05\%$). Furthermore, CHX and Rinsops increased the staining and the intensity of the stained area indicators yet the amount and intensity of the staining in the use of CHX was more, and the difference was not statistically significant.
Conclusion: Within the limitations of study, Rinsops mouthwash that is elective on periodontal indices can be recommended to the patients for chemical inhibition of plaque and in treatment of gingivitis.

1. Introduction

Gingivitis is the presence of gingival inflammation without loss of connective tissue attachment.[1] The precursor to gingivitis is undisturbed dental plaque biofilms.[1] Gingivitis is preventable by routine oral care, but if untreated may lead to a severe gum disease known as periodontitis. Periodontitis refers to a disease condition in which supporting tissues of the teeth, such as connective tissue and bone, are destroyed by plaque-induced inflammation.

Antibacterial agents such as chlorhexidine (CHX), cetylpyridinium chloride (CPC), triclosan, essential oils, zinc salts, hydrogen peroxide, sodium bicarbonate and chlorine dioxide (ClO2) have been tested, either alone or in different combinations. Among the various chemotherapeutic agents used in mouthwashes, Chlorhexidine is considered as the 'gold-standard' for comparison with other substances due to its proven efficacy.[2,3] Although CHX is considered the most effective oral antiseptic agent, the use of CHX for extended periods of time is related to some side-effects, such as tooth and tongue staining, bad taste and reduced taste sensation.

* *Corresponding author*.
E-mail address: apoorvasalve@gmail.com (A. Salve).

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Alternately, traditional medicine is used to prevent tooth decay, oral malodor, bleeding of gums and dryness of mouth.

Mimusops elengi Linn (Sapotaceae) commonly known as Bakul, is a small to large evergreen tree found all over the different parts of India. It has been reported as dantarogahara (treats and prevent tooth decay and tooth disease) in Ayurveda. It possess activities like antibacterial, antihemorrhoidal, antifungal, anticariogenic, free radical scavenging antihyperglycemic, antineoplastic, gastroprotective, antinociceptive & diuretic effects, antiviral, cognitive enhancing activity and cytotoxic activity.The bark of M. elengi is acrid, astringent and is used as a gargle for odontopathy, inflammation and bleeding gums.

To the best of our knowledge, Mimusops elengi has not yet been solely used as a Mouthrinse in dentistry. The current study is designed to evaluate effectiveness of Mimusops elengi (Bakul) extract for chemical plaque control in the form of mouthwash for plaque control and treatment of gingivitis.

2. Aim & Objectives

To evaluate and compare the effectiveness of two different mouth rinses for chemical plaque control in treatment of gingivitis.

3. Material and Methods

A total of 60 healthy subjects with signs of Gingivitis were selected from the Outpatient department of Periodontology, Swargiya Dadasaheb Kalmegh smruti dental college and hospital, Nagpur. Patients with any presence of systemic disease, smoking, periodontal disease patients or taking antibiotics or any other mouthwash were excluded from the study. A detailed case history and informed consent was taken by each subject before the intervention. Both the patient and the examiner were unaware of the mouthrinse they received.

Subjects were randomly divided into two groups;

1. Group A- (Control group): Chlorhexidine Mouthrinse. (30 patients)
2. Group B- (Test group): Mouthrinse containing Mimusops elengi (Bakul) extract. (30 patients)

Subjects were asked to use 15 cc of mouthwash, which they received, two times a day (each time for two minutes) for two weeks.

Clinical parameters such as Plaque Index (PI), Gingival Index (GI) and tooth staining were evaluated at baseline and after 14 days.

4. Results

Comparison of the mean and standard deviation of the eects of Rinsops and Chlorhexidine on the periodontal index before and after taking the mouthwash.

Table 1:

Group	Mean ± Std. Deviation	P Value
PI before		
A	31.800±7.25412	0.786
B	30.800±8.91690	0.786
PI after		
A	16.600±4.19524	0.221
B	14.300±3.91720	0.221
GI before		
A	1.1050±0.70669	0.754
B	1.0110±0.61022	0.754
GI after		
A	0.6745±0.42406	0.796
B	0.6270±0.40128	0.796
Stain index		
A	0.3690±0.14487	0.485
Area before B	0.4250±0.20079	0.484
Stain index		
A	0.6640±0.21392	0.946
Area after B	0.6580±0.17700	0.946

Both CHX and Rinsops reduced the amount of plaque and gingival indices ($P < 0.001$). The CHX mouthwash had greater efficiency in reducing plaque and gingival indices compared to Rinsops, although the difference was not statistically significant ($P > 0.05\%$).

Furthermore, CHX and Rinsops increased the staining and the intensity of the stained area indicators yet the amount and intensity of the staining in the use of CHX was more, and the difference was not statistically significant.

5. Discussion

The most important etiological periodontal disease is dental plaque and chemical agents, such as antimicrobial materials, by inhibition of plaque, play an important role in the prevention and treatment of periodontal diseases. Chlorhexidine is the gold standard of dental plaque prevention.

Haydari M et al. (2017) compared the plaque and gingivitis inhibiting effect of commercial products containing 0.2%, 0.12% and 0.06% chlorhexidine in a modified experimental gingivitis model. They concluded that a commercially available mouthwash containing 0.2% chlorhexidine had statistically significant better effect in preventing dental plaque than the 0.12% and 0.06% solutions.[4] The benefits of ayurvedic medicine in dental

care and treatment are gaining popularity, as the products and practices used are natural and safe and help in balancing prevention and cure.[5] Chlorhexidine shows different effects at different concentrations; at low concentrations the agent is bacteriostatic, whereas at higher concentrations the agent is rapidly bactericidal.[6]

Mimusops elengi Linn (Sapotaceae) commonly known as Bakul, is a small to large evergreen tree found all over the different parts of India. Phytochemical investigations of methanolic extract of M. elengi revealed the presence of alkaloids, steroids, triterpenoids, tannins, flavonoids and phenolic compounds. Due to its anti-microbial, anti-inflammatory, anti-oxidant and wound healing properties of bark of M. elengi it is a potent antimicrobialagent for treating gingivitis.

Dash S et al. (2019) tested antimicrobial activities of Mimusops elengi Linn. In vitro and gave the varying values of inhibition zone diameter, on their application against the microorganisms with the safe conclusion on the fact that the solvents could extract the different bio-organics varying in number and antimicrobial potential(s).[7]

In the present study, CHX mouthwash had greater efficiency in reducing plaque and gingival indices compared to Rinsops, although the difference was not statistically significant. CHX and Rinsops increased the staining and the intensity of the stained area indicators yet the amount and intensity of the staining in the use of CHX was more, and the difference was not statistically significant. Hence Mimusops elengi showed comparable results with CHX in the study for treatment of gingivitis.

6. Conclusion

Within the limitations of study, Rinsops mouthwash proved to be effective in reducing gingival inflammation. Although CHX showed better results, Rinsops can be recommended to the patients owing to its cost effective factor and minimal side effects for chemical inhibition of plaque and in treatment of gingivitis.

7. Source of Funding

None.

8. Conflict of Interest

None.

9. Acknowledgment

Copyright- The mouthwash used in this study has been registered at copyright office of India. Registration No. L-108026/2021.

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Author biography

Apoorva Salve, Post Graduate Student

Salman Ansari, Professor & HOD

Prajakta Heda, Post Graduate Student

Rutuja Dani, Post Graduate Student

Apeksha Gajghate, Consultant Periodontology

Yugeshwari Rathod, PG Fellowship Student

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