

A Review on Herbal Toothpaste for Plaque and Gingivitis

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Abstract: We have heard about many herbal products but rarely we are using them. Herbal toothpaste is also one of the products which are available in the market and we do not know about its advantages. We are either stick to our old brands and keep on trying it or buying anything without knowing the real value of the product. Oral hygiene is very important. Herbal toothpaste is containing numerous herbs which have the ability to remove the plaque, freshen our breath and also prevent various gum diseases. There are numerous products available in the market and we do not know which are genuine. So, it is very important to know about the real product which is effective for our dental health. Toothpaste protects, cleans and polishes teeth. It makes oral hygiene more efficient. It has a fresh taste and smell, and freshen the breath. Brushing twice a day with toothpaste is essential to maintaining a healthy mouth. A wide range of toothpastes are commercially available and recently interest in natural products has increased. A number of controlled clinical trials have demonstrated that tooth brushing with herbal dentifrices reduces super gingival plaque and gingivitis.

Keywords: Clinical trials, Herbal dentifrices, Herbal toothpaste, Gum disease.

1. Introduction

In recent years, herbal products have been suggested as an economic, safe and probably effective alternative for prevention and control of various oral diseases [1].

Toothpaste is a paste or gel dentifrice used with a toothbrush as an accessory to clean and maintain the aesthetics and health of our teeth promoting oral hygiene. Dental caries and periodontal diseases are essentially caused by the micro-organisms present in dental plaque. Biofilm formation is a natural process in the oral environment, but needs to be controlled through regular brushing in order to prevent the development of caries and periodontal diseases. Both chemical and mechanical oral hygiene aids are used for removal and prevention of plaque. Mechanical plaque control measures, such as toothbrushes, dental floss, toothpicks and interdental brushes are very popular and are mostly used in conjunction with chemical plaque control aids, e.g. mouth rinses and medicated toothpastes. Yet, in most people, brushing alone is inadequate to remove oral biofilm to an extent that the development of periodontal diseases and caries is prevented.

Thus, antimicrobial toothpastes that augment mechanical plaque removal may provide an effective means to maintain good oral hygiene. Despite the efficacy of many toothpaste formulations with antibacterial properties, there is an increasing societal desire to rely on naturally occurring compounds for health care, which has also found its way into dentistry [2]. Now a day we use commercial toothpaste which contains many chemical compounds like sodium lauryl sulfate, which is harmful to our gum. Most brand-name commercial toothpastes contain a number of ingredients that are not healthy for us or the environment. Bleach and peroxide are commonly used as whitening agents in commercial toothpastes. But both bleach and peroxide can be an irritant to the mouth and skin in small doses, and are considered to be hazardous materials because they can cause severe chemical burns in large doses [3].

Herbal toothpaste has received some attention from the public and profession following a number of studies which have reported beneficial effects of the paste on both plaque and gingivitis. The therapeutic effect showing plants has been beneficial to the oral health from the thousands of year throughout the world. The traditional medicine has advantage more than the side effect like allergies [4].

A. Clinical efficacy

The clinical efficacy of two commercially available dentifrices, herbal toothpaste and gum therapy and Colgate Total, in controlling gingivitis, gingival bleeding, plaque and stain was compared. In this study a one- way Analysis of Variance indicates both the dentifrices had a significant effect on gingivitis, gingival bleeding, plaque and dental stain. There is no significant statistical difference were observed between herbal tooth paste and gum therapy and Colgate total for gingivitis or gingival bleeding. Herbal tooth pastes and gum therapy showed significant difference in reducing plaque and dental stain to Colgate Total ($p < 0.05$). It is concluded that both the commercial product helps in reducing gingivitis and plaque. Herbal toothpaste and gum therapy showed good result in reducing plaque and stain [5].

1) Plaque and Gingivitis

The toothpaste is evaluated in the form of mouth rinse form a 19 day, no oral hygiene, and triple crossover design in which

it was compared with a commercial fluoride toothpaste rinse and the anti-plaque mouth rinse chlorhexidine. This study showed an increase in plaque and gingivitis was seen for all three products over three periods of the study. The study indicates significant reduction of both the parameters in chlorhexidine compared to both the toothpaste, there is no significant differences between the herbal and fluoride toothpaste. It is concluded that the long term, the herbal toothpaste may not exert significant therapeutic effects on plaque and gingivitis beyond that of a conventional commercial paste [4].

A double-blinded controlled clinical trial with parallel groups was designed to investigate the effectiveness of herbal-based toothpaste in the control of plaque and gingivitis as compared with a conventional dentifrice. The efficacy of Colgate Herbal over Colgate tooth paste was assessed. There is a statistically significant reduction in the gingival index and the plaque index scores within the test group. However, there were no statistically significant differences between the test and the control groups. The salivary pH changes were not statistically significant in the test group but were displaced more toward the acidic range in the control group. It was however concluded that the herbal-based toothpaste was as effective as the conventionally formulated dentifrice in the control of plaque and gingivitis [6].

A double blind controlled clinical trial with parallel groups was designed to investigate the effectiveness of herbal based toothpaste in the control of plaque and gingivitis as compared with a conventional dentifrice. 70 subjects with gingivitis completed the 6-week study. All participants had at least 20 natural teeth with no probing depths greater than 3 mm and a plaque index of 2 or more at baseline. At baseline, both groups were balanced for the parameters measured: plaque index, plaque vitality, gingival index, bleeding on probing and gingival crevicular fluid flow. At the end of the trial, there were reductions within both groups; however, there were no significant differences between the groups. It was concluded that the herbal based toothpaste was as effective as the conventionally formulated dentifrice in the control of plaque and gingivitis [7].

The aim of this randomized, double-blind clinical trial was to evaluate the effect of the Paradontax dentifrice on the reduction of plaque and gingivitis. Subjects were randomly allocated into either the test group (n = 15, Paradontax) or the control group (n = 15, standard dentifrice with fluoride). Plaque levels were measured using the Turesky modification of the Quigley & Hein Plaque Index (PI), and gingivitis was evaluated with the Gingival Index (GI). Subjects were asked to brush their teeth with the allocated dentifrice, three times a day, for 21 days. There was no significant difference between groups in relation to the PI and GI medians, at baseline and at the end of the 21-day period. There was no significant reduction in PI in either the test or control groups. There was a significant decrease in GI in the test group. The authors concluded that there was no

difference between the dentifrices in the reduction of plaque and gingivitis [8].

After 30 days of trial, both test and control groups showed effective reduction of plaque and gingivitis, which was statistically significant. No adverse reactions to dentifrices products were observed during the trial. It can be concluded that clinically, herbal dentifrices are as effective as non-herbal (conventional) dentifrices in the control of plaque and gingivitis. Addition of chemical agents in dentifrices aids in plaque control and improves oral health [9].

The effect of *Aloe vera* on the reduction of plaque and gingivitis was evaluated in a randomized, parallel and double-blind clinical trial. Subjects were randomly allocated to the test group (n=15) - dentifrice containing *Aloe vera* - or the control group (n=15) - fluoridated dentifrice. Plaque index (PI) and gingival bleeding index (GBI) were assessed at days 0 and 30. Subjects were asked to brush their teeth with the control or test dentifrice, three times a day, during a 30-day period. There was a significant reduction on plaque and gingivitis in both groups, but no statistically significant difference was observed among them ($p>0.01$). The dentifrice containing *Aloe vera* did not show any additional effect on plaque and gingivitis control compared to the fluoridated dentifrice [10].

To determine the effectiveness of herbal and fluoridated toothpastes on plaque and gingival scores among 18- to 25-year-old female participants residing in working women's hostel. Sixty participants residing in a working women's hostel in Belgaum city, aged between 18 and 25 years, comprised the study population. The 60 participants were randomly allocated to the experimental and control groups. The experimental group was asked to use herbal toothpaste (Himalaya Herbal Healthcare) and the control group fluoridated toothpaste (Colgate Dental Cream) twice a day for 6 weeks. The plaque and gingival indices were recorded according to Silness and L oe (1964) and L oe and Silness (1963), respectively, at baseline, 3 weeks and 6 weeks of usage of the toothpastes. Results: Baseline plaque and gingival scores were 1.53 ± 0.9 and 1.22 ± 0.13 for the control group and 1.30 ± 0.15 and 1.19 ± 0.12 for the experimental group, respectively. At 6 weeks, plaque and gingival scores were 0.86 ± 0.18 and 0.80 ± 0.2 for the control group and 0.99 ± 0.14 and 0.9 ± 0.21 for the experimental group, respectively. Statistically significant differences were obtained before and after the intervention in both groups ($P < 0.001$). Conclusion: The herbal toothpaste was as effective as the conventionally formulated dentifrice in controlling plaque and gingivitis [11].

The aim of this study is to investigate the efficacy of an herbal based mouth rinse in combination with an oral irrigator in reducing gingival inflammation. Over a period of 3 months, GI decreased from 1.80 ± 0.04 to 1.56 ± 0.04 in group 1; from 1.79 ± 0.05 to 1.68 ± 0.04 in group 2; and remained nearly constant in group 3 (from 1.79 ± 0.05 to 1.81 ± 0.04). Differences between the groups were significant (analysis of variance, $P < 0.05$). SBI values in group 1 were reduced from

2.51 ± 0.06 to 2.13 ± 0.06 after 3 months and were significantly lower than in group 2 (P = 0.001) and 3 (P = 0.002), with SBIs of 2.44 ± 0.06 and 2.42 ± 0.07, respectively, after 12 weeks. A reduction in PI was noted for all 3 groups throughout the follow up period, with no statistically significant differences. Probing depths were not reduced significantly in any group. Subgingival irrigation with an herbal based mouth rinse led to a significant reduction in both SBI and GI. This regimen can, therefore, be recommended as an adjunctive procedure to reduce gingival inflammation [12].

2. Conclusion

The research concluded that Herbal toothpaste an emphasizing and more acceptable in dental research and they are safer with minimum side effect than synthetic preparation. The formulated tooth pastes capable to the tooth and oral hygiene and show the anti-microbial activity against pathogen. However, there is approach to provide the formulation for commercial production of herbal dental product with environmentally friendly attributes [4]. Here no chemical preservatives are added; instead glycerin and common salt are added as natural preservatives. This toothpaste can cure various diseases of teeth like plaque, gingivitis, tooth decay, cavity, gum bleeding, bad breath and dental-carries as well as it has anti-smoking and anti-cancer properties [3]. Eventually Herbal toothpastes having an emphasized role in the maintaining the oral hygienic nature as well as preventing dental caries [13]. However, it must be recognized that 1000 ppm fluoride containing toothpastes are not recommended for children. Herbal tooth pastes also showed antimicrobial properties and is an herbal product; thus reducing the chances of fluoride toxicity [14].

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