

## OIL PULLING THERAPY AND THE ROLE OF COCONUT OIL

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### Abstract

Oil pulling is a traditional remedy for many oral and systemic diseases. Eventhough different edible oils are used, the scientific evidence for oil pulling is scarce. Recent literature shows that coconut oil is effective for many systemic diseases and also against bacterial, viral and fungal infections because of the presence of Monolaurin, a medium chain fatty acid. This article reviews the literature regarding oil pulling therapy and the use of coconut oil in oil pulling therapy against oral diseases.

**Key words:** oil pulling, coconut oil , monolaurin

### INTRODUCTION

Oil pulling or oil swishing therapy is a traditional procedure in which the practitioner rinses or swish oil in their mouth for preventing dental caries, oral malodor, bleeding gums, dryness of throat and cracked lips<sup>1,2</sup>

Oil pulling is an age-old process mentioned in Charaka Samhita and Sushruta's Arthashastra. It is referred to as Kavala Graha and Kavala Gandoosha. In Gandoosha the mouth is completely filled with oil so that gargling is impossible and is spitte after 3-5 minutes, whereas in Kavala Graha, a comfortable amount of fluid is retained in the mouth and gargled<sup>3,4</sup>. In Ayurveda this procedure is said to cure about 30 systemic diseases and basically slows down ageing process<sup>1</sup>. Oil pulling was familiarized in Russia in 1990's by Dr F Karach<sup>5</sup>

Oil pulling is preferably done in the morning on empty stomach, the oil is taken in the mouth, sipped sucked and pulled between the teeth for 10-15 minutes, the oil turns thin and milky white. The oil should not be swallowed as it contains bacteria and toxins. Oil pulling therapy should be followed by tooth brushing<sup>1</sup>.

A variety of common edible oils are used for oil pulling therapy. Sesame oil and sunflower oil has been used

as traditional folk remedy for years. Literature also mentions about the use of other oils like coconut oil, groundnut oil, olive oil, mustard oil and extracts of gooseberries and mango leaf extracts<sup>2,6</sup>. The use of these edible oils have certain advantages over commercially available mouth washes as edible oils do not cause any staining, no bad after taste, causes no allergic reactions and is readily available in the household<sup>2,5,6</sup>.

### Efficacy of oil pulling

Oil-pulling therapy with edible oils has been extensively used as a traditional Indian folk remedy for many years<sup>1</sup>. The exact mechanism of action of oil pulling is not clear. Some claim that by oil pulling it sucks up bacteria, toxins pus and mucous.<sup>7</sup> Scientifically it cannot be proved as the oral mucosa is not a semi permeable membrane to allow toxins etc to pass through. It is proposed that viscosity of oil can inhibit bacterial invasion and plaque adhesion. Other possible mechanism may be saponification process that results that occurs as a result of alkali hydrolysis of oil by bicarbonates in saliva<sup>8</sup>. These soaps act as good cleansing agents in removing micro organisms or plaque materials. Asokan et al found that sesame oil has no direct antibacterial action other than emulsification and saponification<sup>9</sup>.

There are only very few studies till date assessing the dental benefits of Oil Pulling. The first study to be published is by Amith HV<sup>5</sup> in Journal of oral health and community of community dentistry. This study assessed the effect of oil pulling by sunflower oil on plaque and gingivitis. The results showed reduction in plaque and gingival scores from baseline to 45 days were found to be statistically significant.

A study by Asokan et al<sup>10</sup> to evaluate the effect of sesame oil on count of streptococcus mutans in plaque and saliva of children, found statistically significant reduction of streptococcus mutans count in plaque and saliva after oil pulling. Another study was done by Asokan et al<sup>8</sup> to evaluate the oil pulling with sesame oil on plaque induced gingivitis, and to compare its efficacy with chlorhexidine mouth wash. A total of 20 age matched patients with plaque induced gingivitis were selected. Plaque index and modified gingival index were recorded for all subjects before and after the study. There was statistically significant reduction in pre and post values of plaque and gingival index scores in both study and control groups.

In a study by Thaweboon S<sup>6</sup>, it was found that coconut oil exhibited antimicrobial activity against *S. mutans* and *C. albicans* whereas sesame oil had activity against *S. mutans* and sunflower oil showed only antifungal activity. Other oils such as corn oil, palm oil, rice bran oil and soy bean oil showed no antimicrobial activity against tested microorganisms

Asokan et al<sup>11</sup> in a study to evaluate the effect of oil pulling with sesame oil on halitosis and the microorganisms that could be responsible for it found that sesame oil pulling is equally effective as chlorhexidine mouth wash.

### **Efficacy of coconut oil**

Even though coconut oil was used for oil pulling as the traditional oral health measure in coconut farming areas, there is only one study in the literature on evaluation of coconut oil pulling on oral health<sup>6</sup>. In Athlone Institute of Technology a study was conducted to find the antibacterial action of coconut oil in its natural state and enzyme added coconut oil. The oils were tested against strains of *Streptococcus* bacteria which are common inhabitants of the mouth. They found that enzyme-modified coconut oil strongly inhibited the growth of most strains of *Streptococcus* bacteria including *Streptococcus mutans*<sup>12</sup>

Coconut oil has a unique role in the diet as important functional food. The difference between coconut oil and other edible oils is that coconut oil has a medium chain fatty acid whereas other edible oils are composed of long long chain fatty acids. The medium sized monoglycerides is hypothesized to alter bacterial cell wall, inhibit enzymes involved in energy production leading to the death of the bacteria. Also found that medium-chain saturated fatty acids and their derivatives act by disrupting the lipid membranes of the organisms<sup>6,13,14,15</sup>

The lauric acid in coconut oil is used by the body to make the same disease fighting fatty acid derivative monolaurin that babies make from the lauric acid they get from their mother's milk. The monoglyceride monolaurin is the substance that keeps infants from getting viral or bacterial or protozoal infections<sup>14,15</sup>. Until just recently, this important benefit has been largely overlooked by the medical and nutrition community.

The antimicrobial effect of coconut oil was first reported by Hierholzer and Kabara<sup>15</sup>. Recent studies shows that coconut oil has anti microbial activity against various gram positive and gram negative organisms namely *Escherichia vulneris*, *Enterococcus* spp, *H pylori*, *staphylococcus aureus*, *Candia albicans* and other strains due to the presence of monolaurin, a monosacchride in coconut oil. Electron microscopic image showed that 15 minutes exposure to monolaurin caused gram positive cocci cell shrinkage and cell membrane disintegration. The glycolipid compound Sucrose monolaurate present in caries has anticaries effect due to reduced glycolysis and sucrose oxidation in a non competitive manner on *streptococcus mutans* and thus prevents in vitro plaque<sup>15</sup>

### **Conclusion**

In reviewing the literature we feel that sufficient research has not been carried out to evaluate the benefits of coconut oil on oral health even though many studies are there proving the effect of coconut oil on general health and diseases. Available studies have shown that oil pulling can significantly reduce plaque and gingivitis. Further studies are needed to investigate the mechanisms of the action of the coconut oil especially monolaurin on oral microorganisms or dental plaque, as well as long-term effects in clinical trials.

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