

# Research Journal of Pharmaceutical, Biological and Chemical Sciences

## Efficacy of Oil Infused Toothpaste Against Oil Pulling: A Study.

Anirudha Kablian\*, and Jaiganesh Ramamurthy.

Saveetha dental college, Tamil Nadu, India.

### ABSTRACT

To study the efficiency of oil infused tooth paste against oil pulling. To infuse, one of the commonly used oil for oil pulling, coconut or sesame oil into tooth paste and to compare the efficiency of oil pulling with that of oil infused tooth paste. To administrator oil infused toothpaste to subjects with gingivitis and to compare it with that of oil pulling. The phrase "oil pulling" was popularised in the early 1990s. Coconut oil and sesame oil have been used for oil pulling. The act of oil pulling has proved to reduce oral bacterial count and counteract halitosis. The reduction in bacterial count can be attributed to the formation of thin film over the surfaces of the teeth ultimately decreasing ability of adherence of substances. Oil pulling with sesame seed oil moisturizes gums, which can provide a measure of relief to those suffering from dry mouth. Dry mouth is known to increase bacteria growth. The use of coconut oil for the same has teeth whitening abilities. Apart from the oral manifestations; oil pulling has shown significant positive effects on certain systemic illness like headaches, migraines, diabetes mellitus, asthma, and acne. It is said to work by pulling out toxins from the oral cavity, which is known as "ama" in ayurvedic medicine, thereby reducing inflammation of the periodontium. This study article is aimed at bringing in the benefits of oil pulling during the act of brushing. Maintaining proper oral hygiene has become mandatory to eliminate much oral as well as systemic illness. Regular brushing, oil pulling and flossing are required to establish healthy oral tissues. Due to lack of time to carry out these combusting procedures, oils commonly used for oil pulling can be incorporated into tooth paste to obtain the benefits of brushing as well as oil pulling in less time.

**Keywords:** Oil pulling, coconut oil, tooth paste, oral hygiene, oil infused tooth paste.

*\*Corresponding author*

## INTRODUCTION

Oral diseases are a major contributing factor for various health issues. The use of various chemotherapeutic agents and antibiotic for systemic ailments tends to alter the oral biology and homeostasis. These changes in the oral environment help the opportunistic infections to take an upper hand. In order to control these changes various chemical agents are being used. The recent decade has realised the effectiveness of naturally available agents to eliminate or to the least minimize these alterations taking place in the oral cavity. Oil pulling, which is presently being considered as a part of complementary and Alternative Medicine, is a procedure that involves swishing oil in the mouth for oral and systemic health benefits. It is mentioned in the Ayurvedic text Charaka Samhita where it is called Kavala. Oil pulling claims to cure about systemic disease apart from imparting oral benefits. Oil pulling was extensively used as a traditional remedy for to prevent decay, oral malodour, bleeding gums, dryness of throat, cracked lips and for strengthening teeth, gums and the jaw.

Oil pulling therapy can be done using oils like sunflower oil or sesame oil. Gandusha and Kavala Graha are two oral cleansing techniques; specialized therapy to treat as well as to prevent oral diseases. In Gandusha, the oral cavity is filled completely with liquid medicine, held for about 3-5 minutes, and then released. In Kavala Graha, a comfortable amount of fluid is retained with the mouth closed for about 3 minutes, and then gargled. It was considered as a simple rejuvenating treatment which when done on a routine basis would enhance the senses, maintain clarity, bring about a feeling of freshness. These cleansing modalities can also benefit bad breath, dry face, dull senses, exhaustion, and anorexia, loss of taste, impaired vision and sore throat. With regards to the oral cavity oil pulling showed a reduction in the plaque accumulation and gingival inflammation.

As a well known fact, oil pulling is a time consuming process and hence an easier and efficient method of maintaining oral hygiene with the desired effects of oil pulling was wished to be devised. During the recent times, lime light is being thrown onto the beneficial role of natural products for maintaining oral hygiene. One such natural product is coconut oil. Much toothpaste has been formulated with coconut as an important ingredient. The use of one such formulation is being used in this study to compare the efficacy of oil pulling against oil reinforced toothpaste.

## METHODS AND MATERIALS

To conduct this study various toothpaste formulations were tried and a final formulation was decided upon.

The toothpaste contained a combination of the below listed materials

- Calcium carbonate
- Bentonite clay
- Baking soda
- Distilled water
- Peppermint oil
- Coconut oil.

Each of the ingredients has a significant role in improving the standards of oral hygiene.

A Proforma which contained a record of gingival index, plaque index and salivary pH along with other details such as the name, age, sex and oral hygiene practice was maintained as a record to compare the preoperative and postoperative data of value.

Scores ranging from 0 to 3 were given based on the following criteria to rate the gingival status:

- 0- Normal gingival
- 1- Mild inflammation, slight change in colour, slight oedema and no bleeding on probing
- 2- Moderate inflammation, moderate glazing redness, oedema and hypertrophy bleeding on probing
- 3- Severe inflammation, marked redness, oedema and hypertrophy, ulceration, tendency to bleed spontaneously

For plaque the below mentioned method was used

- 0- No plaque
- 1- A film of plaque adhering to the free gingival margin and adjacent area of the tooth. The plaque may be seen in situ only after application of disclosing solution or by using the probe on the tooth surface.
- 2- Moderate accumulation of soft deposit s within the gingival pocket, or the tooth and gingival margin which can be seen with the naked eye.
- 3- Abundance of soft matter within the gingival pocket and/or on the tooth and gingival margin.

After administration of the toothpaste, modified bass technique of brushing was demonstrated and the volunteers were as to follow this method for brushing to establish a better oral hygiene. The participants were recalled after 15 days for evaluation. The changes in the gingival index and plaque index was noted and then compared to that of oil pulling.

**RESULT**

A baseline value was determined for both gingival and plaque index in order to clearly distinguish difference that exists before and after the use of the toothpaste. The mean and the standard deviation were then calculated. The values that determine the ability of oil pulling were obtained from an article titled - "Effect of coconut oil in plaque related gingivitis".[2] The mean gingival index was 0.91 and 1.33and the plaque index was 1.19 and 1.04 at baseline for participant who practiced oil pulling and who used oil infused toothpaste respectively. In comparison to the baseline values both the gingival and the plaque indices substantially reduced during the period of assessment. In addition to the changes in the gingival and plaque index there was a fall in the salivary pH from 8 to 7.The values of derived for the participants before and after administration of the toothpaste is plotted in the form of bar chart for able cognition.

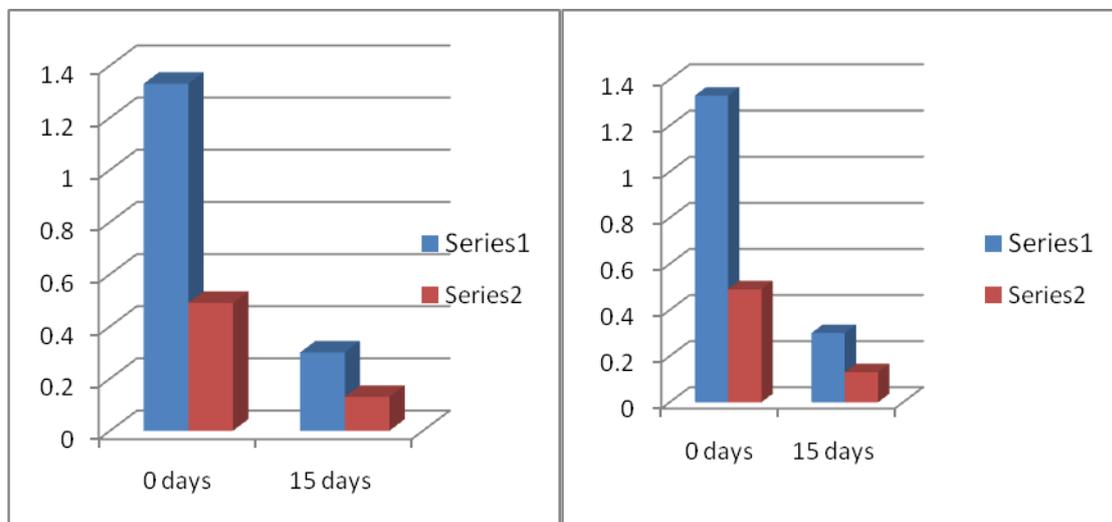


Figure -1

Figure -2

Figure -1- gingival index before and after using oil infused toothpaste

Figure-2 –plaque index before and after using oil infused toothpaste

Series 1- mean; Series 2- standard deviation

	Gingival index	
	oil infused toothpaste	oil pulling
Mean	0.3	0.59
standard deviation	0.13	0.27

	Plaque index	
	oil infused toothpaste	oil pulling
Mean	<b>0.30</b>	0.44
standard deviation	<b>0.23</b>	0.37

Weighing the obtained results after the use of the toothpaste it can be said that the efficiency of oil pulling is achieved through the use of oil infused toothpaste. There is a significant decrease in the gingival index under the umbrella of oil infused toothpaste.

### DISCUSSION

Brushing is one of the most important daily core activities performed. Brushing is one least time consuming process that establishes a satisfying oral status when compared to the other modalities namely flossing, oil pulling or use of mouth washes. Although the act of brushing is carried out by every individual, many people have high plaque index or calculus index. Thus choosing an effective surface acting agent with optimum beneficial effect and least side effects is mandatory. The increased in the chemical content of various commercially available toothpastes are being noted by the people of this era and hence alternate naturally prepared toothpaste are being sort after. One such formulation which is partially natural is a mixture of the calcium carbonate, bentonite clay, baking soda, peppermint oil and coconut oil. Each ingredient acts individually and in combination with the other constituents of the toothpaste to initiate and provide the desired effect.

Bentonite clay a volcanic ash derivative is a mild abaravise. Bentonite clay plays a pivotal role in the gentle removal of plaque from the tooth surface Apart from the role of plaque removal , it also renders a helping hand in maintain the oral pH and lowering the bacterial count due to its buffering and anti-bacterial activity respectively. Peppermint oil provides a refreshing feel. The use of coconut oil is to drive away the notorious stimulant for gingival inflammation is beneficial. [7]The high soaponification value of coconut oil plays a major role in reduction of plaque.[2]

The alkali in the saliva reacts with the coconut oil and creates an environment where plaque adhesion is made nearly impossible. To be chemically precise the laurel acid present in the coconut oil reacts with the sodium hydroxide in the saliva to produce sodium laurite which enhances the oral clearance.[10] Further coconut oil is said to hasten would heal. Coconut oil also has substantial antimicrobial activity which can be attributed to the presence of monolaurin in coconut oil.[5] Coconut oil is an easily usable, safe and cost effective agent with minimal side effects and therefore can be effectively used as an adjuvant in oral hygiene maintenance.[2] To precisely say the incorporation of coconut oil into toothpaste formulation can be taken be exploited due to the presence of desirable properties.

Oral health is of utmost importance to every Tom Dick and Harry in the present scenario. The habit of brushing is being taught and emphasised right from early childhood. Most patients with gingivitis who used the toothpaste reported that they felt much more refreshing after the use of oil infused toothpaste. They also added that they felt much more confident due to elimination of bad odour which they felt they had previously. In this study it was bought to notice that most of the Indian mobs use a wrong method of brushing and hence are unable to eliminate the etiological factor of gingival inflammation inspite regular brushing. Emphasis was given on the need to deviate from their respective conventional brushing motion and to adapt the modified Bass technique to brush. Further investigations like the bacterial counts before and after the use toothpaste to prove the standards of this oil infused toothpaste is required. Although there are no evidences for the systemic effects of the oil infused toothpaste, as in case of oil pulling, the presence of an ideal, hygienic plaque free oral cavity can be considered as a stepping stone for healthy and holistic living

### CONCLUSION

The regular use of oil infused toothpaste clinically shows similar or to say far superior results when compared to that of oil pulling like reduced gingival inflammation, plaque index and salivary pH. Thus it can be concisely said that the choice of oil infused toothpaste along with an efficient mechanical cleansing modality



even in the absence of other supplementary oral hygiene techniques can be related to decreased incidence of plaque accumulation thereby leading to reduced incidence of gingivitis.

#### REFERENCES

- [1] Sooryavanshi S, Mardikar BR. *Anc Sci Life* 1994;13:266–70.
- [2] Faizal C, Peedikayil, Prathima Sreenivasan, and Arun Narayanan, Effect of coconut oil in plaque related gingivitis a preliminary report. [PMCID: PMC4382606]
- [3] Abhinav Singh and Bharathi Purohit, Tooth brushing, Oil pulling and tissue regeneration: A review of holistic approaches to oral health [PMCID: PMC3131773]
- [4] Poonam Tonar, Sudeer hongal, Manish jain, Oil pulling and oral health: a review, *IJSS* August 2014 vol 1 issue 3
- [5] Bruce Fife MD. *Health Colorado Springs, The healing miracle of coconut oil*. Wise publications Co. 1st edition. 2000. Piccadilly Books Ltd; pp. 1–46.
- [6] Amith HV, Ankola AV, Nagesh L. *J Oral Health Community Dent*. 2007;1:12–8.
- [7] Asokan S, Emmadi P, Chamundeswari R. *Indian J Dent Res* 2009;20:47–51.
- [8] Ambika S. Kartik. *Fundamentals of biochemistry for medical students*; 7th edition. 2001 pp. 50–4.
- [9] Alsberg CL, Taylor AE. *The Fats and Oils - A General Overview*; Stanford University Press; 1928. p. 86.
- [10] Pavia DL, Lampman GM, Kriz GS. , *Introduction to Organic Laboratory Techniques: A Small Scale Approach*; Engel RG. Brooks/Cole Laboratory series for organic chemistry 2nd edition. 2004. pp. 252–65