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Original Research

Antiplaque and antigingivitis efficacy of neem, mango, triphala, and cholrhexidine mouth wash among school children: A double blind randomized control trial

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ABSTRACT:

Introduction: In India, mango, neem and triphala are considered a common way of cleaning teeth. These products possess medicinal properties. Hence in this study we aim to evaluate the antiplaque and antigingivitis efficacy of neem, mango, triphala, and cholrhexidine mouth wash among school children. **Materials and Methods:** Participants were randomly allotted to four groups with 25 participants in each group of neem, mango, triphala, and 0.12% chlorhexidine. The participants rinsed for 3 weeks. The plaque and gingival status were assessed Statistical Analysis was performed keeping P value < 0.05 as significant. **Results**: All three products showed significant reduction in plaque and gingival scores similar to chlorhexidine group (P < 0.001). No significant difference was found between the plaque and gingival scores obtained with triphala extract and chlorhexidine mouth rinse. **Conclusion**: Triphala, neem, mango, extract mouth rinse was effective in reducing plaque accumulation and gingival inflammation with reported no side effects.

Keywords: Antiplaque, Antigingivitis, Neem, Mango, Triphala.

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INTRODUCTION

Mouthwash has been employed for centuries for medicinal and cosmetic uses, but in recent years, the objective behind the use of chemical ingredients has been imperiled to scientific research and clinical trials.[1] Herbal medicines were in great demand in the developed as well as in developing countries for primary health care because of their wide biological and medicinal activities, higher safety margin, and lower costs.[2,3] Azadirachta Indica-Neem has been extensively used in ayurveda, unani and homoeopathic medicine and has become a cynosure of modern medicine. Acacia Nilotica's Antimicrobial function is believed to be due to tannins, phenolics compounds, essential oil and flavinoids and is effective against E-faecalis. [4]

Triphala' is a well-known powdered preparation that has equal parts of the Emblica officinalis (Amalaki), Terminalia chebula (Haritaki), and Terminalia belerica (Bibhitaki).[5,6] T. chebula is valuable in the prevention and treatment of several diseases of the mouth such as dental caries, spongy and bleeding gums, gingivitis, and stomatitis. It presented an antiplaque efficacy similar to that of chlorhexidine (CHX) and was more effective in inhibiting plaque formation with lesser or no side effects.[7-10] To overcome the disadvantages of CHX, other agents may have to be used as mouthwash. Triphala extract mouthwash may be an alternative in such a scenario with no reported adverse effects. Hence in this study we aim to evaluate the antiplaque and antigingivitis efficacy of neem, mango, triphala, and chlorhexidine mouth wash among school children.

MATERIALS AND METHODS

We conducted a randomized controlled trial, after taking the ethics clearance and the consent from the guardians of the students. An alcoholic extract of

neem, mango, triphala was obtained using cold maceration technique with 97% ethanol as the solvent. Ten percent neem, mango, triphala mouth rinse was prepared by adding 100 g of the extract to 1 L of sterile distilled water. Commercially available 0.12% CHX solution

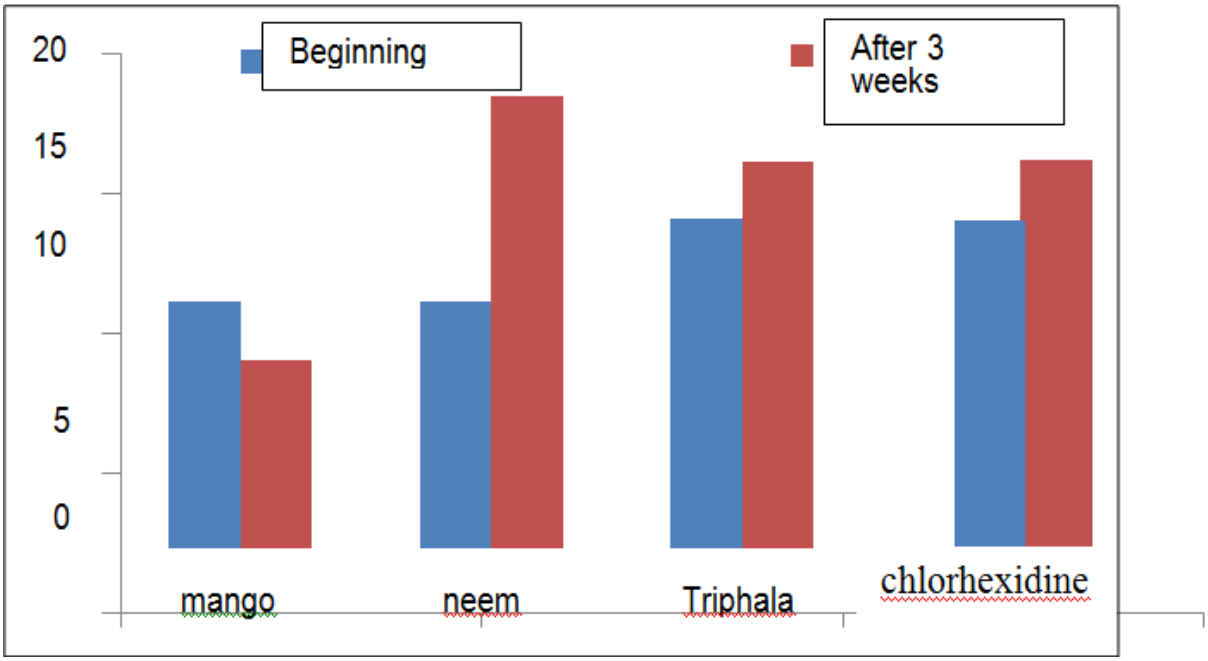
We included 100 participants to be divided to 4 groups equally. They were advised to rinse with that mouth wash for 3 minute twice daily for 3 weeks. Demographics and oral examination was done to record the gingival index (GI)[13] and PI,[14] according to Loe and Silness and Silness and Loe criteria to assess the plaque accumulation and gingival inflammation at baseline and at the end of the study period.

The collected data was statistically analyzed using ANOVA keeping $p<0.05$ as significant.

RESULTS

All three products showed significant reduction in plaque and gingival scores similar to chlorhexidine group ($P < 0.001$). No significant difference was found between the plaque and gingival scores obtained with triphala extract and chlorhexidine mouth rinse. Figure 1

Figure1: comparison of the various products as mouth wash



DISCUSSION

The extract of Magnifera indica (mango), Azadirachta indica (neem) and triphala were tested for antiplaque and antigingivitis efficacy. At the end of 3 weeks, significant lowering of gingival inflammation.[4] Tannins and resins have an astringent action on the mucous membrane and they form a layer over enamel, thus providing protection against dental caries.

Azadirachta indica (neem) has the alkaloid margosine, resins, gum, chloride, fluoride, silica, sulfur, tannins, oils and flavenoids and calcium. [9]. Similar observations were seen for this product also. This is due to the presence of fluoride which exerts anticariogenic action and silica which acts as abrasive. Wolinsky et al stated that Neem plant belongs to the family of compounds known as gallotannins that could effectively reduce the number of bacteria available for binding to the tooth surface by increasing their physical removal from the oral cavity through aggregate formation.

Magnifera indica (mango) and triphala at the end of 3 weeks, significant lowering of gingival inflammation whereas another study done by Prashant et al [8] concluded that Magnifera indica (Mango) showed minimum zone of inhibition against plaque. However there was no significant difference between the four products

From this study, it could be inferred that the ayurvedic products are as efficient as the chemical commercially available mouth washes.

CONCLUSION

Within the limitations of this study, it could be concluded that Triphala, neem, mango, extract mouth rinse was effective in reducing plaque accumulation and gingival inflammation with reported no side effects.

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