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**File: ■ Neem (*Azadirachta indica*)
■ Plaque-induced Gingivitis**

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RE: Neem Extract Mouth Rinse Reduces Symptoms of Periodontal Disease

Chatterjee A, Saluja M, Singh N, Kandwal A. To evaluate the antigingivitis and antipalque [*sic*] effect of an *Azadirachta indica* (neem) mouthrinse on plaque induced gingivitis: a double-blind, randomized, controlled trial. *J Indian Soc Periodontol.* 2011;15(4):398-401.

Periodontal disease, characterized by inflammation and/or destruction of the supporting tissue of the teeth, is best prevented and managed by mechanical as well as chemical plaque control. Several chemical plaque control agents (e.g., chlorhexidine) have been evaluated for their effectiveness on supragingival plaque but have been associated with various adverse side effects that deter their long-term use. Neem (*Azadirachta indica*) has been used in India and South Asia for thousands of years to maintain healthy periodontium and to treat gingivitis and periodontitis. Neem's antibacterial, antiviral, and antihyperglycemic activities have been reported. These authors conducted a double-blind, randomized, parallel, controlled trial to assess the antigingivitis and antiplaque properties of a neem-based mouth rinse in plaque-induced gingivitis.

The authors point out that the possible mechanism of neem's anti-inflammatory action is through inhibiting prostaglandin E and 5-hydroxytryptamine and thus reducing inflammation. The antibacterial action can be explained by the plant's component azadirachtin, which is known to destroy the bacterial cell wall and thus inhibit the growth of bacteria.¹

For this study, 45 patients were recruited from the outpatient department at the Institute of Dental Sciences in Bareilly, Uttar Pradesh, India. The subjects had to be from 18 to 65 years of age and had to have a minimum of 10 teeth, a mean plaque index of at least 1.05, and a mean gingival index of at least 1.0.

The subjects were randomly assigned to 3 groups to use 15 mL of a particular mouth rinse twice daily for 1 minute (after breakfast and after lunch):

- Group 1 subjects received 0.19% neem mouth rinse;
- group 2 subjects received 0.2% chlorhexidine mouth rinse; and
- group 3 received saline mouth rinse.

The authors used the Loe and Silness index and the Muhlemann-Son Sulcus Bleeding Index to measure severity of the gingivitis, bleeding, and plaque development. Scores were recorded on days 7 and 21 and were compared with baseline values.

The authors report statistically significant decreases in the mean bleeding, mean gingival, and mean plaque indices at days 7 and 21 for groups 1 and 2 compared with baseline values ($P > 0.05$). No significant changes were noted in group 3. No statistically significant differences were noted between groups 1 and 2 for any of the clinical parameters.

Results of this trial indicate that neem extract mouth rinse is as equally effective as chlorhexidine in reducing symptoms of periodontal disease. The results are consistent with an earlier study that reported that neem-based mouth rinse is highly efficacious and that it may be used as an alternative therapy in the treatment of periodontal disease.²

As the authors point out, these findings could lead to creating an effective and inexpensive oral health intervention for low socioeconomic communities.

—Shari Henson

References

¹Trewari DN. Monograph on neem (*Azadirachta indica*). Dehradun, India: International Book Distributors; 1992:179.

²Botelho MA, dos Santos RA, Martins JG, et al. Efficacy of a mouthrinse based on leaves of the neem tree (*Azadirachta indica*) in the treatment of patients with chronic gingivitis: a double-blind, randomized, controlled trial. *J Med Plants Res*. 2008;2(11):341-346.

Referenced article can be found at <http://www.jisponline.com/article.asp?issn=0972-124X;year=2011;volume=15;issue=4;spage=398;epage=401;aulast=Chatterjee>.

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