



A herbal solution for inflamed gums

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ABSTRACT

BACKGROUND: Gingivitis is the most common and prevalent form of periodontal disease among children and adolescents. The incidence and severity increase from childhood to adolescence. Gingivitis is a reversible inflammatory condition that may precede periodontitis [3]. The continuous accumulation of microbial biofilm due to impaired or poor oral hygiene results in the clinical manifestations of gingivitis. The characteristic swelling associated with gingivitis is a direct result of the host response to biofilm microbes and their antigenicity. Gingival therapy is directed at controlling and reducing etiological factors, such as microbial biofilms and dental calculus which, in turn, allows healing of the gingival tissues. The aim of this study is to determine the efficacy of Mimusops Elengi gel in the treatment of chronic gingivitis.

METHODOLOGY: Subjects were randomly divided into two groups. Group A(CONTROL GROUP) CHLORHEXIDINE GEL and Group B(TEST GROUP) MIMUSOPS ELENGI GEL. Subjects were asked to use the gel two times a day for two weeks. Before taking the gel and two weeks later gingival index and gingival bleeding index were recorded.

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

CONCLUSION: Within the limitations of study, Rinsops gel that is elective on gingival indices can be recommended to the patients for treatment of chronic gingivitis.

A HERBAL SOLUTION FOR INFLAMMED GUMS

INTRODUCTION-

Gingivitis is the presence of gingival inflammation without loss of connective tissue attachment. The precursor to gingivitis is undisturbed dental plaque biofilms. Gingivitis if left untreated may lead to a severe gum disease known as periodontitis¹.

Periodontitis refers to a condition in which there is presence of gingival inflammation at the sites where pathological detachment of collagen fibres from cementum and supporting tissues of the teeth such as connective tissue and bone are destroyed by plaque induced inflammation².

Antibacterial agents such as chlorhexidine(CHX), triclosan, essential oils etc have been used alone or in combinations. Among these chlorhexidine is considered the most effective oral antiseptic agent. The prolonged use of such synthetic antibiotic drug had various adverse effects on health like it could cause nausea, vomiting, and diarrhoea even more complex problems of gastrointestinal, neurological, cardiovascular and dermatological can occur³.

It is considered that extracts of medicinal plants especially secondary metabolites (alkaloids, flavonoids, polyphenols, phytosterols etc.) Could act as alternative substance for resistance modifiers and a safe antibacterial agent. *Mimusops elengi* (Linn.), domestically known as “Bakul” or “Maulsari,” is a large evergreen tree and found all over India⁴.

In Ayurveda it has been reported as dantaroghara, that prevents and treat tooth decay and tooth diseases. In healing of wound and ulcers the extract of dried flowers are used. For fixing loose teeth hot water extract of dried seeds is used. The bark of *M. Elengi* is acrid, astringent and is used as a gargle for odontopathy, inflammation and bleeding gums. It is also used in making commercial dyes. It is the main constituent of “Mahakhadiravidati” which is an herbal remedy for stomatitis, halitosis, spongy gums, and pharyngeal problems⁵.

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

AIM AND OBJECTIVES:

To evaluate and compare the effectiveness of two different GEL for treatment of chronic gingivitis.

MATERIALS AND METHODS

A total of 60 healthy subjects with signs of chronic 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 gel 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 gel they received.

Subjects were randomly divided into two groups; 1. Group A- (Control group): Chlorhexidine gel. (30 patients)

2. Group B- (Test group): gel containing Mimusops elengi (Bakul) extract. (30 patients).

Subjects were asked to use gel, which they received, two times a day (each time for two minutes) for two weeks. Clinical parameters such as Gingival Index (GI) and gingival bleeding index(GBI) were evaluated at baseline and after 14 days.



MIMUSOPS ELENGI (BAKUL) EXTRACT



MIMUSOPS ELENGI GEL



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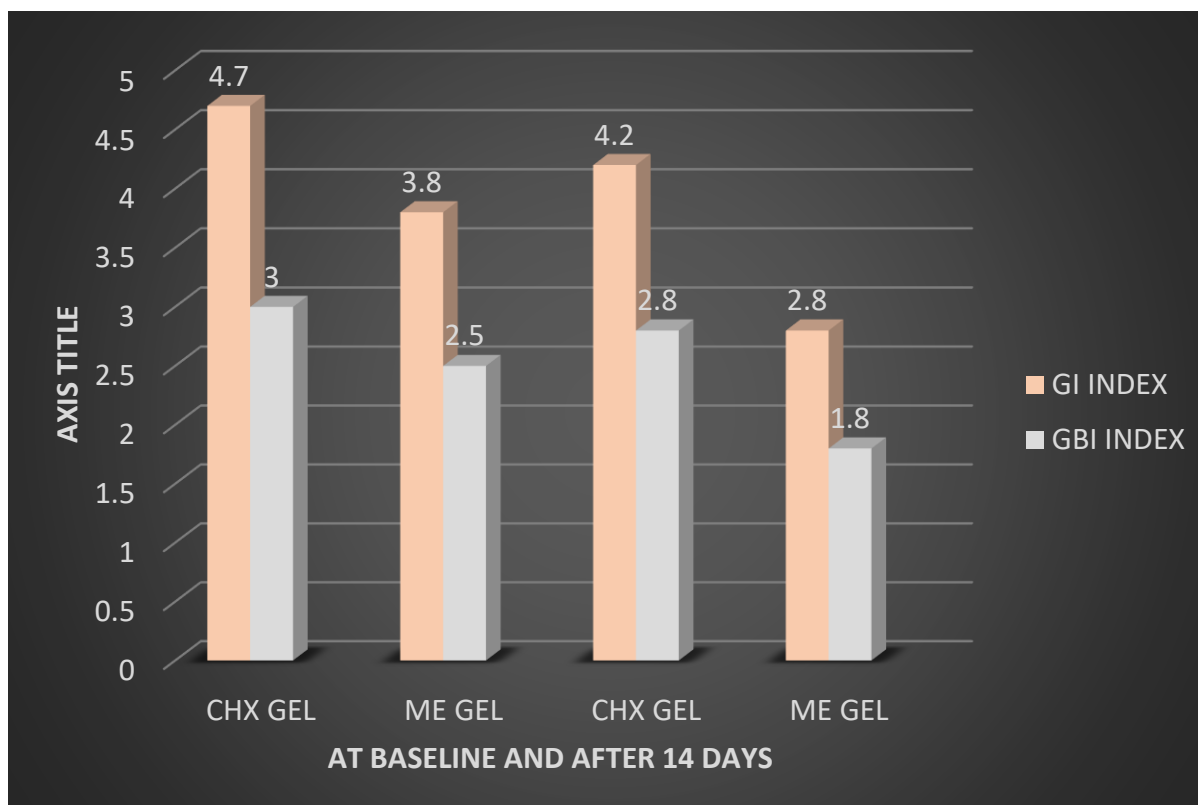
BEFORE AND AFTER APPLICATION OF MIMUSOPS ELENGI GEL

(PRE OP AND POST OP)



BEFORE AND AFTER APPLICATION OF CHLORHEXIDINE GEL
(PRE-OP AND POST-OP)

RESULTS



The clinical parameters at the baseline between the control group and the test group were statistically not significant. Both CHX and Rinsops reduced the amount of gingival indices and gingival bleeding indices ($P < 0.001$). In the clinical trial scaling was performed at the baseline so that all subjects had similar minimal levels of inflammation, though it did not get subside on the day itself. The CHX gel had greater efficiency in reducing gingival bleeding and gingival indices compared to Rinsops, although the difference was not statistically significant ($P > 0.05\%$). In the present study, a significant reduction in Gingival index and gingival bleeding index at 2 weeks time intervals was observed with the use of both the gels. The positive clinical effects of both gel can be attributed to their various ingredients.

DISCUSSION:

Gingivitis is the presence of gingival inflammation without loss of connective tissue attachment. The precursor to gingivitis is undisturbed dental plaque biofilms. Studies have shown that gingivitis will develop within 10–21 days if all oral hygiene practices are stopped and plaque is allowed to accumulate undisturbed. Gingivitis is preventable by routine oral care, but if untreated may lead to a severe gum disease known as periodontitis. For gingivitis, effective home oral hygiene practices on a twice-daily basis usually provide a sufficient standard of care. Periodontal diseases are ubiquitous, affecting all dentate animals. Among various periodontal disease affecting humans, the most prevalent is gingivitis, affecting more than 90% of the population, regardless of age, sex, or race.

Prescription gel, such as those containing chlorhexidine gluconate, are effective treatments for gingivitis, but are not intended for long-term use, may stain teeth, and have an unpleasant taste⁶.

Although mechanical plaque control methods have the potential to maintain adequate levels of oral hygiene, clinical experience and population-based studies have shown that such methods are not being employed as accurately as they should be by a large number of people. Therefore, several chemotherapeutic agents have been developed to control bacterial plaque, aiming at improving the efficacy of daily hygiene control measures.

Herbal products are one group of agents which has been used extensively in reducing the bacterial population. Phytotherapeutic products have been investigated with these purposes and have shown satisfactory results⁷.

This made us to evaluate the efficacy of *Mimusops elengi* as a gel for treating chronic gingivitis. Balgopal S et al (2013) evaluated the different effects of chlorhexidine at different concentrations; at low concentrations the agent is bacteriostatic, whereas at higher concentrations the agent is rapidly bactericidal⁸.

Mimusops elengi Linn which belongs to Sapotaceae family is a small to large plant, which is commonly known as Bakul found in different parts of India. *M. elengi* is a potent antimicrobial agent for treating gingivitis due to its anti-microbial, anti-inflammatory, anti-oxidant and wound healing properties of its bark. *M. elengi* extract can be used for treating or controlling oral complications such as dental caries and gum bleeding. Accumulation of plaque and tartar eventually leads to bleeding gums².

In Ayurveda, *M. elengi* has been reported to treat the bleeding gums. Dash S et al (2019) tested antimicrobial activities of *Mimusops elengi* Linn and came to a safe conclusion that the solvents could extract the different bio-organics varying in number and antimicrobial potential(s)⁹.

In the present study, CHX gel had greater efficiency in reducing gingival index and gingival bleeding index compared to Rinsops, although the difference was not statistically significant. In treating gingivitis *Mimusops elengi* showed comparable results with CHX in the study.

CONCLUSION:

Within the limitations of study, Rinsops gel 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 treatment of gingivitis. Further long-term longitudinal studies are required to confirm the findings of this study.

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