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The Effect of Alka-White Mint and Alka-White Turmeric on the Oral Cavity

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Abstract

Acidic saliva may be detrimental to a person's oral cavity, as it may cause demineralization, decay and erosion of the teeth. Furthermore, acidic saliva can cause cervical root erosion and sensitivity. Oral saliva plays a major role in digestion and may be an indicator of over-all systematic health. Alkaline saliva, a pH of 7.2 or higher, allows teeth to remineralize, thereby preventing and sometimes curing caries.

To avoid acidic saliva, Alka-White, a natural oral care company, has formulated two types of proprietary mouthwash, under patent #517759481np, which alkalizes the oral cavity, whitens teeth and freshens breath. This experiment provides evidence of the effectiveness of these two types of mouthwash, Alka-White Mint, and Alka-White Turmeric. The effectiveness of mouthwashes was established by taking three measurements before and after rinsing. The three measurements include pH of oral saliva, freshness of breath and whitening effects on teeth. These measurements were recorded through different instruments: litmus paper to determine pH, patient questionnaire to attain freshness feedback and intraoral camera to picture teeth whitening. This was conducted on two test groups, Alka-White Mint and Alka-White Turmeric. The experiment consisted of a random selection of at least 30 patients for each test group and was carried out at Holistic Dentists in Manhattan, New York. To remain consistent, each patient was asked to rinse for thirty seconds with the same amount of initial water solution, 100 milliliters, and one full tablet of dry mouthwash solution, which was manufactured by Ameri-Lab Technologies. There was no bias on patient population pool; however, the following data was noted as introductory information with patient results: name, gender, date of birth, race, and last time brushing, eating and drinking.

After conducting the study on 72 patients, 41 with Alka-White Mint and 31 with Alka-White Turmeric, it has been determined that Alka-White Mint and Alka-White Turmeric alkalizes the oral cavity, whitens teeth and freshens breath with just one vigorous thirty-second rinse. Alka-White Mint and Alka-White Turmeric, on average, increased the oral saliva pH by 1.26 and 1.50. Furthermore, for Alka-White Mint and Alka-White Turmeric, 92.68% and 93.54% participants, respectively, agreed that they noticed their teeth had gotten whiter while 97.56% and 96.77% participants, respectively, had agreed they had fresher breath after rinsing. Alka-White will conduct future studies to determine the long-term scientific results of the Alka-White mouthwashes.

Keywords: *Alka-White Mint; Alka-White Turmeric; Mouthwash; Anti-Acidic; Alkalizing; Saliva; Oral Cavity*

Introduction

Changes in microbial and environmental dynamics in microbial ecosystems may increase the potential for pathogenicity within a microbial ecosystem and subsequently initiate and promote oral diseases [1]. These successional changes have recently and tentatively been referred to by Marsh as the ecological plaque hypothesis [2]. Oral saliva pH is important because of its role in oral and systematic health. Depending on the pH of saliva, it may demineralize or remineralize the tooth, cause or prevent decay, and may be an indicator of salivary gland pathology disorders.

In recent years, Dr. Lewis Gross, Columbia School of Dentistry Graduate and New York Holistic Dentist, had noticed an increasing prevalence in acidic saliva amongst his patients, and thus, created an oral care company which formulated two types of mouthwash to prevent his patients from the acidity. The purpose of this experiment is to provide evidence of effectiveness for two types of mouthwash, Alka-White, and Alka-White-Turmeric. The hypothesis is if Alka-White mouthwash is rinsed in the mouth vigorously for thirty seconds, then the pH level of saliva of the oral cavity will increase significantly due to the alkalinizing chemical properties of sodium bicarbonate. Furthermore, it will whiten teeth due to the abrasiveness properties of sodium bicarbonate and freshen breath due to the natural peppermint flavor ingredient in the formulation.

Sodium bicarbonate, also known as baking soda, is the only active ingredient of Alka-White and Alka-White Turmeric. Sodium bicarbonate has gone through extensive research on its effect to the oral cavity before. It was determined, that sodium bicarbonate-based dentifrices containing sodium bicarbonate were significantly effective in removing the yellow intrinsic tooth stain [3]. This notion stems from the abrasive properties of sodium bicarbonate. Sodium bicarbonate has been used as an antacid as well as advocated as an ingredient in both toothpastes and mouth rinses. It has been generally regarded as a bactericidal agent that generates a hypertonic (causing water to flow out of the cell) environment, leading to disruption of the fluid equilibrium of the cell and dehydration, plasmolysis (cell shrinkage due to loss of water by osmosis), and eventual cell death [4].

The main and only active ingredient for both products are sodium bicarbonate. However, the combination of different inactive ingredients, such as coconut oil, tea tree oil, and natural peppermint flavor may affect the cosmetic and therapeutic outcomes of the active ingredient, sodium bicarbonate. The purpose and significance of this study is to provide evidence of effectiveness for two types of mouthwash Alka-White and Alka-White Turmeric.

Materials and Methods

The effectiveness of mouthwashes will be established by taking three measurements before and after rinsing. The three measurements include pH in oral saliva, the freshness of breath and whitening effects. These measurements were recorded through different instruments: Good America litmus paper to determine pH, patient feedback to attain freshness of breath and Schick intraoral camera to picture whitening effects. This will be done on two test groups which include: Alka-White Mint and Alka-White-Turmeric. The experiment will consist of a random selection of at least 30 patients for each test group and will be conducted at Holistic Dentists in Manhattan, New York. To remain consistent, each patient will rinse for thirty seconds with the same amount of initial water solution of 100 millimeters. There will be no bias on patient population pool; however, the following data will be noted as introductory information with patient results: name, gender, date of birth, race, and last time brushing, eating and drinking.

Material	Company
Alka-White Mint	Formulated by Dr. Gross and manufactured by Ameri-lab technologies. *
Alka-White Turmeric	Formulated by Dr. Gross and manufactured by Ameri-lab technologies. *
Litmus paper	pH Balance Life, P.O. Box 1893, Crystal Lake, IL. 60039
Intraoral camera	Schick by Sirona Dental, USBCAM2
Patient Questionnaire	Created by Mr. Sameer Atrash
Water	New York Tap Water
Plastic cups	BencoDental, Pittston, Pennsylvania
Gloves	BencoDental, Pittston, Pennsylvania

**Manufactured at: 2765 Niagara Ln N, Minneapolis, MN 55447*

Protocol:

1) Greet Patient, introduce yourself and collect all introductory information. All introductory information may be found above.
2) Before taking any measurements ask introductory questions 1-3, which can be located on the questionnaire manual found below.
3) Ask patient to spit in cup and place litmus paper on spit to measure initial pH of oral saliva.
4) Use intraoral camera device to take photos of gum baseline.
5) Introduce patient to product and explain to patient how it is used.
6) Place one full tablet in cup with 100-millimeter water solution.
7) Wait 30 seconds for dissolve time.
8) Allow patient to rinse mouthwash for thirty seconds.
9) Re take measurements of step 3 and 4.
10) Ask questions 4-10 from questionnaire manual.
11) Thank patient for taking time out of their day to be with you.
12) Fill out rest of questionnaire and patient summary form.
13) Plug in data to Microsoft excel and neatly organize physical results in file.
14) Make sure all data is neatly organized digitally as well as physically before seeing next patient.

Questionnaire Manual:

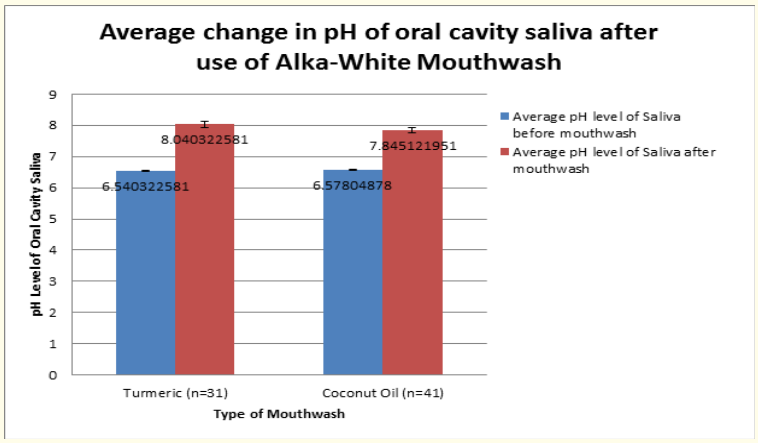
1) Which mouthwash do you currently use and is there a specific reason why you use that mouthwash?
2) What main factors drive you to buy certain mouthwash over others?
3) Price, flavor, brand, formulation and effectiveness are a few examples of factors.
4) Would you be interested in mouthwash that contains no alcohol and has natural essential oils and spices?
5) Did the mouthwash do an adequate job of removing malodor (bad breath)?
6) Would you say that you have fresher breath after rinsing with this mouthwash?
7) After reviewing the photos do you believe your teeth have gotten whiter?
8) What did you think overall of the product, were you satisfied?
9) If I were to ask you to describe this mouthwash to a friend, how would you describe and what would you say?
10) What adjustments would you recommend this product make?
11) Do you know of a relative or friend who would want this product? If so, why?

Patient Summary Form:

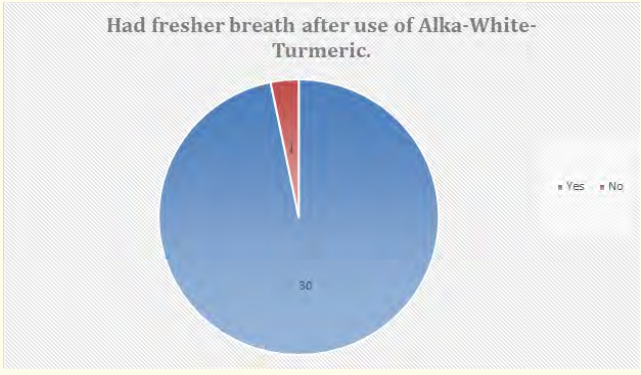
1) Name, gender, race, age, and last time brushing, eating and drinking:
2) Before and after: pH, freshness of breath, whitening of teeth:
3) Attitude about the overall process and product:
4) Biggest Wish/ Desire:
5) Flavor, price, point of purchase and other general insights:
6) Favorite Quote from interview:

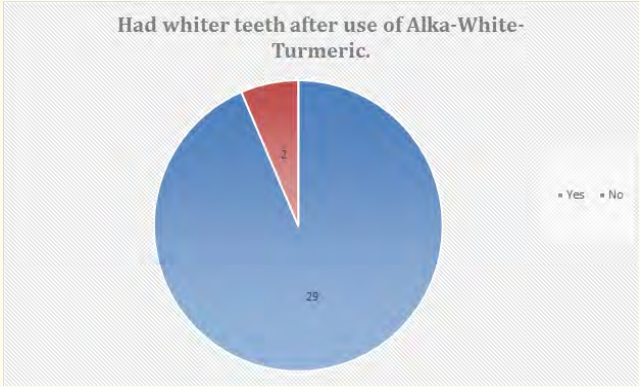
Results

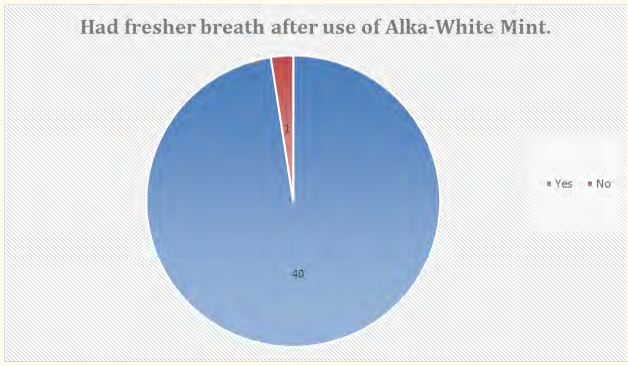
After conducting the protocol on 31 patients for Alka-White Turmeric and 41 patients for Alka-White Mint, the following results have been determined. The average pH of the oral cavity saliva after the use of Alka-White Turmeric was roughly 1.5, while Alka-White Mint was approximately 1.27. One patient out of the 31 patients that used Alka-White Turmeric did not have fresher breath. Two patients out of the 31 patients that used Alka-White Turmeric did not notice their teeth getting whiter. For Alka-White Mint, one patient out of the 41 did not have fresher breath and three out of the 41 did not see their teeth getting whiter.

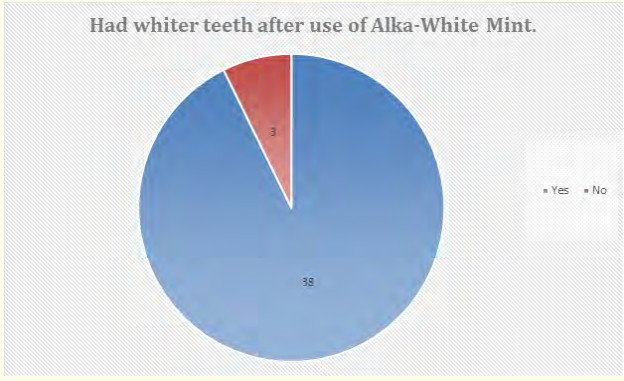


	% of patients who had fresher breath after one thirty second rinse	% of patients who had whiter teeth after one thirty second rinse
Alka-White Turmeric	96.77%	93.55%
Alka-White Mint	97.56%	92.68%









Discussion

Saliva contains specific buffer mechanisms such as bicarbonate, phosphate and some protein systems which not only have a buffer effect but also provide ideal conditions for automatically eliminating certain bacterial components that require a very low pH to survive [5]. Acidic saliva may be detrimental to a person's oral cavity as it may cause tooth demineralization, decay, and erosion. The drop of pH creates an environment that helps the growth of acidophilic microorganisms, such as *Streptococcus Mutans* and the *Lactobacilli*, which find the ideal conditions for promoting further pH drops and possible areas of demineralization of the dental enamel [6]. Currently, few types of mouthwash aim to alkalize the oral cavity. Providing evidence that mouthwash could alkalize the oral cavity could improve the overall health of a person's oral cavity if they consistently use that mouthwash.

In this study, we measured the pH of the oral saliva using litmus paper, the whiteness of teeth using an intraoral camera and the freshness of breath by a patient questionnaire. Existing literature provides evidence that sodium bicarbonate may act as a buffer against acidity, alkalize the oral cavity and whiten teeth. For instance, results of a study indicated that the baking soda dentifrice was more effective than the non-baking soda, antimicrobial dentifrice in plaque removal after a single tooth brushing, and in maintaining significantly lower plaque levels during a four-week period of twice daily, unsupervised tooth brushing [6]. However, even though the only main ingredient of both Alka-White types of mouthwash is sodium bicarbonate, there are other inactive ingredients which may disrupt the normal therapeutic and cosmetic effects of sodium bicarbonate. Through the results, it has been determined that Alka-White Turmeric and Alka-White Mint alkalizes the oral cavity, whitens teeth and freshens breath after a thirty-second vigorous rinse.

There were limitations in regarding the study. The biggest limiting condition was conducting the research at a dental practice rather than in a focus group setting. Each patient had a different time of when they had last eaten food, drank liquid or brushed their teeth. Furthermore, each food or liquid for each patient was different, creating many confounding factors. These factors may have tampered with the results. For future studies, it is imperative to further limit confounding factors by asking the entire patient population not to eat, drink or brush, two hours before testing. Furthermore, taking measurements 15 minutes, 30 minutes, one hour and two hours after rinsing, would further provide concrete evidence of effectiveness.

Conclusion

Both Alka-White mouthwashes, Turmeric and Mint, are both effective in alkalizing the oral cavity, whitening teeth and freshening breath.

Recommendation

For future studies, it is imperative to limit confounding factors and to conduct a longitudinal study to provide more concrete evidence of effectiveness.

Conflict of Interest

No conflict of interest, researcher has no equity or monetary reward in business or results.

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