Research Article

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A Comparative Evaluation of Ocimum Sanctum, Aloe Vera and Chlorhexidine Mouthwash in Patients with Gingivitis

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ABSTRACT

Background: Periodontal health is a vital and integral component of overall dental health. The present study was conducted to compare Ocimum sanctum, Aloe vera and chlorhexidine mouthwash in gingivitis.

Materials & Methods: 90 patients with gingivitis were divided into three groups of 30 each. Group I patients was given O. sanctum mouth wash 10 ml twice daily, group II patients were given A. vera mouth wash 10 ml twice daily, and group III patients were given chlorhexidine mouthwash 10 ml twice daily. Plaque index (PI), gingival index (GI) and sulcus bleeding index (BI) were recorded at baseline, 15 days and 30 days.

Results: The mean plaque index was 0.89, 0.65 and 0.64 in group I, 0.78, 0.64 and 0.61 in group II and 0.92, 0.43 and 0.18 in group III at baseline, 15 days and 30 days, respectively. The mean gingival index was 0.63, 0.54 and 0.48 in group I, 0.56, 0.46 and 0.42 in group II and 0.64, 0.42 and 0.22 in group III at baseline, 15 days and 30 days, respectively. The mean bleeding index was 0.72, 0.62 and 0.61 in group I, 0.53, 0.40 and 0.37 in group II and 0.64, 0.33 and 0.16 in group III at baseline, 15 days and 30 days, respectively.

Conclusion: Both O. sanctum and A. vera prove to be as effective as chlorhexidine mouthwash.

Keywords: Aloe vera, Chlorhexidine, Ocimum Sanctum.

INTRODUCTION

Periodontal health is a vital and integral component of overall dental health. Epidemiological studies have demonstrated that when periodontal disease is uncontrolled, it can act as a crucial factor in tooth loss.[1] The mainstay of prevention of periodontal disease is regular and adequate plaque control using personal oral hygiene protocol and periodic professional review and maintenance wherever indicated.[2] Though mechanical plaque control is the most effective oral hygiene measure, and acceptable plaque removal requires time, motivation, and manual dexterity. This, in turn, has led to a quest for chemotherapeutic agents that would inhibit plaque formation. A variety of products with antiplaque properties are a topic of current research.[3] The mode of delivery for these chemical agents is diverse and includes toothpaste, chewing gum, irrigators, spray, varnishes, and mouthwashes. Mouthwashes have proved to be a simple, safe, and effective delivery system, and in popularity, are next only to toothpaste; mouthwashes have proven to play a vital role in plaque reduction.[4] An effective plaque control comprising both mechanical and chemical means

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does exist an improved understanding of the infectious nature of the dental disease and has dramatically raised interest in the chemical method of plaque control, thereby holding a great promise in preventing the advancing of disease progression and prevention. Ocimum sanctum and Aloe vera are such natural substances that have shown positive effects in combating plaque biofilm.[5] The present study was conducted to compare Ocimum sanctum, Aloe vera and chlorhexidine mouthwash in gingivitis.

MATERIALS & METHODS

The present study was conducted among 90 patients of gingivitis of both genders. All subjects were informed about the study, and written consent was taken.

Demographic data such as name, age, sex etc., was recorded. A thorough clinical examination was performed in all. Patients were divided into 3 groups of 30 each. Group I patients was given O. sanctum mouth wash 10 ml twice daily, group II patients were given A. vera mouth wash 10 ml twice daily, and group III patients were given chlorhexidine mouthwash 10 ml twice daily.

Oral hygiene status assessment was carried out by plaque index (PI), gingival index (GI) and sulcus bleeding index (BI) and the scores were recorded at baseline. Thorough professional scaling and polishing were carried, and all subjects were instructed to use mouthwashes. All indices were repeated and recorded on the 15th day and 30th day, respectively. Results were statistically analyzed. P-value less than 0.05 was considered significant.

RESULTS

Table I: Distribution of patients.

Groups	Group I	Group II	Group III
Methods	Ocimum sanctum	A. vera	chlorhexidine
M:F	10:20	14:16	13:17

Table I shows that there were 10 males and 20 females in group I, 14 males and 16 females in group II and 13 males and 17 females in group III.

Table II: Comparison of plaque index.

Duration	Group I	Group II	Group III	P value
Baseline	0.89	0.78	0.92	0.12
15 days	0.65	0.64	0.43	0.15
30 days	0.64	0.61	0.18	0.21

Table II shows that the mean plaque index was 0.89, 0.65 and 0.64 in group I, 0.78, 0.64 and 0.61 in group II and 0.92, 0.43 and 0.18 in group III at baseline, 15 days and 30 days, respectively. The difference was non-significant (P> 0.05).

Table II: Comparison of gingival index.

Duration	Group I	Group II	Group III	P value
Baseline	0.63	0.56	0.64	0.41
15 days	0.54	0.46	0.42	0.32
30 days	0.48	0.42	0.22	0.09

Table II, graph I show that the mean gingival index was 0.63, 0.54 and 0.48 in group I, 0.56, 0.46 and 0.42 in group II and 0.64, 0.42 and 0.22 in group III at baseline, 15 days and 30 days respectively. The difference was non-significant (P> 0.05).

Graph I Comparison of the gingival index.

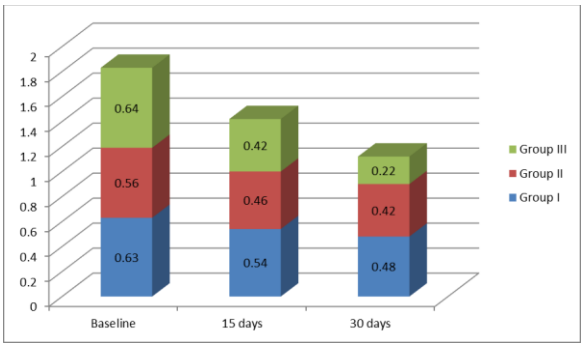


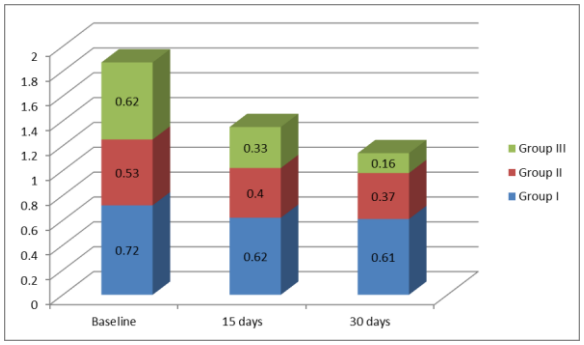
Table III: Comparison of bleeding index.

Duration	Group I	Group II	Group III	P value
Baseline	0.72	0.53	0.62	0.14
15 days	0.62	0.40	0.33	0.02
30 days	0.61	0.37	0.16	0.18

Table III, graph II shows that the mean bleeding index was 0.72, 0.62 and 0.61 in group I, 0.53, 0.40 and 0.37 in group II and 0.64, 0.33 and 0.16 in group

III at baseline, 15 days and 30 days respectively. The difference was non-significant (P> 0.05).

Graph II: Comparison of bleeding index.



DISCUSSION

Chemical agents such as chlorhexidine and triclosan are regularly used as mouth rinses, and the latter has also been used as an additive in dentifrices for the prevention of plaque formation and thereby gingivitis.[6] Chlorhexidine is a gold standard in preventing dental plaque formation. This broad-spectrum antibiotic, a cationic bis-biguanide, is extensively used as an antiplaque agent. Aloe vera, a cactus-like plant, belongs to the Lilaceae family.[7] The core mucilaginous tissue of the Aloe vera leaf is used as a gel for the treatment of multiple conditions such as sunburn, wounds, digestive tract disorders, and as a laxative.[8] Pharmacological actions attributable to Aloe vera include antibacterial, antiviral, antifungal, antioxidant, and anti-inflammatory.[9] The present study was conducted to compare Ocimum sanctum, Aloe vera and chlorhexidine mouthwash in gingivitis.

In the present study, there were 10 males and 20 females in group I, 14 males and 16 females in group II and 13 males and 17 females in group III. Penmetsa et al. [10] conducted a double-blind, randomized placebo-controlled clinical trial. Wherein sixty patients were randomly allocated into three study groups. O. sanctum mouthwash (n = 20), A. vera mouthwash (n = 20) and Chlorhexidine mouthwash (n = 20). All groups were treated with scaling and asked to rinse with respective mouthwashes twice daily for 1 month. Clinical parameters such as plaque index (PI), gingival index (GI), and sulcus bleeding index (BI) were recorded at baseline, after 15 days, and after 30 days, respectively. Results of the study showed that O. sanctum, A. vera and chlorhexidine are equally effective in reducing plaque, gingival, and bleeding indices at a 30-day interval. However, no significant reductions in PI, GI and BI in a 15-day interval in group 1 and group 2 when compared with chlorhexidine were evident.

We found that plaque index was 0.89, 0.65 and 0.64 in group I, 0.78, 0.64 and 0.61 in group II and 0.92, 0.43 and 0.18 in group III at baseline, 15 days and 30 days, respectively. We observed that the mean gingival index was 0.63, 0.54 and 0.48 in group I, 0.56, 0.46 and 0.42 in group II and 0.64, 0.42 and 0.22 in group III at baseline, 15 days and 30 days, respectively. Chhina et al. [11] conducted a randomized, single-blind, parallel, controlled clinical study with 90 healthy participants, with a mean age of 27.19 ± 12.08 years. After thorough oral prophylaxis, participants were instructed to discontinue mechanical plaque control. Participants were divided randomly into three groups; pure Aloe vera mouthwash was dispensed to the test group; the control group received 0.2% chlorhexidine gluconate mouthwash; in the Placebo group, flavoured distilled water was used as oral rinse twice daily. Effect on 4-day de novo plaque formation was assessed by comparing pre-rinsing Quigley Hein Modified Plaque Scores were analyzed. The rinsing control group showed the least plaque score, which was comparable to the test group. Both the control group and test group showed a significant difference with the placebo group. We observed that the mean bleeding index was 0.72, 0.62 and 0.61 in group I, 0.53, 0.40 and 0.37 in group II and 0.64, 0.33 and 0.16 in group III at baseline, 15 days and 30 days, respectively. Among the wide array of herbal plants possessing medicinal values, *O. sanctum* or *Tulsi* stands out as a time tested premiere medicinal herb. *O. sanctum* has also been conventionally employed in hundreds of different formulations for the treatment of a wide range of disorders, including those of the mouth and throat, lungs, heart, blood, liver, kidney and the digestive, metabolic, reproductive and nervous systems. Scientific studies have established that the composition of *Tulsi* has potent anti-inflammatory, antioxidant and antimicrobial properties.[12]

CONCLUSION

Authors found that Both Ocimum sanctum and Aloe vera prove to be as effective as chlorhexidine mouthwash.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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