Miswak: Ancient Aid in Modern Times

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Section-D200

https://lightbeingwellness.com/product/miswak-stick-natural-toothbrush/

background

- The tree is seldom more than one foot in diameter, reaching a maximum height of nine feet. The leaves are small, rounded to ovate, slightly fleshy, thick and succulent, having a strong smell of cress or mustard. The fragrant flowers are small. The fruits are like fleshy berries; small and barely noticeable.
- Since ancient times back 5000 in B.C. Miswak was used in Islam as a basic oral hygiene tool to keep their teeth white and shiny.
- Miswak is derived from plant called *Salvadora persica. Salvadora persica* is an evergreen tree which is known in English as “toothbrush tree.”
- Historically, it is oldest tool which is used until now among Africans, South Americans, Asians, Indian subcontinent and Middle Easterns.
- Miswak is an Arabic word which means tooth cleaning stick. Among 180 plant species suitable for preparing toothbrushing sticks, Miswak (*Salvadora persica*) is most extensively used.
- Miswak is a traditional chewing stick prepared from the roots, twigs, and stem of *Salvadora Persica* and has been used as a natural method for tooth cleaning in many parts of the world for thousands of years.

The reasons of choosing this topic

- Miswak have been used for maintaining oral hygiene from ancient times. For maintaining oral hygiene we use mechanical (e.g.-Toothbrush, dental floss) and chemical (e.g.-toothpaste, oral rinse etc...) products. Surprisingly miswak has both mechanical and chemical functions in it such as antibacterial, antimicrobial, abrasive properties. Therefore only use of Miswak can meet the criteria for most of mechanical and chemical products where people does not have ability to purchase several oral hygiene products.
- Moreover, in this era of modern technology people have forgotten about this natural product. Another reason of choosing this topic is we had little idea about miswak before but knowing something new in details is always interesting.

http://www.thedeenshow.com/miswak-scientific-oral-health-benefits-and-the-potential-of-its-application-in-preventive-dentistry

https://www.flickr.com/photos/sqmehdi/6890521865

Left to right: Salvadora Persica as a tree. The chemical properties of *Salvadora Persica* depend on region where it grows, the temperature and the soil. The chemical properties include its ability to kill certain bacteria. Courtesy of Researchgate. A miswak twig in its ready to use form. Courtesy of The Deen Show.

Importance of Miswak for dental hygiene profession

- Since miswak has antimicrobial effects in it, it can be used in toothpastes and mouthwashes as an antimicrobial agent.
- Toothpaste containing *Salvadora Persica* miswak extract was found to be significantly more effective in removing dental plaque.
- Apart from their antibacterial activity, they also inhibit formation and activity of dental plaque and can be used effectively as a natural toothbrush for teeth cleaning.
- To obtain optimum oral health and hygiene, miswak (*Salvadora persica*) can be used alone or as an adjunct to a traditional toothbrush.
- However, achieving the optimum effects of miswak (*Salvadora persica*) depends on its regular use with proper, and effective techniques.

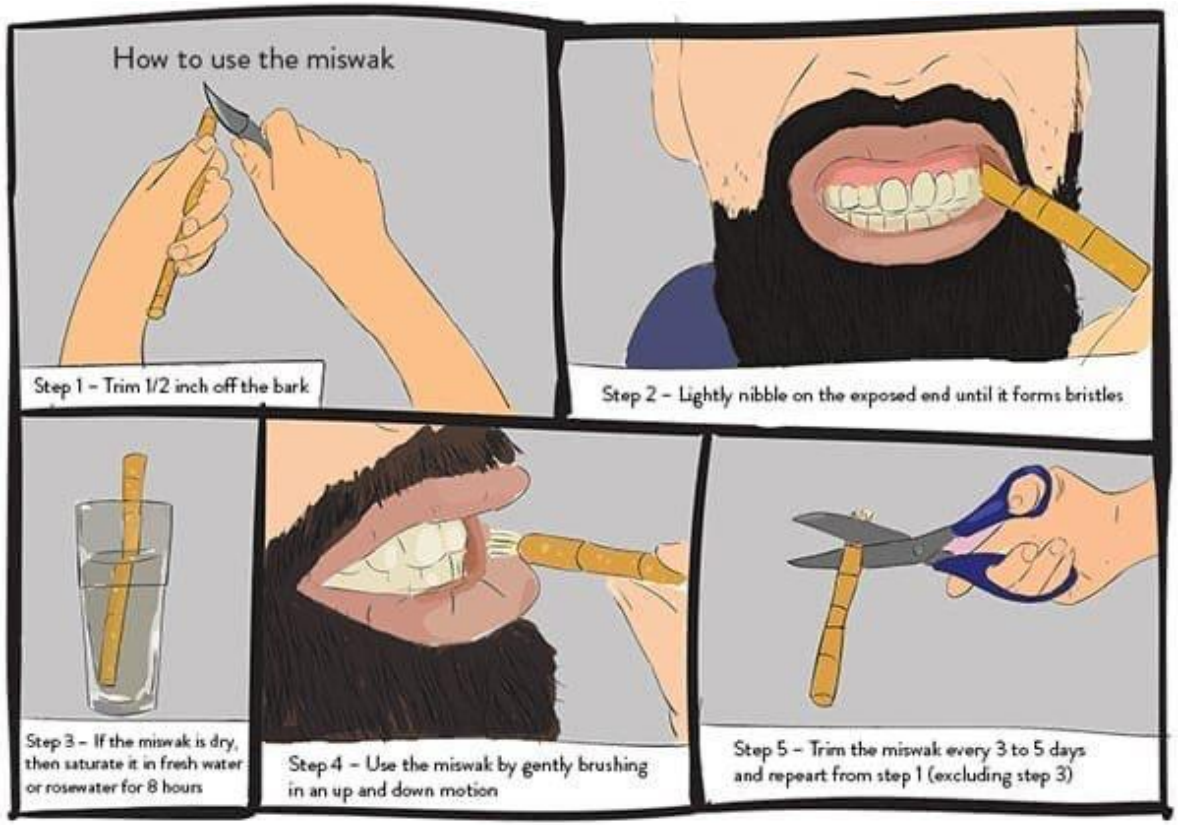
https://www.thehijabworld.com/products/miswak-crystal-toothbrush

Therapeutic Effects of Miswak on Oral Health

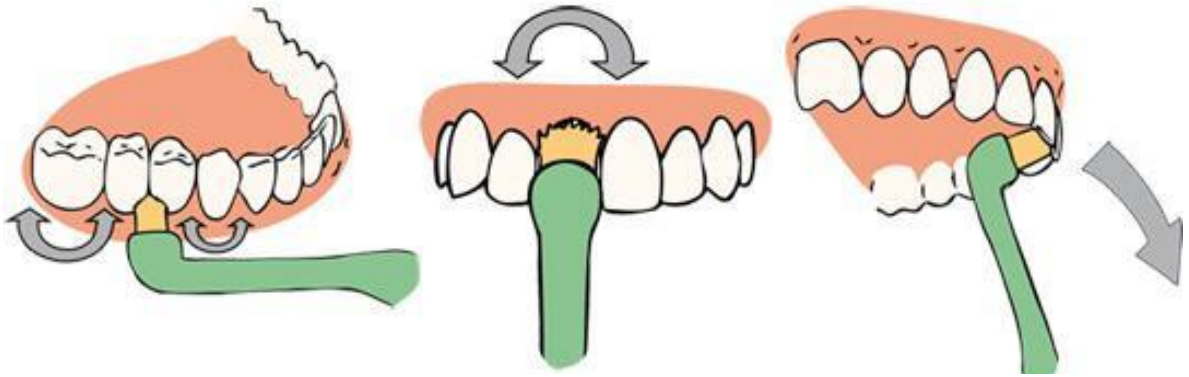
https://www.mumzworld.com/en/listerine-miswak-mouthwash-250ml

- A variety of natural bioactive components have been identified in *Salvadora Persica* extracts by researchers. The properties of *Salvadora Persica* include Silica, which acts as an abrasive to remove stains, Tannins which serves as an agent to prevent Gingivitis.
- Much effort has focused on examining the antibacterial activity of miswak extracts against a variety of human pathogens. Several studies have shown that miswak (*Salvadora Persica*) has significant antimicrobial activity against both aerobic and anaerobic bacteria.
- Studies had been carried out, comparing toothpastes produced in Iran, containing *Miswak,* and toothpaste made in Switzerland, and they concluded that the Iranian toothpaste prevented significantly the growth of plaque.

Using technique of miswak



https://www.fastcompany.com/3044855/instead-of-a-plastic-toothbrush-now-you-can-brush-your-teeth-with-a-twig



https://swak-shop.com/swak/

Antibacterial activity of Miswak (*Salvadora persica*L.) extracts on oral hygiene

- Mohammad Abhary & Abdul-Aziz Al-Hazmi conducted an experiment to check antibacterial activity of miswak extract in saliva. The study took place at Taibah University and study was published in the *Journal of Taibah University for Science* on September 14, 2015.
- The type of the study was pre-clinical, experimental. The purpose of the study was to investigate presence of antimicrobial agents in Miswak extracts based on their polarity in different solvents.
- Researchers collected saliva samples out of 40 students before and after gargling with miswak mouthwash. The Miswak samples were prepared with 40 g of the Miswak powder and 200 ml of solvent which are water, ethanol and hexane. Then the saliva samples were measured for bacterial count to study the antimicrobial activity of Miswak extract against bacteria.

Fig. 1- Total count of bacterial

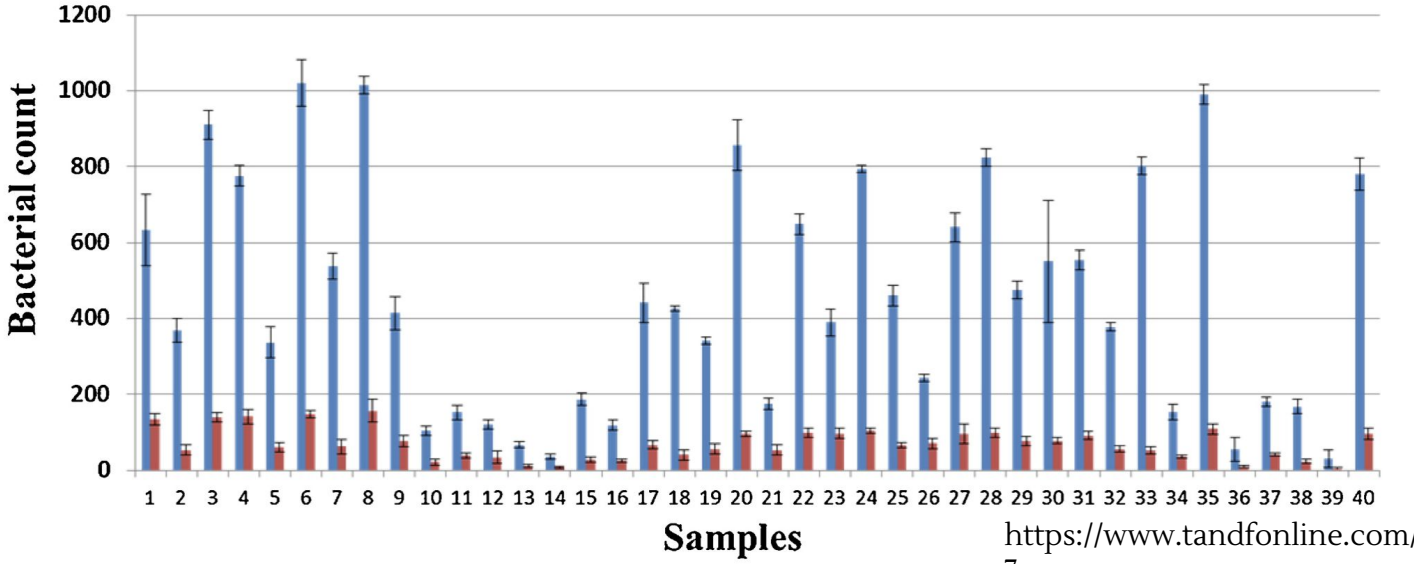
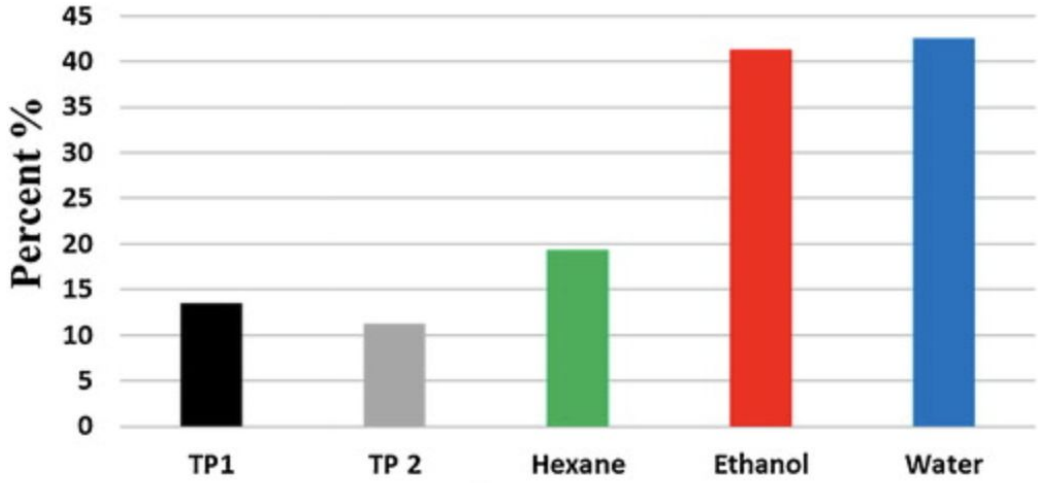


Fig. 2- Decreased growth of bacteria in percentage (%).



https://www.tandfonline.com/doi/full/10.1016/j.jtusci.2015.09.00

Results and Conclusion

- Ãs a conclusion Miswak chewing stick (*S. persica*) has a broad antimicrobial activity which kills most of the normal flora of the saliva and some pathogenic agents in the saliva. Since different antimicrobial agents have different solubility in solvents, more detailed studies will be needed.
- Authors of this study conclude that Miswak chewing stick (*S. persica*) has more than one antimicrobial agent and has antimicrobial activity against gram positive and gram-negative bacteria. Different antimicrobial agents showed different polarity and solubility in solvents. The water extract showed the greatest effect on all three concentrations used, where the ethanol extract showed less inhibition than water. But the hexane extract showed the zone of inhibition among three solvents.

Fabrication and characterization of a titanium dioxide (tlo2) nanOparticles reinforced bio-nanocomposite containing miswak (salvadora persica l.) extract – the antimicrobial, thermo-physical and barrier properties

- Roman Ahmadi, Asghar Tanomand, Fahimeh Kazeminava et al. carried out an experiment to enhanc preservation by using biodegradable materials.
- The environment promotes the growth of bacteria due to sunlight, water vapor and exposure of oxy
- The purpose of the study was to create a combination of compounds with biodegradable properties Enhance perishable preservation, as researchers are trying to develop away with any petroleum-bas materials. The scientists carrying out the experiment used Miswak, *Salvadora Persica*, as an option.
- The study was controlled (pre-clinical, cell-based investigation) experiment which consisted of con specimens. Three specimens were created for this experiment, the first specimen was film of
- Carboxymethyl Cellulose (CMC), specimen two Titanium Dioxide(TiO2) was added to the ingredien specimen one and specimen three was a combination of CMC/TiO2/SPE.

https://africaimports.com/honey-moringa-miswak-tooth

Results & Conclusion

- Titanium Dioxide(TiO2) nanoparticles and *Salvadora Persica* “Miswak” made a uniform and homogeneous structure, stable. The researchers believe that the uniform structure is due to the hydrophilic nature. Making Miswak an excellent antibacterial ingredient, as it creates a non-porous film, inhibiting bacterial(aerobic and anaerobic) growth.
- It was concluded that the effectiveness of Miswak, depended on where it was grown, like the soil, temperature, and region where the roots came from played an important factor in its chemical properties..

https://www.pinterest.com/pin/450219293990709876/

Persica Chewing Gum Effects on Saliva Fluoride Concentration and Flow Rate

- Prevalence of dental caries worldwide has become a serious public health issue.
- Persica-containing chewing gums have been linked to dental health issues.
- The study investigates how Persica-containing chewing gums affect saliva fluoride concentration and its effect on dental health.
- The study is a longitudinal randomized control trial (RCT).
- Participants were divided randomly into intervention and control groups.
- 84 participants who attended pediatric dentistry clinic volunteered to participate.
- Only 44 met the inclusion criteria. After the study was done it was established that Persica-containing gum released fluoride ions in saliva, resulting in an increased flow rate.

https://world.openfoodfacts.org/product/8026365721154/miswak-gum-persica

Results and Conclusion

- No significant differences in saliva concentration in both control and intervention groups.
- Mean saliva fluoride flow rate at different time intervals was different between the groups.
- It was possible to compare the amount of saliva fluoride between the persica-containing chewing gum and sodium fluoride-containing chewing gum.
- **Conclusion**: Persica-containing chewing gums produced more fluoride ions and more saliva compared to sodium fluoride-containing chewing gums.

https://ciroccodentalcenterpa.com/dental-care/what-is-the-history-of-oral-care/

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