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Anti-plaque efficacy of herbal mouthwashes as compared to synthetic mouthwashes in orthodontic patients: A randomized controlled trial**Fayez Hussain Niazi¹, Abdullah Kamran², Tayyab Raza Fraz³ and Mervyn Hosein⁴**¹Dar Al Uloom University, KSA²Liaquat College of Medicine and Dentistry, Pakistan³University of Karachi, Pakistan⁴Ziauddin University, Pakistan

Aim: The present study compared the antiplaque effects of two herbal mouthwashes (*Salvadora persica* and *Azadirachta indica*) with two synthetic types (chlorhexidine (CHX) and cetylpyridinium (CPC)).

Method: In this double-blind, randomized controlled trial 100 patients undergoing orthodontic treatment were first scaled and polished for baseline zero plaque score. In the first phase, they were given oral hygiene education and provided a standard tooth paste to be used twice daily for a period of three weeks. In the second phase, following scaling and polishing, they were randomly allocated to use one of the four types of mouthwashes (A=chlorhexidine, B=cetylpyridinium, C=extracts of *Salvadora persica* miswak and D=extracts of *Azadirachta indica* miswak) along with previously instructed tooth brushing protocols for a further period of three weeks. Plaque accumulation was scored according to modified bonded bracket plaque index; at the start, after tooth brush-paste trial and at the end of mouthwash trial. Paired t-test was used for comparison of pre and post plaque index in all groups. Comparison analysis of mean difference of post plaque index between and within groups was performed by one way multivariate analysis of variance MANOVA and post hoc Tukey test.

Results: A total of 80 participants completed the study, among them 17 were male and 63 were female. There was significant reduction in mean plaque scores after using mouthwashes in all the 4 groups at follow-up when compared to first plaque score ($p=0.009$). A statistically significant ($p=0.016$) reduction (of plaque score) was found in group C (*Salvadora persica*) when compared with the CHX group. Group D (*Azadirachta indica*) also had higher reduction when compared with CHX and CPC but it was not statistically significant ($p=0.092$ and $p=0.292$). However, no significant difference was seen between CHX group and CPC group with respect to mean reduction in plaque scores ($p=0.934$).

Conclusion: Both types of miswak derived mouthwashes can be a good substitute for synthetic types and can be recommended, especially for patients on orthodontic treatment, as safer, cost effective and well tolerated mouthwashes.

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