

## Do Orthodontic Bracket Designs Affect Streptococcus Mutans Count With Herbal Toothpastes?

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### I. Introduction

The orthodontist as the clinician is continuously challenged to curb and eliminate White Spot Lesions (WSL) in their patients during orthodontic treatment due to alterations in the oral flora and plaque accumulation leading to enamel decalcification. Orthodontic patients are faced with the hazard of increased retention of food particles and plaque accumulation due to the presence of multiple attachments like brackets and other auxiliaries in the oral cavity forming encatchment areas for plaque. A number of controlled clinical trials have demonstrated that tooth brushing with herbal dentifrices reduces supragingival plaque and gingivitis. Streptococcus mutans is a potent initiator of caries because there are a variety of virulence factors unique to the bacterium and play an important role in caries initiation. Metallic orthodontic brackets have been found to induce specific changes in the oral environment such as reduced levels of pH, increased plaque accumulation, and elevated S. mutans colonization. This study ascertained, if design differences created differences in microbiological counts of the organism being investigated.

### Aim and Objective

To ascertain if herbal dentifrices and different bracket design combination could be effective in reducing S. mutans count in patients undergoing orthodontic treatment.

### II. Materials And Methods

- 30 Orthodontic patients were included in the study with SS bracket bonded on tooth number 15 and SLB on tooth number 25.
- The patients were examined at the first visit as baseline record, after 24 hrs and then after 6 days for comparison. Pooled plaque samples were collected from buccal surface of both teeth and sent for culture.



### III. Result

	Days		Mean difference	T	d.f.	P value
SS	Base line	After 24 hrs	0.16667	1.153	29	0.258 *
	Day 3	Day 8	0.66667	3.808	29	0.001 ***
SLB	Base line	After 24 hrs	0.00000	.000	29	1.000 *
	Day 3	Day 8	1.13333	6.158	29	0.000 ***

SLB bracket when used with herbal toothpastes showed more reduction of *S. mutans* ( $\pm 1.03333$  with p value of 0.000) as compared to SS bracket ( $\pm 0.83333$  with p value of 0.000) but no statistically significant difference ( $p > 0.05$ ) was noted between both the brackets.

### IV. Conclusion

- ▶ Herbal toothpaste performed well and clinically efficient in reducing *S. mutans* colony counts around stainless steel and self ligating brackets.
- ▶ This would be an useful innovation specially in patients who are periodontally compromised and those who have difficulty in maintaining oral hygiene during orthodontic treatment.

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