

“AMA THERAPY” IN MAINTAINENCE OF ORAL HEALTH: A REVIEW

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ABSTRACT-

Today the pharmaceutical companies are attempting to bridge the gap between food and their products hence the old saying, “*Let Food be thy medicine & medicine be thy food*” by great Greek scholar Hippocrates. Ayurveda was formed around 3,000 to 5,000 years ago and is that the most ancient method of medication .Oil pulling originated in India as a part of natural healing practices described in ancient Ayurveda texts. There are various edible oils available for oil pulling like sesame oil, olive oil, coconut oil. The procedure of oil pulling is described in Ayurveda book named “Charaka Samhita”. In today’s era complementary and alternative medicine is becoming more popular as compared to conventional allopathic medicine, the reasons being the products and practices that are used are natural and safe. The overuse of antibiotics in the treatment of infectious diseases, and the appearance of ‘multi-drug resistant’ bacterial strains has driven research towards the study of antimicrobial agents from essential oils. This therapy involves swishing the mouth with oil for 20 minutes in the morning. Oil pulling is not only beneficial for dental problems but it also helps in detoxifying the entire human body.

KEYWORDS- Ayurveda, oil pulling, halitosis, swishing.

INTRODUCTION-

Oral health is of prime importance for every individual. Oral hygiene habits are instilled in every child during childhood irrespective of geographical location or nationality. The most world-wide accepted method of oral hygiene is mechanical method of teeth cleaning. There are abundant chemotherapeutic agents which are used as an adjuvant to reduce plaque formation, however they have their own drawbacks[1]. Thus to overcome this there must be some method or agents which can be used as an adjuvant to reduce plaque formation with minimal or no drawbacks. Oil pulling can be considered as one such method.

Oil in Sanskrit means Taila which is a traditional Ayurvedic treatment which claims to improve the oral health. Oil pulling therapy is one of the preventive, cost effective method which involves use of pure oils as antibacterial agents for inhibiting bacteria, fungus This technique came into limelight and was popularized by Dr. F. Karach as oil pulling[4]. Therefore the present article reviews the role of oil pulling in maintaining the oral health.

OIL PULLING-

Oil pulling is a traditional ayurvedic procedure which has been mentioned in Ayurvedic textbook named “Charaka Samhita” where it is called as Kavala Gandoosh/ Kavala Graha[2].

“Gandoosh” means holding a mouthful of medicated liquid for some time. Kavala Gandoosh and Kavala Graha are traditional pulling practises that have different processes.

There are four types of Gandoosh:

1. Snaihik Gandoosh Oily / or Fatty Gandoosh
2. Shaman Gandoosh Palliative Gandoosh
3. Shodhan Gandoosh Clearing / Cleaning Gandoosh
4. Ropan Gandoosh Wound healing Gandoosh

In Gandoosh, the mouth is filled with oil, which is held in the mouth for 3-5 min and then it is spit out where as in Kavala Graha, only a comfortable amount of oil is placed in the mouth which is held inside of the mouth for 3 minutes, gargled and spit out.

The promoters of oil pulling claim it works by “pulling out” toxins which are known as “ama” in Ayurveda and hence reduces inflammation. Oil pulling is beneficial in systemic conditions such as headaches, diabetes mellitus, migraines and acne[3].

PROCEDURE FOR OIL PULLING-

In oil pulling, a tablespoon of oil is swished in the mouth early morning on empty stomach in sitting chin up position for about 20 minutes. This helps the oil to be “pulled” and forced in between all the teeth by swishing it all around the mouth. If the procedure is done correctly, the viscous oil becomes milky white and thinner. After spitting out the oil, the mouth should be thoroughly washed with warm saline water or tap water and regular tooth brushing is to be carried out. The oil should not be spit in the sink as the oil causes clogging of pipes. It should be spit on paper towel or trashcan or spit it on wood.

MECHANISM OF ACTION-

Oil pulling is believed to help in the excretion of toxic heavy metals by saliva. It stimulates the salivary enzymes which devours the toxins such as chemical toxins, bacterial toxins and environmental toxins from the blood and removed from the body via the tongue. Hence detoxifying and purifying the entire body.

There are various school of thoughts about the mechanism of action of oil pulling but the exact mechanism of it remains unclear.

The first theory speculates alkali hydrolysis of fat which results in saponification. Saponification is a process which involves the conversion of fat or oil into soap and alcohol by the action of heat in the presence of aqueous alkali whereas emulsification is the process of dispersing two or more immiscible liquids together to form a semi stable mixture. [refer to chart no.1]

The first step in fat digestion is to break down fat globules into very small size physically so that the water-soluble digestive enzymes can act upon the globule surface. This process is called emulsification of fat and it begins with saponification.

The second theory suggests role of antioxidants in oil pulling therapy. [refer to chart no.2]

Another theory suggests due to viscosity of the oil, it causes inhibition of plaque accumulation and adhesion of bacteria leading to decreased plaque co-aggregation[22].

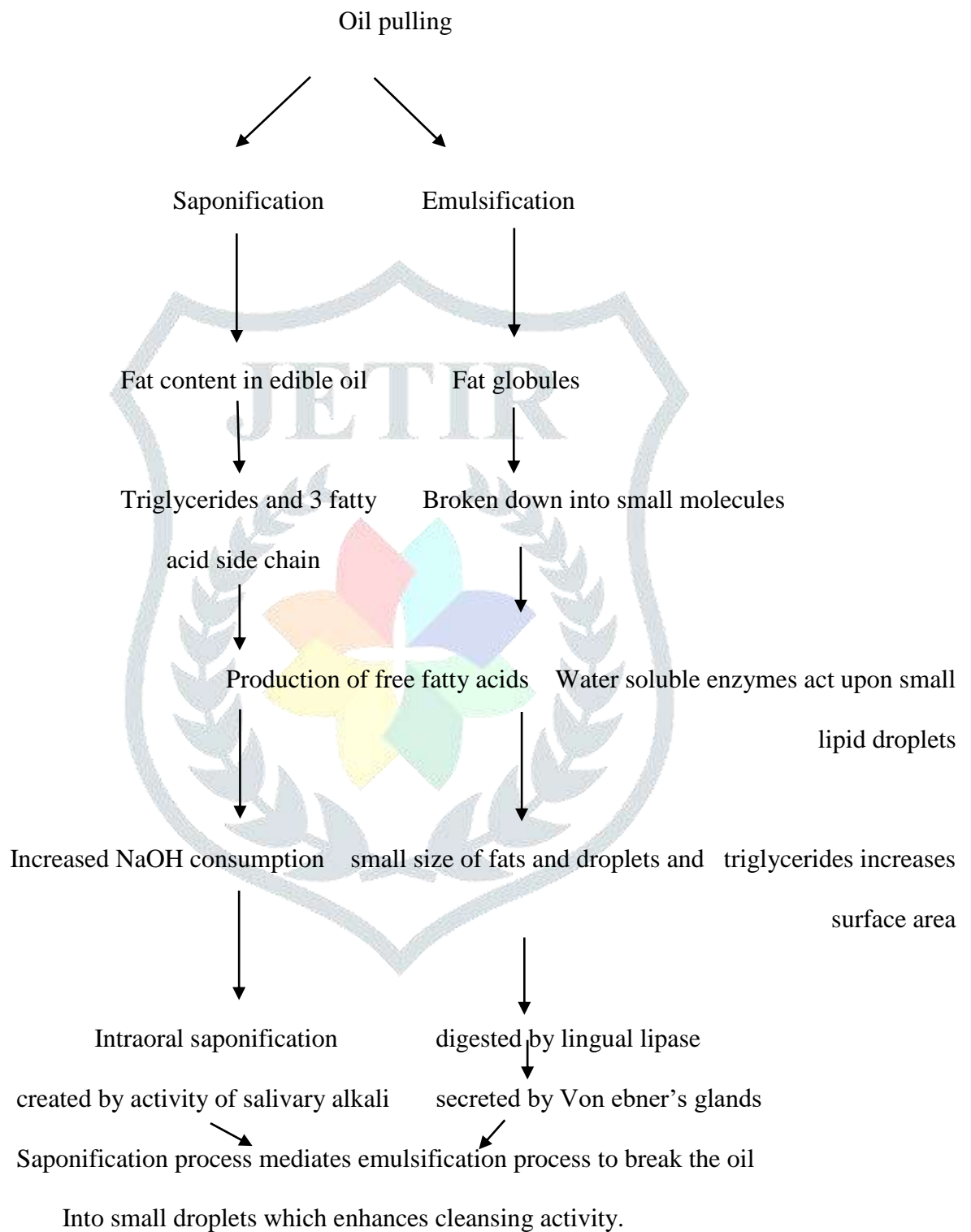
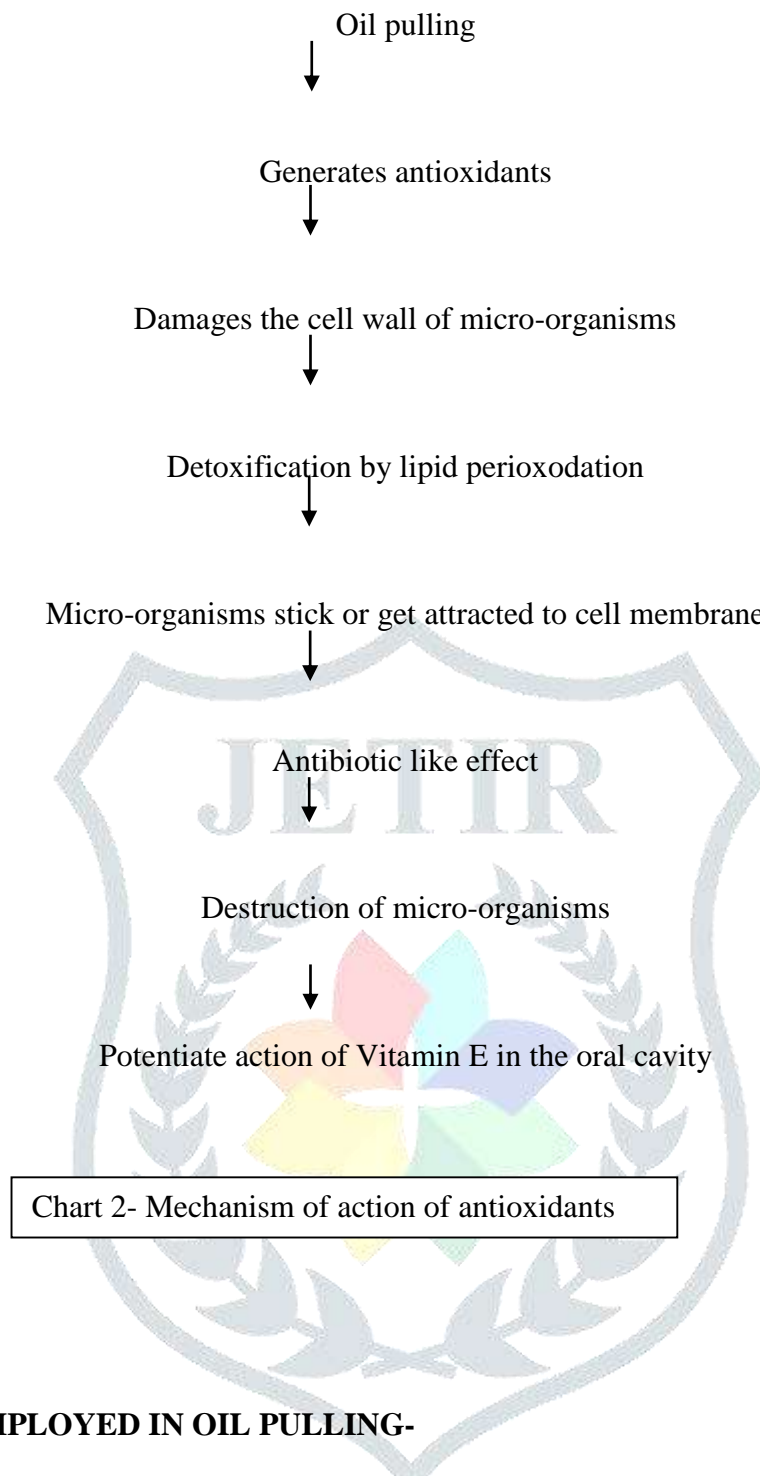


Chart 1- Mechanism of action of oil pulling by saponification/ emulsification



VARIOUS OILS EMPLOYED IN OIL PULLING-

The noticeable linkage between the dietary intake of certain lipids and coronary heart diseases as well as chronic degenerative diseases has repeatedly been examined and might offer potential prophylactic measures[8,9]. There's decisive evidence that vegetable oils rich in unsaturated fatty acids have a health promoting effect: an enhanced consumption of unsaturated fatty acids can lower blood cholesterol levels and reduces the risk of atherosclerosis[10]. Omega-3 and omega-6 fatty acids are essential fatty acids. Besides their protective effect on the cardiovascular system, omega-3 fatty acids may also prevent dementia and macular degeneration.

Sesame oil is preferred because commercial oils are extracted with strong petroleum-based solvents and heated to 450°F. Such heat changes the monounsaturated (oleic acid) fats to trans fats which are harmful to the body but there are no molecules of solvent and trans fatty acids present in cold pressed sesame oil. Sesame (*Sesamum indicum* L., Pedaliaceae) is a very old cultivated crop thought to have originated in Africa and the oil contains three lignans - sesamin, sesamol and sesaminol - that increase both the hepatic mitochondrial and the peroxisomal fatty acid oxidation rate. Sesame seed consumption appears to increase plasma gamma-tocopherol and vitamin E activity which is believed to prevent cancer and heart disease[5]. Sesamin inhibits the absorption of cholesterol as well as its production in the liver, reduces lipogenesis and exhibits an anti-hypertensive action.

Sesame oil is a vegetable fat and when it is acted upon by the salivary alkali, like bicarbonates, the soap making process (saponification) is initiated. Soaps are good cleansing agents because they're effective emulsifying agents. Emulsification is the process by which insoluble fats like sesame oil can be broken down into minute droplets and dispersed in water enhancing the surface area of oil and thereby increasing its cleansing action. The viscosity of oil also helps in the prevention of bacterial adhesion and co-aggregation[6]. Sesame oil is found to have antibacterial activity against *S. mutans* and *Lactobacilli* and antifungal action due to the presence of Chlorosesamone obtained from the roots of sesame[4]. Sesame oil contains high amounts of polyunsaturated fatty acids which reduce free radical injury to the oral tissues. Therefore it might be useful for maintaining oral hygiene. Sesame oil has other advantages as it causes no staining, has no lingering aftertaste, and causes no allergic reactions.

The virgin olive oil is obtained by mechanical pressing the fruits of the olive trees (*Olea europaea* L.), and has not undergone any chemical refinement, which is strictly forbidden by law. This product presents excellent organoleptic, nutritional and functional qualities. Its cardiovascular and antioxidant health benefits are widely known. Oleocantal is a bioactive component in olive oil which possesses both cyclooxygenase-1(COX) and COX-2 inhibitory activity.

Additionally, olive oil contains a diversity of secondary plant products such as phenolic components; squalen; vitamins A, E, and K; and phytosterols[11,12]. These substances are suggested to have an antioxidative, immunomodulatory, and antimicrobial effect. Therefore, olive oil is presumed to prevent coronary heart diseases, neural degeneration, cell damage, and even oral malodor[13-15].

Coconut oil is composed mostly of medium chain fatty acids; it is therefore unique compared to the majority of other dietary oils, which are predominantly made up of long chain fatty acids. Approximately 50% of these medium-chain fatty acids are lauric acid, known for its antimicrobial and anti-inflammatory benefits. Alkalis within the saliva can react with the oil resulting in saponification and formation of a soap like substance which may reduce the adhesion of plaque. Coconut oil features a high saponification value and is one among the foremost commonly used oil in making soaps. The soaps produced with coconut oil can lather well and have an increased cleansing action. The lauric acid in the coconut oil can easily react with caustic soda in saliva during oil pulling to make sodium laureate, the foremost constituent of soap which could be liable for the cleansing action and decreased plaque accumulation. Coconut oil was found to be effective against *Helicobacter pylori*, *Staphylococcus aureus*, *Escherichia vulneris*, *Enterobacater*, and *Candida* species, including *Candida glabrata*, *Candida albicans*, *Candida stellatoidea*, *Candida parapsilosis*, *Candida tropicalis*, and *Candida krusei* and various viruses.

Mechanism of action-

Lipase is an enzyme that cleaves a fatty acid anion hydrolytically from a triglyceride or phospholipid. Only the ester bond at carbon 1 and 3 (α positions) are attacked and the products of the reaction are 2 mol of fatty acids and 1 mol of 2- acylglycerol per mole of substance. Fatty acids are formed as a result of lipase action.

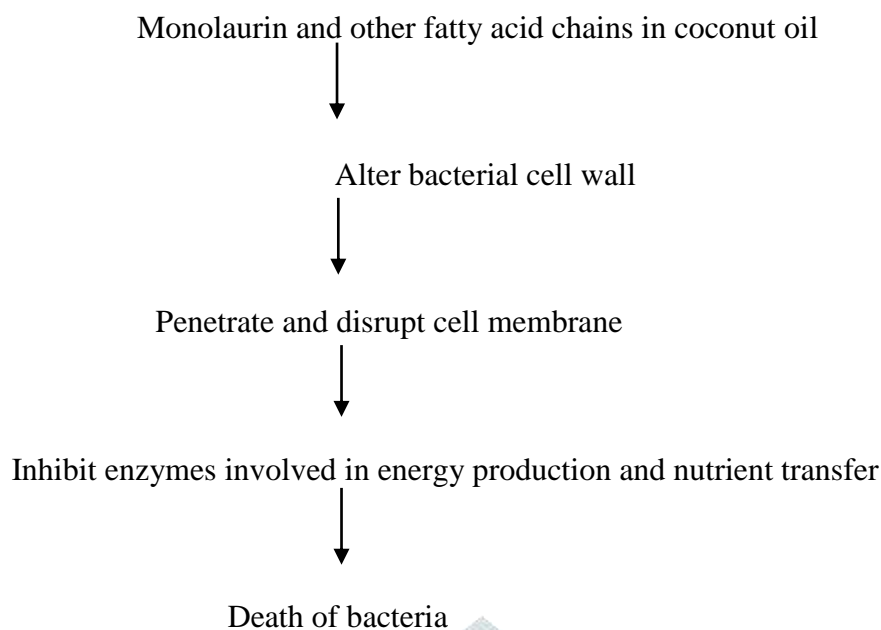


Chart No.3- Antibacterial action of coconut oil

Oils such as avocado, black cumin seed, canola, cedar nut, and sunflower oil have been used for oil pulling practice[16].

Sunflower oil contains lecithin, carotenoids, tocopherols, vitamins A,D,E so it has proven to deliver nutrients also. Ozonized version of sunflower- seed oil (oleozon) has antimicrobial activity against *S. aureus*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Enterococcus faecalis*, *Mycobacterium spp.*, *Streptococcus pyogenes* and *C. albicans*[17].

Castor oil has demonstrated the ability of to break down oral biofilm, a protective barrier created by detrimental bacteria in the microbiome[18-20]. This makes it easier to eradicate “bad” bacteria, and renders the environment more hospitable to healthy bacteria. Castor oil also helps with reduction of inflammation of the gums, and with circulation via nitric oxide[21], which may beneficial to gum health when used for oil pulling.

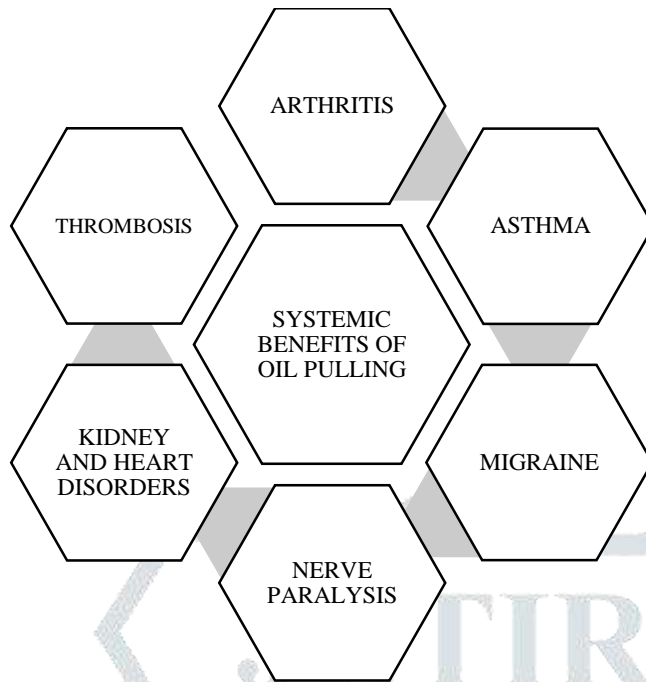
Cedar nut oil enriched with cedar resin maybe a unique composition of biologically active substances product. It contains a number of vitamins and minerals: B vitamins, vitamins A, D, iodine, phosphorus,

manganese, potassium, magnesium, sodium, fluorine, copper, iron, zinc, etc. And the most valuable is the content of omega-3 and omega-6 polyunsaturated fatty acids. It helps detoxify and revitalize the intestinal wall. Due to the anti-bacterial and anti-parasitic properties, as well as the pectin contained in cedar nut oil enriched with resin, this product is able to clean the intestines from parasites, candida and bacteria, and remove various toxins.

STUDIES-

Author	Oil used	Study
Anand et al 2008	Sesame oil	Observed 20% reduction in bacterial count, reduction in severity of dental caries with 40 days of oil pulling.
Peedikayil FC, Sreenivasan P, Narayan A 2015	Coconut oil	Observed significant decrease in plaque and gingival indices on oil pulling and concluded that coconut oil is helpful in decreasing plaque formation and plaque induced gingivitis.
Jauhari D 2015	Sesame oil	Found no significant decrease S. Mutans count using Oratest and Dentocult SM strip in children of age 6-12 years.
Asokan S, Rathan J 2008	Sesame oil vs Chlorhexidine mouthwash	Observed significant decrease in S. mutans count in plaque sample of oil pulling. However reduction in S. mutans count in chlorhexidine group was more than oil pulling.
Amith HV, Ankola AV, Nagesh L 2007	Refined sunflower oil	Significant decrease in plaque and gingival scores was observed at the end of 45 days and hence concluded that oil pulling is

		beneficial as a supplemental oral hygiene aid.
Singla et al 2014	Sesame oil Olive oil Coconut oil	Observed significant reduction in the S.mutans and Lactobacillus count in saliva.
Dani N et al 2015	Sesame oil vs Chlorhexidine mouthwash	Assessed the antiplaque effect using sesame oil and chlorhexidine mouthwash randomly on 20 subjects for 14 days. Plaque index scores, gingival index scores and aerobic bacteria were reduced in oil pulling group and concluded that sesame oil was effective than chlorhexidine mouthwash against plaque induced gingivitis.
Asokan S, Kumar RS, R Shivkumar 2011	Sesame oil	Assessed that oil pulling was as effective as chlorhexidine mouthwash to reduce halitosis and micro-organisms associated with it.
Sechi et al 2001 Menendez et al 2000	Sunflower oil	Determined antibacterial activity of Ozonized sunflower oil again E. coli, Pseudomonas aeruginosa, Enterococcus faecalis, C. albicans.

USE OF OIL PULLING IN SYSTEMIC DISEASES-**CONCLUSION-**

‘A stitch in time save nine’ as the saying goes is related to oral health as well. Gingivitis when left untreated leads to destructive periodontitis. Ancients methods like oil pulling are born out of native wisdom. If they are tested on scientific backgrounds they stand the test of the time. Studies have shown that there is a ‘Hawthorne effect’ i.e. there is a positive change in the behaviour of the individuals after oil pulling therapy. Hence a household, cost effective remedy like oil pulling which saves time and money and enhances oral health as well with less or no side effects should be brought into limelight.

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