

## Comparative effect of two commercially available mouthwashes on oral health during fixed orthodontic treatment

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### Abstract

**Aims and Objectives:** The aim of the study was to analogue and anatomize the effect of KP Namboodiri's herbal mouthwash and 0.2% chlorhexidine mouthwash in orthodontic patients after using it for 15 days.

**Materials and Methods:** A total of 40 patients receiving fixed orthodontic treatment were selected. The patients were divided into two groups: Group I - 20 patients were given KP Namboodiri's herbal mouthwash for 15 days and Group II - 20 patients were given Chlorhexidine mouthwash. Supra gingival Plaque samples were collected on the day 0 (baseline), followed by day 15 for microbial analysis.

**Results:** Microbial colonies were truncated in both the groups without significant difference between the groups after 15 days in both the groups ( $P < 0.005$ ).

**Conclusions:** KP Namboodiri's mouthwash could be effectively used instead of Chlorhexidine mouthwash.

**Keywords:** Plaque, Menthol, Thymol.

### Introduction

Plaque control is of prime importance for the subduing of gingivitis, dental caries in patients undergoing fixed orthodontic therapy. As excessive plaque accumulation causes shift in the oral ecology. Mechanical plaque control reduces supra gingival plaque formation.<sup>1</sup> Nonetheless mouthwashes have been appraised as the coolest mode of oral hygiene measure.<sup>2</sup> Chlorhexidine (CHX) has been considered as gold standard in dental practice due to its significances.<sup>3</sup> Due to various reasons, alternative herbal antiplaque agents have been developed recently. KP Namboodiri mouthwash is a non alcohol based mouthwash containing sorbitol, saccharine, sodium fluoride, menthol, thymol, tea tree oil, extracts of clove, ginger and nutmeg. This study aimed to compare the effect of KP Namboodiri mouthwash and 0.2% Chlorhexidine mouthwash in orthodontic patients.

### Materials and Methods

The study was conducted at the Department of orthodontics and dento-facial orthopedics, Thai Moogambikai Dental College & Hospital, Chennai after acquiring the ethical clearance from the Institutional ethical clearance board. All the participants were enlightened about the protocol of the study, and the informed consent was obtained. The study was done in accordance with Helenski Declaration of 1975.

### Study design

Participants with non plaque induced gingivitis or periodontitis, under antibiotic therapy or have been using mouthwash for the past 3 months; systemic diseases, smokers, pregnant and lactating mothers were excluded from the study.

The present study comprised 40 undergoing fixed orthodontic treatment, 17–25 years of age, with plaque induced gingivitis were arbitrary divided into two groups of 20 each. The first group was advised to rinse with 15 ml 0.2% mouthwash, and the second group with 15 ml of KP Namboodiri mouthwash twice daily for 30 for 15 days along with their regular tooth brushing. All participants underwent oral prophylaxis at the Department of Periodontics, after sample collection on day 0. The plaque samples were acquired at baseline and on 15<sup>th</sup> day the Plaque samples were striated on blood agar plates and incubated at 37° for 48 hours for colony forming units and calculated using an automated microbial colony counter.

### Statistical analysis

Statistical analysis was performed using SPSS Version 16.0 (SPSS Inc, Chicago, USA). Student's *t*-test was applied for evaluation of the mean microbial count within the groups. Independent *t*-test was done to assess the changes from day 0 to day 15. Statistical significance level was set at  $P < 0.05$ .

## Results

Comparison within the groups using “paired *t* test” showed a significant curtailment in both the groups ( $P < 0.001$ ), Independent *t* test was performed for juxtaposition of microbial colony count between the groups on day 15. Intergroup contrast of microbial count within the groups was done using Independent *t*-test without significance ( $P < 0.001$ ).

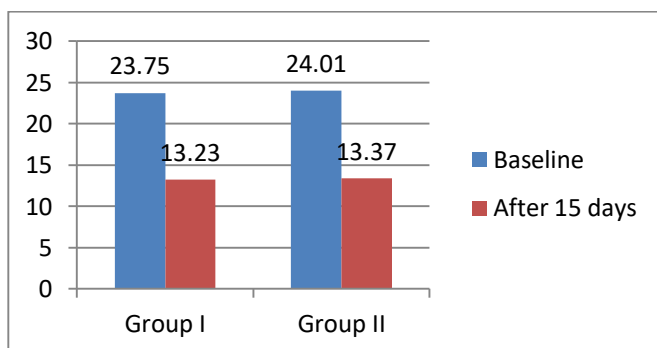
**Table 1:** Intragroup comparison of microbial colony count at baseline and after 15 days

Groups	CFU		p- value
	Baseline	After 15 days	
Group I	23.75±0.23	13.23±0.73	$P < 0.001$
Group II	24.01±0.17	13.37±0.39	$P < 0.001$

**Table 2:** Intergroup comparison of microbial colony count at baseline and after 15 days

CFU	Group I	Group II	p- value
Baseline	23.75±0.23	24.01±0.17	$P < 0.001$
After 15 days	13.23±0.73	13.37±0.39	$P < 0.001$

Intragroup comparison of microbial colony count at baseline and after 15 days



## Discussion

One of the detrimental effects of fixed orthodontic treatment is unfavorable oral hygiene that leads to gingivitis, enamel demineralization, caries and also few patients develop periodontal problems during orthodontic treatment have been recommended to use mouthwashes to decrease plaque accumulation. The primary outcome of the study is the reduction in the number of microbial colonies after using mouthwashes in both the groups and the count were similar in both the groups ( $P < 0.001$ ). Although the participants using both the mouthwashes were oblivious of its nature, there was no objection from any participants. Though the result of the study proved identical potency of both the

mouthwashes, the study was administered for decreased duration on small population.

## Conclusion

The study showed that both the mouthwashes has equal anti-microbial efficacy on dental plaque. KP Namboodhari mouthwash could be productively used as an substitute to Chlorhexidine mouthwash. However, for the use of KP Namboodhari's herbal mouthwash, there is need for further studies in larger sample size and on larger population.

## Source of funding

None.

## Conflict of interest

None.

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