



## CARIOLOGY: RANDOMISED CONTROLLED TRIAL

# Effectiveness of Herbal, Homeopathic and Conventional Dentifrices on Dental Caries – A Double-Blind Randomised Controlled Trial

Shivashankar Kengadaran<sup>a</sup> / Subhashree Rohinikumar<sup>b</sup> / Divvi Anusha<sup>c</sup> / Vyshiali Sundararajan<sup>d</sup> / Katherina Barman<sup>e</sup>

**Purpose:** To compare the effectiveness of ayurvedic, homeopathic and conventional dentifrices on plaque and saliva in terms of cariogenic bacteria, salivary pH, and plaque pH.

**Materials and Methods:** This double-blinded, parallel-group, randomised controlled trial was performed at Saveetha Dental College and Hospitals, Chennai, India. The participants comprised healthy adults possessing more than 20 permanent natural teeth and having a Decayed Missing and Filled Teeth (DMFT) score, plaque index score, and gingival index score less than or equal to 2. There were 3 intervention groups: 1: herbal dentifrice (Dabur Meswak); 2: homeopathic dentifrice (Gum Forte gel); 3: fluoride dentifrice (Colgate Total). The outcome measures were as follows: plaque and saliva samples were evaluated for pH; colony counts of *Streptococcus mutans* and *Lactobacillus* at baseline, 14 and 28 days of follow-up. One-way and repeated measures ANOVA, Wilcoxon signed-rank and Kruskal Wallis tests were used to compare the mean differences of plaque and salivary pH and plaque and salivary *S. mutans* and *Lactobacillus* counts at baseline, 14 and 28 days.

**Results:** The mean *S. mutans* and *Lactobacillus* counts in plaque and saliva decreased statistically significantly in all treatment groups at the 28-day follow-up. Mean plaque pH was not statistically significantly different at the 14-day follow-up ( $p$ -value = 0.16). On the 28th day, group 1 ( $7.64 \pm 0.20$ ) showed the highest increase in plaque pH followed by group 2 ( $7.39 \pm 0.25$ ) and group 3 ( $7.27 \pm 0.19$ ), which was found to be statistically significant. No statistically significant difference in mean salivary pH was observed between the three groups at the different time points.

**Conclusion:** This study reveals that the herbal dentifrice tested here was effective in reducing cariogenic bacterial count and increasing the plaque pH, thereby warranting the usage of the same.

**Key words:** biofilm, dental decay, dental plaque, saliva, toothpastes