



ASSESSING THE IMPACT OF OMNIDENT GEL VERSUS PATANJALI GEL ON GINGIVITIS IN GUJARAT POPULATION

Periodontology

Dr. Grishma Thanki*	Intern, Department Of Periodontology And Implantology, College Of Dental Sciences And Research Centre, Ahmedabad, Gujarat. *Corresponding Author
Dr. Vatsal Sheladia	Intern, Department Of Periodontology And Implantology, College Of Dental Sciences And Research Centre, Ahmedabad, Gujarat.
Dr. Khushi Shah	Intern, Department Of Periodontology And Implantology, College Of Dental Sciences And Research Centre, Ahmedabad, Gujarat.
Dr. Rahul Shah	Professor, Department Of Periodontology And Implantology, College Of Dental Sciences And Research Centre, Ahmedabad, Gujarat.
Dr. Anita Panchal	Head Of Department And Professor, Department Of Periodontology And Implantology, College Of Dental Sciences And Research Centre, Ahmedabad, Gujarat.
Dr. Riddhi Gandhi	Reader, Department Of Periodontology And Implantology, College Of Dental Sciences And Research Centre, Ahmedabad, Gujarat.

ABSTRACT

Introduction: Gingivitis is a site-specific inflammatory condition caused by dental biofilm accumulation, characterized by gingival redness, swelling, and the absence of periodontal attachment loss. Herbal toothpastes have gained popularity due to their efficacy and minimal side effects. This study aimed to assess the effectiveness of mechanical plaque control using two dentifrices—one containing aloe vera and the other 0.3% triclosan—on gingivitis through routine and short-term brushing. **Materials And Methods:** This study was a double-blind, controlled clinical trial conducted over two weeks at a single center. The participants had at least 20 natural teeth, no signs of disease progression, and unremarkable medical histories. Active treatment included oral hygiene instruction and scaling on the first day and were recalled after 14 days for follow up. The study subjects were initially examined using the indices GI, PI and BOP, followed by professional tooth cleaning. Each participant was then randomly assigned one of two dentifrices. The allocation was done by an independent person, ensuring the investigator remained blinded to the product identity. spss, Version 25.0, was used for the statistical analysis. Paired And Unpaired t-Test were applied to calculate the inferential statistics. The statistical constant was fixed at $P < 0.05$. **Results:** This study compared the efficacy of Omnident and Patanjali toothpastes using Plaque Index (PI), Gingival Index (GI), and Bleeding on Probing (BOP) scores, revealing key differences. Omnident, showed a greater reduction in PI, GI and BOP than Patanjali. Overall, both toothpastes improved oral health, suggesting that either could be effective for maintaining oral hygiene. However, Omnident has a slight advantage.

KEYWORDS

gingivitis, aloe vera, omnident.

INTRODUCTION

Gingivitis is a site-specific inflammatory condition caused by dental biofilm accumulation, characterized by gingival redness, swelling, and the absence of periodontal attachment loss. Despite its prevalence, gingivitis is often painless and rarely leads to spontaneous bleeding, causing many patients to be unaware of it. The most common form is chronic plaque-induced gingivitis, marked by redness, swelling, tenderness, and bleeding on probing. Due to its mild symptoms, it often remains untreated [1]. Mechanical plaque control methods such as toothbrushes, floss, and dentifrices are widely used, but only about one-third of the population can perform them effectively, leading to the introduction of chemical agents in dentifrices to assist in plaque control [2].

Herbal toothpastes have gained popularity due to their efficacy and minimal side effects. Aloe vera, with its over 75 active compounds, is known for its anti-inflammatory, wound healing, and antimicrobial properties, making it a suitable ingredient for dentifrices [3]. In contrast, Omnident contains 0.3% triclosan, a non-ionic chlorinated bisphenol with anti-inflammatory properties through inhibition of cyclo-oxygenase and lipoxygenase pathways. However, triclosan has moderate substantivity, which limits its antibacterial effect unless combined with co-polymers like PVM/MA to enhance retention [4].

This study aimed to assess the effectiveness of mechanical plaque control using two dentifrices—one containing aloe vera and the other 0.3% triclosan—on gingivitis through routine and short-term brushing.

MATERIALS AND METHODS

This study was a double-blind, randomized controlled clinical trial conducted over two weeks at a single center, adhering to the Declaration of Helsinki and Good Clinical Practice (GCP) guidelines. The protocol was approved by the ethics committee of the College of Dental Sciences and Research Centre, Gujarat. A total of 30 patients (8

females and 22 males) were enrolled after obtaining informed consent. The participants had at least 20 natural teeth, no signs of disease progression, and unremarkable medical histories. Active treatment included oral hygiene instruction and scaling on the first day and were recalled after 14 days for follow up.

Data Collection: Demographic data such as age, sex, and oral hygiene habits (including methods and frequency of brushing) were recorded. Gingival health was assessed using the following indices:

1. Gingival Index (Loe and Silness, 1967)
2. Plaque Index (Silness and Loe, 1964)

Baseline Data And Intervention: The study subjects were initially examined using the indices above, followed by professional tooth cleaning. Each participant was then randomly assigned one of two dentifrices—Aloe Vera Gel toothpaste or 0.3% Triclosan toothpaste. The allocation was done by an independent person, ensuring the investigator remained blinded to the product identity.

Post-test Examination: After 14 days, participants were re-examined by the same investigator using the same techniques and indices as at baseline.

Dentifrices Used:

1. Patanjali Dant Kanti Aloe Vera Gel Toothpaste

Ingredients: ayurvedic proprietary medicine

Composition: Each 100 g contains extract of - Aloe barbadensis Lf. (100 mg), Mentha piperata Lf. (30 mg), Syzygium aromaticum Fb. (30 mg), Amomum subulatum Fr. (30 mg), Cinnamomum zeylanicum Lf./St. B. (30 mg), Ocimum sanctum Lf. (30 mg), Achyranthes aspera Lf. (10 mg), Solenum xanthocarpum Wp. (10 mg), Glycyrrhiza glabra Rt. (10 mg), Azadirachta indica St. B. (10 mg), Salvadora persica St. (10 mg), Myristica fragrance Ft. (10 mg), Trachyspermum ammi Sd. (10 mg), Zingiber officinale Rh. (10 mg)

2. Omnident Toothpaste (Group Pharmaceuticals)

Ingredients: Sodium Monofluorophosphate (0.7% w/w), Triclosan (0.3% w/w), Zinc Sulfate (0.025% w/w), etc.

Inclusion Criteria:

1. No significant medical history.
2. No antibiotic use in the past 6 months.
3. At least 20 natural teeth.
4. Mild to moderate gingivitis.
5. No hypersensitivity to the dentifrices.

Exclusion Criteria:

1. Patients with periodontitis.
2. Smokers.

Conflict Of Interest: No funding or support was provided by Group Pharmaceuticals or Patanjali for this study.

Data Analysis: MS Excel 2016 was used to fabricate the data sheet. IBM SPSS Corp. in Armonk, New York for Windows, Version 25.0, was used for the statistical analysis. Paired And Unpaired t-Test were applied to calculate the inferential statistics. The statistical constant was fixed at $P < 0.05$

RESULTS

The study results showed both inter-group and intra-group comparisons for plaque index (PI), gingival index (GI), and bleeding on probing (BOP).

Intra-group Comparisons:

Plaque Index (PI): Both the Omnident and Patanjali groups had significant reductions in PI after 14 days. Omnident decreased PI from 0.92 ± 0.38 to 0.42 ± 0.21 ($P = 0.00001^*$), while Patanjali decreased PI from 1.21 ± 0.14 to 0.62 ± 0.13 ($P = 0.00001^*$).

	Mean	Sd	Significant
Omnident			
At baseline	0.92	0.38	0.00001***
After 14 days	0.42	0.21	
Patanjali :-			
At baseline	1.21	0.14	0.00001***
After 14 days	0.62	0.13	

Gingival Index (GI): Omnident's GI dropped from 0.83 ± 0.19 to 0.28 ± 0.11 ($P = 0.00001^*$), while Patanjali's GI also showed a significant reduction from 1.01 ± 0.44 to 0.58 ± 0.16 ($P = 0.00001^*$).

	MEAN	SD	Significant
Omnident			
At baseline	0.83	0.19	0.00001***
After 14 days	0.28	0.11	
Patanjali			
At baseline	1.01	0.44	0.00001***
After 14 days	0.58	0.16	

Bleeding On Probing (BOP): Omnident's BOP decreased from 1.07 ± 0.24 to 0.53 ± 0.19 ($P = 0.000^*$), while Patanjali's BOP saw a reduction from 1.16 ± 0.31 to 0.69 ± 0.24 ($P = 0.002$).

	MEAN	SD	Significant
Omnident			
At baseline	1.07	0.24	0.000**
After 14 days	0.53	0.19	
Patanjali			
At baseline	1.16	0.31	0.002*
After 14 days	0.69	0.24	

Inter-group Comparisons:

- Omnident and patanjali showed significant difference at baseline and after 14 days.

	Omnident	Patanjali	P value
At Baseline	0.92 ± 0.38	1.21 ± 0.14	0.03^*
After 14 days	0.42 ± 0.21	0.62 ± 0.13	0.01^*

- Omnident and patanjali showed significant difference at baseline and after 14 days.

	Omnident	Patanjali	P value
At Baseline	0.83 ± 0.19	1.01 ± 0.44	0.00^*
After 14 days	0.28 ± 0.11	0.58 ± 0.16	0.01^*

- Omnident and patanjali showed no significant difference at baseline but after 14 days they showed significant.

	Omnident	Patanjali	P value
At Baseline	1.07 ± 0.24	1.16 ± 0.31	0.30
After 14 days	0.53 ± 0.19	0.69 ± 0.24	0.00^*

DISCUSSION:

This study compared the efficacy of Omnident and Patanjali toothpastes using Plaque Index (PI), Gingival Index (GI), and Bleeding on Probing (BOP) scores, revealing significant differences in the reduction of these indices over the 14-day period. Omnident, containing 0.3% triclosan, showed a greater reduction in PI, GI, and BOP scores than Patanjali, which contains herbal ingredients such as neem, clove, and babool.

Omnident's superior efficacy is largely attributed to the presence of triclosan, a well-known antimicrobial agent. Triclosan is known for its ability to reduce plaque formation and gingival inflammation. Studies, such as those by Davies et al. (2004) and Gunsolley (2006), have consistently demonstrated that triclosan/copolymer-based toothpastes significantly reduce plaque and gingivitis, even outperforming fluoride-only formulations (9, 5). These studies found that triclosan inhibits bacterial growth by disrupting cell membranes, particularly those of *Streptococcus mutans*, a key contributor to plaque formation and gingivitis. The antibacterial properties of triclosan, combined with its anti-inflammatory effects through the inhibition of cyclooxygenase and lipoxygenase pathways, make it particularly effective for managing gingival inflammation and plaque accumulation. Gunsolley (2006) found a marked reduction in gingival bleeding and plaque when using triclosan-based toothpaste, which aligns with the findings of this study, where Omnident showed significant improvements in PI, GI, and BOP scores (5).

In contrast, Patanjali, a herbal-based toothpaste containing ingredients such as neem, clove, and babool, also demonstrated positive effects on gingival health, though to a lesser extent than Omnident. Neem has long been recognized for its antibacterial properties, while clove is known for its analgesic and antimicrobial effects. Studies by Acharya et al. (2010) and Kamath et al. (2019) support the findings that herbal ingredients like neem and clove reduce bacterial load in the oral cavity, leading to improvements in gingival inflammation and bleeding (7, 13). Acharya et al. (2010) found that neem-based toothpastes significantly reduced plaque and gingivitis scores, supporting the results observed in this study with Patanjali toothpaste (7). Kamath et al. (2019) also demonstrated that herbal toothpastes containing clove and other ingredients resulted in noticeable improvements in gingival health, similar to the reductions in GI and BOP seen in Patanjali users in this trial (13).

While both toothpastes reduced plaque and gingival inflammation, the results suggest that Omnident, with its triclosan content, is more effective for reducing PI, GI, and BOP in a shorter duration. This is consistent with a previous study by Tatikonda et al. (2014), which concluded that triclosan-based toothpastes tend to show superior results in controlling plaque and gingivitis compared to their herbal counterparts (2). Additionally, the addition of fluoride (as seen in Omnident) may enhance plaque control, as fluoride is known to inhibit the demineralization of teeth and reduce plaque formation. However, it is important to note that Patanjali's herbal formulation offers a natural alternative, which may appeal to individuals seeking chemical-free oral care products.

One potential limitation of this study is the relatively short duration (14 days). Previous studies, such as those by Lindhe et al. (1993) and Riley and Lamont (2006), demonstrated that the full effects of triclosan-based toothpastes on gingival health may take several weeks or months to manifest (10, 5). Thus, while Omnident showed more significant results in the short term, longer-term studies are necessary to assess the sustained efficacy of both formulations. Furthermore, the study population was limited to a small cohort of 30 participants from Gujarat, which may limit the generalizability of the findings to broader populations. Future research should aim to include a larger sample size and a more diverse population to validate these results across different demographics.

In conclusion, this study suggests that both Omnident and Patanjali toothpastes are effective in reducing plaque, gingival inflammation, and bleeding on probing, with Omnident demonstrating a slight but significant advantage in the short term. While both formulations have their merits, further long-term research is needed to evaluate their sustained effects on oral health.

CONCLUSION:

The results of this study demonstrate that both Omnident and Patanjali toothpastes are effective in reducing plaque index (PI), gingival index (GI), and bleeding on probing (BOP) over a 14-day period. Overall, both toothpastes improved oral health, suggesting that either could be effective for maintaining oral hygiene. However, Omnident proved to be significantly more effective in reducing gingivitis compared to Patanjali.

REFERENCES:

1. Trombelli L, Farina R, Silva CO, Tatakis DN. Plaque-induced gingivitis: case definition and diagnostic considerations. *J Periodontol*. 2018 Jun;89 Suppl 1:S46-S73.
2. Tatikonda A, Debnath S, Chauhan VS, Chaurasia VR, Taranath M, Sharma AM. Effects of herbal and non-herbal toothpastes on plaque and gingivitis: a clinical comparative study. *J Int Soc Prevent Communit Dent*. 2014;4(2):126-9.
3. Ibrahim O.Z., Mohsin A.A., Alhammashi M.H., Jafa J.S. The effect of commercial toothpaste containing aloe vera on dental plaque and gingivitis: a double-blind randomized clinical trial. *Indian J Forensic Med Toxicol*. 2021;15(2):123-128.
4. Umashankar GK, Vanishree MK, Pramila M, Jugale P, Verma A. The effectiveness of tooth brushing with dentifrice containing 0.3% triclosan on gingivitis: an experimental study. *J Indian Assoc Public Health Dent*. 2011;18(2):1-5.
5. Riley P, Lamont T. Triclosan produces statistically significant reduction of plaque, gingivitis, and caries but not clinically important benefits. *Br Dent J*. 2006;200(2):75-9.
6. KK S, Gangwar C, Sharma S, et al. Comparative evaluation of herbal versus non-herbal dentifrice in maintaining oral health of young adults. *Cureus*. 2024 Jul 25;16(7):e65331. doi:10.7759/cureus.65331.
7. Abhishek KN, Supreetha S, Sam G, Khan SN, Chaithanya KH, Abdul N. Effect of neem-containing toothpaste on plaque and gingivitis—A randomized double-blind clinical trial. *J Contemp Dent Pract*. 2015;16(11):880-883.
8. Regos J, Zak O, Solf R, Vischer WA, Weirich EG. Antimicrobial spectrum of triclosan, a broad-spectrum antimicrobial agent for topical application. *Dermatologica*. 1979;158(1):72-79.
9. Bruhn G, Netuschil L, Richter S, Brex M, Hoffmann T. Effect of a toothpaste containing triclosan on dental plaque, gingivitis, and bleeding on probing: an investigation in periodontitis patients over 28 weeks. *Clin Oral Investig*. 2002;6(2):124-127.
10. Lindhe J, Rosling B, Socransky SS, Volpe AR. The effect of a triclosan-containing dentifrice on established plaque and gingivitis. *J Clin Periodontol*. 1993;20(5):327-334.
11. Shenoy RP, Salam ATA, Agrawal R, Shenoy PK. Oral hygiene practices and their influence on the oral health of adolescents. *Int J Community Med Public Health*. 2020;7(7):2556-2561.
12. Ramberg P, Furuiehi Y, Slier I, Volpe AR, Nabi N, Gaffar A, Lindhe J. The effect of triclosan on developing gingivitis. *J Clin Periodontol*. 1995;22(6):442-448.
13. Hosadurga R, Boloor VA, Rao SN, Meghrani N. Effectiveness of two different herbal toothpaste formulations in the reduction of plaque and gingival inflammation in patients with established gingivitis: a randomized controlled trial. *J Tradit Complement Med*. 2018;8(2):113-119.
14. Oliveira SMA, Torres TC, Pereira SL, Mota OML, Carlos MX. Effects of a dentifrice containing aloe vera on plaque and gingivitis control: a double-blind clinical study in humans. *J Appl Oral Sci*. 2008;16(4):293-296.