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EVALUATION AND COMPARISON OF ANTI-BACTERIAL EFFICACY OF *ALBIZIA LEBBECK* (L.) BENTH. (SIRIS TREE) MOUTHWASH AND *BAUHINIA VARIEGATA* L. (MOUNTAIN EBONY) MOUTHWASH WITH CHLORHEXIDINE:IN-VITRO STUDY

By

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ABSTRACT

INTRODUCTION:

Herbal medicines are known to have therapeutic benefits. It has been applied in dentistry for a long history to inhibit microorganisms, reduce inflammation, soothe irritation and relieve pain. There have been considerable number of herbal mouthwashes such as *Azadirachta indica (*neem), *Mangifera indica* (Mango) that have shown plaque and gingivitis control.[1] These mouthwashes could further benefit gingival health when compared with the antimicrobial mechanisms by synthetic chemicals.

AIM: To establish minimum inhibitory concentration of *Albizia lebbeck* (L.) Benth. (Siris tree), *Bauhinia variegata* Linn. (Mountain Ebony) and Chlorhexidine mouthwashes and to assess and compare the antibacterial effect of *Albizia lebbeck* (L.) Benth. mouthwash, *Bauhinia variegata* L. mouthwash and Chlorhexidine on plaque.

MATERIALS AND METHODS: The minimum inhibitory concentration of herbal mouthwashes and Chlorhexidine were determined against standard strains of bacteria that are involved in gingivitis. The antibacterial action of these mouthwashes on the supragingival plaque were determined and compared. A total of fifteen plaque samples were collected from fifteen individuals with moderate to severe gingivitis. From each individual, the collected plaque sample was divided into three and were then transferred in three plastic vial containing reduced transport fluid which was sent to laboratory for processing. Data obtained was tabulated and subjected to statistical analysis using analysis of variance (ANOVA) and paired *t*-test. Bonferroni *post hoc* test was used to know the difference between the pairs of mouthwashes. Analysis of covariance (ANCOVA) was also done to adjust for the baseline differences.

RESULTS: The minimum inhibitory concentration of *Albizia lebbeck* (L.) Benth., *Bauhinia variegata* Linn. and Chlorhexidine mouthwashes ranged 0.8 µg/ml-12.5 µg/ml, 0.4 µg/ml-25 µg/ml and 0.4 µg/ml-25 µg/ml respectively against the tested bacterial strains. *Albizia lebbeck* (L.) Benth. and *Bauhinia variegata* Linn. mouthwash had exhibited antibacterial activity. However, the antibacterial efficacy of herbal mouthwashes exhibited statistically significant differences with Chlorhexidine.

CONCLUSION: *Albizia lebbeck* (L.) Benth. and *Bauhinia variegata* Linn. mouthwash has antibacterial activity. However, Chlorhexidine showed higher level of antibacterial action than herbal mouthwashes.

KEY WORDS:

Antibacterial mouthwash; Chlorhexidine; dental plaque; oral bacteria; herbal mouthwash; *Albizia lebbeck* (L.) Benth.; *Bauhinia variegata* Linn.; plaque index; gingival index; gingivitis