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MISWAK USE IN DENTISTRY

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Search Strategy:
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1     miswak.ti. (44)
2     limit 1 to english language (43)
3     limit 2 to dentistry journals (29)
4     (dental$ or dentist$ or tooth$ or teeth or (oral adj hygiene) or chew$).ti. (178378)
5     2 and 4 (23)
6     3 or 5 (34)
***************************

Unique Identifier
22628969
Status
PubMed-not-MEDLINE
Authors
Patel PV;  Shruthi S;  Kumar S.
Authors Full Name
Shruthi, S;  Kumar, Sheela.
Institution
Patel,Punit Vaibhav. Department of Periodontology, JSS Dental College and Hospital, Mysore, Constituent, College of JSS University, Mysore, Karnataka, India.
Title
Clinical effect of miswak as an adjunct to tooth brushing on gingivitis.
Source
Other ID
Source: NLM. PMC3357041
Abstract
BACKGROUND: The aim of the study was to clinically evaluate the effect of miswak as an adjunct to tooth brushing on plaque levels and gingival health in subjects diagnosed with mild to moderate generalized marginal gingivitis in comparison with those of toothbrush users.

MATERIALS AND METHODS: The study comprised of 30ystemically healthy subjects, aged 18-35 years diagnosed with mild to moderate gingivitis. The study was designed as a randomized, single-blind, parallel-armed study. Subjects were randomly divided into three groups. Group A (toothbrush users), group B (toothbrush and miswak users), and group C (miswak users). Subjects were advised to use toothbrush, miswak, or both, three times daily depending on their respective allocations. Gingival index according to Loe and Silness, Plaque index, according to Turesky modified Quigley-Hein plaque index, and the digital photographs of the total labial surfaces of the teeth were taken for image analysis. Recording of data were done at baseline, 2(nd), 4(th), 6(th), and 8(th) week time intervals. Obtained data were analyzed using repeated measure ANOVA and student t test (independent samples).

RESULTS: Group B showed statistically significant (P<0.0001) decrease in plaque score and gingival score compared to group A and group C, respectively, from 2(nd) to 8(th) week, whereas no statistical significant difference was found in plaque score, when group A was compared with group C (P>0.05) from 2(nd) to 4(th) week. Further at the 6(th) and 8(th) week, there was significant difference (P<0.05) in plaque score between group A and group C. The difference in gingival score was not significant (P>0.05), when group A was compared with group C on all the indicated time intervals.

CONCLUSION: Results showed significant improvement in plaque score and gingival health when miswak was used as an adjunct to tooth brushing.

Publication Type
Journal Article.
Date Created
20120525
Year of Publication
2012

Unique Identifier
24432254
Status
PubMed-not-MEDLINE
Authors
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Title
Comparative evaluation of antimicrobial activity of miswak, propolis, sodium hypochlorite and saline as root canal irrigants by microbial culturing and quantification in chronically exposed primary teeth.[Erratum appears in Germs. 2013 Jun;3(2):67]
Source
Other ID
Source: NLM. PMC3882825
Abstract
INTRODUCTION: One of the essential factors for successful root canal therapy is elimination of bacterial contaminants using an effective root canal chemical irrigant such as sodium hypochlorite which inherently possesses certain disadvantages like irritation to
periapical tissues, staining of the instruments, burning of surrounding tissues etc. The aim of the study was to explore newer irrigant agents which would probably be as effective or more and at the same time less irritating to the tissues than sodium hypochlorite. Our search included two such agents, propolis and miswak.

METHODS: The study was performed on 40 infected primary teeth (20 male and 20 female patients). The subjects were divided into 4 groups of 10 children. Group 1 received 3% sodium hypochlorite as irrigating solution, group 2 received 12.5% alcoholic extract of miswak, group 3 received 11% alcoholic extract of propolis and group 4, 0.9% saline. We used the antimicrobial activity of sodium hypochlorite as gold standard for comparing the activities of both propolis and miswak. We collected pre- and post-irrigation samples using sterile paper points. Samples were cultured on tryptose soya agar at a temperature of 37(o)C for 24-48 hours. The colonies were counted with a digital colony counter. For the statistical analysis, we used the unpaired t test at level of significance 0.05 and the ANOVA test for analysis of variance.

RESULTS: The differences in pre- and post- irrigation values were calculated for each group, the greatest difference being seen in group 1 (95.549%) followed by group 2 (89.794%), group 3 (34.735%) and group 4 (28.087%). When comparing the results between groups, there was no statistically significant difference between groups 3 and 4.

CONCLUSIONS: The statistically analyzed results suggested that miswak could be a good natural substitute to sodium hypochlorite, while propolis showed results comparable to those of the negative control.

Abstract
The review encompasses the historical background, chemical composition of miswak (Salvadora persica) and the effects it has on oral health. Miswak is an Arabic word meaning "tooth cleaning stick" and is a natural toothbrush made from the twigs of Salvadora persica (S. persica). Not only is S. persica miswak used in several countries throughout the world, but in some cases, it has proved to be more beneficial as compared to its counterparts - a toothbrush and toothpaste. Additionally, how to prepare the miswak, proper use of it, and the techniques to use will be discussed. An overview of the antimicrobial, anticariogenic, antipseudomonal and antgingivitis effects of miswak on oral health will be given in the context of in vitro experiments and clinical trials. Lastly, various oral hygiene studies will be discussed, in order to identify a common denominator between modern-day and the old practice of miswak. Recent scientific evidence regarding its probiotic role, cell viability and comparative cytotoxicity and future research trends would be highlighted. Miswak, a cultural and history-based oral hygiene tool is now being evaluated on scientific evidence. Through comparing the naturally occurring and scientific evolution of S. persica's usage, we will be able to better understand the uniqueness of miswak, relative to that of other oral hygiene tools as being a solo oral hygiene tool of a significant part of the World population. It's hope that the review would help health care professionals to have better knowledge and awareness about miswak, to improve the quality of life of their culturally diverse patients population who are uninitiated for regular oral hygiene measures due to various constraints. The use of miswak can be added to the notion of primary health care approach (PHCA) and oral health promotion.
surface loss (TSL) and its subsequent treatment. This loss of hard dental tissue appeared to be affecting the whole of the patient’s remaining dentition, both lingually and buccally. Detailed questioning revealed the origins of this problem which turned out to be due to excessive use of an intra-oral Miswak chewing stick. Clinical Relevance: This article will enable clinicians to understand the importance of specific, targeted history-taking, involving a rare case of tooth surface loss as well as the use of minimally destructive restoration composites and a fibre-reinforced composite bridge.

**Publication Type**
Case Reports. Journal Article.

**Date Created**
20140616

**Year of Publication**
2014

**Authors**
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**Title**
Antioxidant capacity of chewing stick miswak Salvadora persica.

**Source**

**Other ID**
Source: NLM. PMC3607854

**Abstract**
**BACKGROUND:** Chewing stick (miswak Salvadora persica L.) is an effective tool for oral hygiene. It possessed various biological properties including significant antibacterial and antifungal effects. In the present study, we evaluated the antioxidant compounds in miswak.

**METHOD:** Miswak root was extracted with 80% methanol. Methanol extract as antioxidant was evaluated by using DPPH, ABTS and phosphomolybdenum complex assays and analysis by GC-MS. Peroxidase, catalase and polyphenoloxidase assays were performed for crude extract of miswak root.

**RESULTS:** The methanol extract of miswak contained the highest amount of crude extract among the various solvent extracts. The methanol extract showed a concentration dependent scavenging of DPPH and ABTS radicals with IC50 values 4.8 and 1.6µg crude extract, respectively. The total antioxidant activities, based on the reduction of molybdenum (VI) to molybdenum (V), increased with increasing crude extract content. The correlation coefficients (R2) between total crude extract and DPPH, ABTS scavenging activities and the formation of phosphomolybdenum complex were 0.97, 0.99 and 0.95, respectively. The GC-MS analysis showed that the methanol extract doesn’t contain phenolic and flavonoid compounds or under detected limit. After silylation of methanol extract, three compounds namely 2-furancarboxaldehyde-5-(hydroxymethyl), furan-2-carboxylic acid-3-methyl- trimethylsilyl ester and D-erythro-pentofuranose-2-deoxy-1,3,5-tris-O-(trimethylsilyl) were identified by GC-MS analysis. These furan derivatives as they contain hydroxyl groups could be possessed antioxidant activities. The antioxidant enzymes were also detected in the miswak extract with high level of peroxidase and low level of catalase and polyphenoloxidase.

**CONCLUSIONS:** The synergistic actions of antioxidant compounds and antioxidant enzymes make miswak a good chewing stick for oral hygiene and food purposes.
MATERIALS AND METHODS: In this in vitro study, blood-agar culture (Merk, Germany) was used to grow the streptococcus strains, saburd-dextrose culture (Merk, Germany) was used to grow C. albicans and MRS-agar was used to grow L. vulgaris. Various concentrations of these substances (0.1, 0.05 and 0.025% of miswak extract, 0.1, 0.05, 0.025 and 0.0125% of persica, 0.2, 0.1, 0.05 and 0.025% of chlorhexidine) were added to paper disks, separately, inserted into culture plates and transferred into the incubator. The inhibition zone around each disk was measured after 24 hours and the data was analyzed by the Kruskal-Wallis test.

RESULTS: Chlorhexidine possessed antibacterial activity at all concentrations tested. It was more effective than persica and miswak at all concentrations on S. salivarius (p = 0.022 for 0.1%, 0.009 for 0.05 and 0.025%). It had greater effect than the other two tested material on S.sanguis only at concentration 0.01%. Chlorhexidine was the most effective against S.salivarius; persica was the most effective against Lactobacillus (p = 0.005) and the least effective against S. salivarius; and miswak extract was the most effective against S. salivarius and S. sanguis at concentrations 0.1 and 0.05% (p = 0.005) and ineffective against L. vulgaris. None of these mouthwashes were effective against C. albicans.

CONCLUSION: This study revealed that chlorhexidine remains the gold standard as an antimicrobial agent, although herbal based mouthwashes do have marginal antimicrobial activities. It is necessary to conduct more clinical and microbiological studies focusing on periodontal pathogens and anaerobic microorganisms.

CLINICAL SIGNIFICANCE: Mechanical plaque control is the main way for periodontal disease prevention and mouthrinses are used to improve its efficacy. Based on the results of this study, chlorhexidine has the most antibacterial effect and although persica mouthwash and miswak are routinely used in some Asian countries their antibacterial efficacies are suspected.
Influence of Salvadora persica (miswak) extract on physical and antimicrobial properties of glass ionomer cement.

**Methods:**
SPE was added to GIC (Fuji IX) in concentrations of 1%, 2% and 4% w/w. The compressive strength and diametral tensile strength were measured at 1 h, 24 h and 7 days. The antimicrobial effect was tested in agar dilution assay in blood agar plates with Candida albicans, Streptococcus mutans, Streptococcus sanguis, Streptococcus mitis, Streptococcus salivarius and Actinomyces naeslundii as test organisms. GIC containing 5% chlorhexidine served as positive control.

**Results:**
Significant differences were found for the compressive strength and diametral tensile strength as a result of adding SPE to GIC (p<0.05). GIC with 2 or 4% SPE was significantly weaker than the GIC control, while GIC with 1% SPE was not different from the control. The mean values for the 4% SPE-containing specimens and the GIC control group ranged from 108.7MPa to 141.1MPa for CS and from 8.2MPa to 12.5MPa for DTS. The 1% SPE-containing specimens were not different in physical properties compared to the control GIC specimens; the 2% SPE-containing specimens were statistically slightly less strong (p<0.05), but within an acceptable range. As compared with pure GIC the antimicrobial properties of the SPE-containing specimens were increased significantly (p<0.01). It has been found up to a 2-fold increased inhibition compared to the GIC with increasing concentrations of SPE. For most microorganisms tested the SPE group inhibited less than Chlorhexidine, but statistically better than pure GIC (p<0.01).

**Conclusion:**
SPE could be a promising natural material as an additive to GICs. Further studies should include in vivo tests and other antimicrobial and physical properties of this combination.

**References:**
Claesson, Rolf L K; Lingstrom, Peter K; Gustafsson, Anders K.
Institution:
Sofrata, Abier H. Periodontology Department, Institute of Odontology, Karolinska Institute, Stockholm, Sweden.
Email: abier.sofrataki.se
Title:
Strong antibacterial effect of miswak against oral microorganisms associated with periodontitis and caries.
Source:
Local Messages:
THIS JOURNAL IS AVAILABLE IN THE BDA LIBRARY
Abstract:
BACKGROUND: The chewing stick (miswak) is used for oral hygiene in many parts of the world. In addition to the mechanical removal of plaque, an antibacterial effect has been postulated; however, tests of miswak extract from Salvadora persica (Arak) disclosed only low to moderate antibacterial effects. This may be attributable to the extraction process. Our aim was to test in vitro the antibacterial effect of miswak pieces, without extraction, on bacteria implicated in the etiology of periodontitis and caries.

**Methods:**
Miswak pieces were standardized by size and weight (0.07 and 0.14 g) and tested against Streptococcus mutans, Lactobacillus acidophilus, Aggregatibacter actinomycetemcomitans (previously Actinobacillus actinomycetemcomitans), Porphyromonas gingivalis, and, as a reference, Haemophilus influenzae. The miswak pieces were tested in two ways: embedded in the agar plate or suspended above the agar plate.

**Results:**
The inhibitory effect was most pronounced on P. gingivalis, A. actinomycetemcomitans, and H. influenzae, less on S. mutans, and least on L. acidophilus. Suspected miswak had comparable or stronger effects than miswak embedded in agar. The 0.14-g suspended miswak exhibited significantly greater inhibition on A. actinomycetemcomitans and H. influenzae than the 0.14-g miswak embedded in agar (P<0.01 and P<0.001, respectively).

**Conclusion:**
Miswak embedded in agar or suspended above the agar plate had strong antibacterial effects against all bacteria tested. The antibacterial effect of suspended miswak pieces suggests the presence of volatile active antibacterial compounds.

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Claesson, Rolf L K; Lingstrom, Peter K; Gustafsson, Anders K.
Institution:
Sofrata, Abier H. Periodontology Department, Institute of Odontology, Karolinska Institute, Stockholm, Sweden.
Email: abier.sofrataki.se
Title:
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**References:**
Claesson, Rolf L K; Lingstrom, Peter K; Gustafsson, Anders K.
Institution:
Sofrata, Abier H. Periodontology Department, Institute of Odontology, Karolinska Institute, Stockholm, Sweden.
Email: abier.sofrataki.se
Title:
Strong antibacterial effect of miswak against oral microorganisms associated with periodontitis and caries.
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Miswak embedded in agar or suspended above the agar plate had strong antibacterial effects against all bacteria tested. The antibacterial effect of suspended miswak pieces suggests the presence of volatile active antibacterial compounds.
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**MISWAK USE IN DENTISTRY**

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**Date Created**
20080804

**Year of Publication**
2008

<10>

**Unique Identifier**
17823507

**Status**
MEDLINE

**Authors**
Sofrata A; Lingstrom P; Baljoon M; Gustafsson A.

**Authors Full Name**
Lingstrom, P; Baljoon, M; Gustafsson, A.

**Institution**
Sofrata, A. Department of Periodontology, Institute of Odontology, Karolinska Institutet, Stockholm, Sweden. abier.sofrata@ki.se

**Title**

**Source**

**Abstract**
The aim of this study was to document changes in plaque pH when an acidic challenge was followed by rinsing with miswak extract (Salvadora persica), and to evaluate the effect of miswak rinse on parotid gland secretion rate. Plaque pH was measured in 3-day-old plaque using the microtouch electrode. Rinsing with miswak extract, compared with water rinsing, resulted in protracted elevation of plaque pH (>6.0). The difference in plaque pH between miswak extract and water rinse was statistically significant at 30 min (p < 0.001). Rinsing with miswak extract stimulated parotid gland secretion (p < 0.01). In conclusion, miswak extract raised the plaque pH, suggesting a potential role in caries prevention.

**Date Created**
20071123

**Year of Publication**
2007

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**Unique Identifier**
16637906

**Status**
MEDLINE

**Authors**
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**Institution**
Darmani, H. Department of Applied Biology, Faculty of Science, Jordan University of Science and Technology, Irbid, Jordan. darmani@just.edu.jo

**Title**
Effects of extracts of miswak and derum on proliferation of Balb/C 3T3 fibroblasts and viability of cariogenic bacteria.

**Source**

**Abstract**
OBJECTIVES: This study examined the effects of extracts of two chewing sticks on proliferation of fibroblasts and viability of cariogenic bacteria.

METHODS: Aqueous extracts of miswak (Salvadora persica; Arak tree) and derum (Juglans regia; walnut tree) were prepared and their effects investigated on growth of Balb/C 3T3 mouse fibroblasts by measuring the mitochondrial succinic dehydrogenase activity. Furthermore, the effects on the viability of various cariogenic bacteria (Streptococcus mutans, Streptococcus salivarius, Lactobacillus casei and Actinomyces viscosus) was also determined.

RESULTS: The data revealed that Balb/C 3T3 fibroblasts exposed to aqueous extracts of miswak or derum showed an increase in cell proliferation by 156% and 255%, respectively, in comparison with controls (p < 0.0001). Furthermore, extracts from both miswak and derum had adverse effects on the growth of the cariogenic microorganisms, with derum having significantly greater antimicrobial effects than miswak and at much lower concentrations against all the bacteria tested. The most sensitive organisms were A. viscosus, followed by S. mutans, S. salivarius, with L. casei being the most resistant.

CONCLUSION: The results show that aqueous extracts of miswak and derum enhance the growth of fibroblasts and inhibit the growth of cariogenic bacteria, with the derum extract showing greater activity than miswak.

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20060426

**Year of Publication**
2006

<12>

**Unique Identifier**
16451363

**Status**
MEDLINE

**Authors**
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**MISWAK USE IN DENTISTRY**

Tubaishat RS; Darby ML; Bauman DB; Box CE.
Authors Full Name

Darby, M L; Bauman, D B; Box, C E.
Institution

Tubaishat, R S. Gene W. Hirschfeld School of Dental Hygiene, Old Dominion University, Norfolk, VA 23529-0499, USA.
Title

Use of miswak versus toothbrushes: oral health beliefs and behaviours among a sample of Jordanian adults.
Source

Abstract

OBJECTIVE: This descriptive survey aimed at determining the perceived relationship among miswak, the toothbrush, and toothbrush-plus-miswak usage on oral health beliefs and behaviours of Jordanian adults, 18-60 years old, seeking dental care in the city of Irbid, northern Jordan.

METHODS: Patients (n = 138) voluntarily completed a self-designed questionnaire prior to their dental appointments at public and private clinics.

RESULTS: Overall, the level of oral health knowledge was low; of 71 people who attempted to define dental plaque, only 26% knew the meaning of dental plaque. While 12% have never been to a dentist, and 12% visit the dentist on a regular basis, the majority (63.2%) of the respondents reported that they visit the dentist only when they have pain. The majority (72%) use the toothbrush, 20.5% use the toothbrush-plus-miswak and only 3% use miswak alone. Toothbrush users believe that using the toothbrush-plus-miswak is most effective in reducing mouth debris (chi² = 32.069, d.f. = 16, P = 0.01); and level of education is significantly associated with the type of oral cleaning device used (chi² = 25.817, d.f. = 12, P = 0.05). There was no significant difference between toothbrush users and toothbrush-plus-miswak users in terms of how they perceive their oral health status. About 19% of the study participants use dental floss, 60.9% use mouth rinses and 8.3% use inter-dental brushes. Educated people (baccalaureate or associate degrees) tended to use toothbrushes and toothbrush-plus-miswak. The toothbrush-plus-miswak users are most likely to spend 1-2 min each day cleaning their teeth (chi² = 34.9, d.f. = 20, P = 0.02) than those using other devices. Respondents who use the toothbrush are most likely to visit the dentist when they have pain (chi² = 34.02, d.f. = 12, P = 0.00) than those using other devices.

CONCLUSION: The oral health awareness level among Jordanian adults is poor and needs to be improved. Evidence-based and community-based dental health education and a philosophical change from disease-oriented and pain management care to primary preventive care are highly recommended for the Jordanian population.

Publication Type

Journal Article.
Date Created

20060202
Year of Publication

2005

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Almas K; Skaug N; Ahmad I.
Authors Full Name

Skaug, N; Ahmad, I.
Institution

Almas, K. Department of Periodontics, New York University, College of Dentistry, New York, NY 10010-4086, USA. khalidalmas@yahoo.com
Title

An in vitro antimicrobial comparison of miswak extract with commercially available non-alcohol mouthrinses.
Source

Abstract

The aim of this study was to assess the antimicrobial activity of eight commercially available mouthrinses and 50% miswak extract against seven microorganisms. Corsodyl, Alprox, Oral-B advantage, Floresept, Sensodyne, Aquafresh Mint, and Emofom mouthrinses were used while 50% aqueous extract of miswak (Salvadora persica) was used against Streptococcus faecalis, Streptococcus pyogenes, Streptococcus mutans, Candida albicans, Staphylococcus aureus, and Staphylococcus epidermidis. The ditch plate method was used to test the antimicrobial activity. Inhibition zones of microorganisms around ditches were measured in millimetres. Range, mean and standard deviations were used for comparison of antimicrobial activity. Mouthrinses containing chlorhexidine was with maximum antibacterial activity, while cetylpyridinium chloride mouthrinses were with moderate and miswak extract was with low antibacterial activity. Further research is needed for the substantivity of these mouthrinses and further in vivo/in vitro studies are needed using Biofilm model to substantiate present findings. Dental professionals must exercise caution and provide guidance in assisting their patients in making informed choices regarding their use of mouthrinses for clinical efficacy.

Publication Type

Comparative Study. Journal Article.
Date Created

20060202
Year of Publication

2005

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Unique Identifier

15560804
Status
OBJECTIVES: To compare the effects of the chewing stick miswak (from S. persica) and toothbrushing on subgingival plaque microflora among Saudi Arabian individuals. Further, to investigate whether components extracted from S. persica may interfere with the subgingival plaque micro-organisms.

MATERIAL AND METHODS: Fifteen healthy Saudi Arabian male volunteers aged 21-36 years were included in a single-blind, randomized cross-over study. The participants were taught how to use each device properly. Plaque sampling for DNA test was performed at the baseline, 1 week after professional tooth cleaning, and after 3 weeks of either miswak or toothbrushing. These results were supported by our in vitro checkerboard method, using whole genomic, digoxigenin-labelled DNA probes. Inhibition zones around miswak were examined on agar plates with Actinobacillus actinomycetemcomitans and the leukotoxicity of this bacterium was analysed in a bioassay with macrophages +/- miswak extracts (paper IV). In papers I and II, 73% of the subjects used a toothbrush and 65% used a miswak daily. There were significant differences between genders and age groups, and between the centres. The miswak was undertaken. The aims of the thesis were: 1) to explore current oral hygiene habits and oral health awareness among urban Saudi Arabians in relation to age, gender, and educational level (papers I and II); 2) to compare mechanical plaque removal and gingival health after miswak use and toothbrushing (paper III); 3) to compare the effect of miswak use and toothbrushing on subgingival plaque microflora (paper IV). In papers I and II, structured interviews were conducted with 1200 regular patients at two centres in the city of Makkah, providing dental care for university and military staff and their families, respectively. Consecutive patients were stratified according to gender and age, into 6 age groups from 10 to 60 years, with 50 male or female subjects in each group at each centre. Oral hygiene habits were correlated with the subjects' age, gender, and educational levels and analysed statistically by a generalized linear model and ANOVA. In papers III and IV, the subjects comprised 15 healthy Saudi Arabian male volunteers aged 21 to 36 years, attending the Dental Center at Al-Noor Specialist Hospital in Makkah City. A single-blind, randomised crossover design was used. The Turesky modified Quigley-Hein plaque and Loe-Silness gingival indices and digital photographs of plaque distribution were recorded in Paper III and in Paper IV plaque was sampled for DNA-testing. Inhibition zones around miswak material were examined on agar plates with Actinobacillus actinomycetemcomitans and the leukotoxicity of this bacterium was analysed in a bioassay with macrophages +/- miswak extracts (paper IV). In papers I and II, 73% of the subjects used a toothbrush and 65% used a miswak daily. There were significant differences between genders and age groups, and between the centres. Regular miswak use was more prevalent among men (p < 0.01), while...
women used a toothbrush more often than a miswak (p < 0.05). For the majority (88%) of the individuals, oral hygiene began late, after the age of 7 yrs. Oral hygiene habits were strongly correlated to educational level (p < 0.001). The miswak was preferred by less educated people. Tooth brushing started earlier among the better educated (p < 0.001). In paper III, compared to tooth brushing, use of the miswak resulted in significant reductions in plaque (p < 0.001) and gingival (p < 0.01) indices. In paper IV, A. actinomycetemcomitans was significantly reduced by miswak use (p < 0.05) but not by tooth brushing. These results were supported by the in vitro observations that extracts from S. persica interfered with growth and leukotoxicity of A. actinomycetemcomitans. It was concluded that oral hygiene practice is introduced very late, is strongly correlated to educational level, and that more women prefer toothbrushing to miswak use. It was further concluded that miswak use was at least as effective as toothbrushing for reducing plaque and gingivitis, and that the antimicrobial effect of S. persica is beneficial for prevention/treatment of periodontal disease. There is clearly a need for further oral health education in Saudi Arabia. Because of its close association with Islam, maximum benefits may be achieved by encouraging optimum use of the miswak. Oral hygiene may be improved by complementing traditional miswak use with modern technological developments such as toothbrushing and by tailoring oral hygiene recommendations to educational level.

Title
The immediate antimicrobial effect of a toothbrush and miswak on cariogenic bacteria: a clinical study.
Source
Abstract
The aim of this study was to assess the antimicrobial activity of the miswak chewing stick (Salvadora persica) in vivo, especially on streptococcus mutans and lactobacilli. The study was conducted clinically using patients' saliva and measuring the effect of miswak (chewing stick), miswak extract, toothbrush, and normal saline on mutans and lactobacilli. Forty male subjects aged 20-45 years were included in the study; there were four groups of ten subjects each. For the study, 50% of miswak extract (solution) was used. The levels of mutans streptococci and lactobacilli were measured using commercially available VivaCare line CRT (Caries Risk Test) bacteria 2 in 1 kit. The results showed there was a marked reduction of streptococcus mutans among all groups. When the groups were compared, the reduction of streptococcus mutans was significantly greater using miswak in comparison to toothbrushing (p = 0.013), and there was no significant difference for lactobacilli reduction (p = 0.147). It may be concluded miswak has an immediate antimicrobial effect. Streptococcus mutans were more susceptible to miswak antimicrobial activity than lactobacilli. Dietary intake of sugar and oral health status may be considered for controlled clinical trials with special emphasis on the antibacterial activity of miswak on cariogenic bacteria for a longer period of time. A toothbrush with and without toothpaste should be compared with miswak alone. Further research is needed with a larger sample size.
sampled sites. A pooled subgingival plaque sample from 6 probing sites of 1 selected tooth in each jaw was obtained from each subject. Whole genomic DNA probes and the checkerboard DNA-DNA hybridization were used in assessing 74 pooled samples. Using 10^5 bacterial cells threshold, between 2.6% and 47.4% of miswak users and between 2.8% and 36.1% of toothbrush users harbored the investigated species. The percentages of subjects with the investigated species at 10^6 bacterial cells varied between 2.6% and 39.5% in miswak and between 2.8% and 36.1% in toothbrush users. Miswak users harbored significantly higher Streptococcus intermedius, Actinobacillus actinomycetemcomitans, Veillonella parvula, Actinomyces israelii, and Capnocytophaga gingivalis, and significantly lower Selenomonas spitigena, Streptococcus salivarius, Actinomyces naeslundii, and Streptococcus oralis than did toothbrush users. Probing pocket depth ≥ 6 mm showed significantly (P < 0.05) higher levels of Porphyromonas gingivalis, Treponema denticola, Bacteroides forsythus, Fusobacterium nucleatum, and V. parvula than those 4-5 mm. Our results indicate that the type of oral hygiene had a significant effect on levels of 11 out of 28 bacterial species, and that the type of effect was also dependent on type of bacteria and probing pocket depth.

**Abstract**

**OBJECTIVE:** The aim of the study was to compare the abrasive effect of miswak and toothbrush filaments on enamel. A SEM pilot study.

**Source**


**MATERIAL AND METHODS:** Ten maxillary central incisors were obtained from Division of Maxillofacial Surgery, King Saud University, College of Dentistry. Twenty specimen were prepared, they were divided into 4 groups: (1) Butler toothbrush; (2) Aquafresh toothbrush; (3) Miswak; (4) Control group. Miswak, Aquafresh 311 and Butler 311 tooth brush were used with light pressure in one direction motion for 60 seconds on enamel surface. The specimens were prepared for Scanning Electron Microscopy (SEM) examination. The middle filament from toothbrushes and miswak were also prepared for SEM.

**RESULTS:** Showed that filaments end-surface texture play a major role in abrasive active activity and enamel tooth surface loss.

**CONCLUSION:** The Butler 311 toothbrush and miswak showed lesser effect on enamel as compared to Aquafresh 311 toothbrush.

**Source**


**Abstract**

Bacterial plaque is solely responsible for the initiation and progression of periodontal diseases. There are different mechanical and chemical methods available for the maintenance of oral health through plaque control. Toothbrushes and miswak (chewing sticks) are widely used for the mechanical removal of plaque. Chlorhexidine gluconate (CHX) is one of the best-proven anti-plaque agents. The aim of this study was to evaluate the effects of CHX and miswak extract on healthy and periodontally involved human dentin. Sixteen human premolars recently extracted for orthodontic and periodontal reasons were used in the study. Teeth were free from caries, cervical restorations, or erosions. The dentin disc specimens were prepared and half of them were etched with 6% citric acid for 120 sec. Both etched and unetched were further treated with CHX and 50% miswak extract and prepared for Scanning Electron Microscopic (SEM) examination. It was concluded that CHX 0.2% and miswak extract 50% had a similar effect on dentin in the control group. Miswak
extract removed more smear layer as compared to CHX. Further research is needed in vivo to compare the effects of CHX and miswak extract on periodontally involved teeth and teeth with dentinal hypersensitivity.

Publication Type
Comparative Study. Journal Article.
Date Created
20020919
Year of Publication
2002

OBJECTIVES: The purpose of the present investigation was to assess the salivary levels of 25 oral bacteria in relation to periodontal status and experience of caries, and to compare the levels of these bacteria between habitual miswak and toothbrush users in adult Sudanese subjects.

MATERIAL AND METHODS: The study subjects consisted of 56 individuals with age range 19-53 years (mean 35.2 years) and included 30 miswak and 26 toothbrush users. The periodontal status and presence of dental caries were assessed clinically. Whole saliva was collected from all subjects, and the levels of 25 selected bacterial species in saliva were assessed by the checkerboard DNA-DNA hybridization method using whole genomic DNA probes.

RESULTS: A high percentage of the subjects had detectable levels (≥ 105 bacterial cells) of several bacterial species in saliva. Between 12% and 16% of the subjects showed high (≥ 106 cells) salivary levels of the periodontitis-associated bacteria A. actinomycetemcomitans, P. melaninogenica, P. intermedia, C. rectus and E. corrodens, whereas only two (3.6%) and four (7.1%) subjects had high levels of P. gingivalis and F. nucleatum, respectively. There were no significant differences in the levels of all or most bacterial species by age group, gender or periodontal status. Presence of ≥ or = 105 L. acidophilus bacterial cells in saliva was associated with high caries scores (p = 0.02). There were significantly higher levels of A. actinomycetemcomitans, P. melaninogenica, C. rectus, P. micros, V. parvula, S. mutans, S. anginosus, A. israelii, C. sputigena, and C. gingivalis, and significantly lower levels of P. intermedia, F. nucleatum, S. sputigena, E. corrodens, L. acidophilus, S. sanguis, S. salivarius, S. oralis, and S. mitis in the miswak than in the toothbrush group.

CONCLUSIONS: The findings suggest that miswak may have a selective inhibitory effect on the level of certain bacteria in saliva, particularly several oral streptococci species. This is the first report that the checkerboard DNA-DNA hybridization method can be useful for assessing the levels of a wide range of bacterial taxa in saliva.
STUDY DESIGN: The oral cavities of 58 RTPs and 52 HC subjects were clinically examined for the presence of oral candidiasis. Oral fungal colonization was determined by using the concentrated oral rinse technique.

RESULTS: Prevalence of oral fungal colonization was not significantly higher in RTPs than in HC subjects (74.1% vs 59.6%, respectively; P = .1), but the density of growth was significantly higher in RTPs (P <.0017). Oral candidiasis was diagnosed in 15.5% of RTPs but in none of HC subjects (P = .002). RTPs who used a chewing stick (Miswak: Salvadora persica) for oral hygiene had a significantly lower prevalence of oral candidiasis (P = .04) compared with other RTPs.

CONCLUSIONS: RTPs are at high risk of developing oral candidiasis. More clinical investigations are needed to determine the antimycotic effect of Miswak. Regular oral screening is recommended for RTPs.

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Comparative Study. Journal Article.

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Unique Identifier
9594076
Status
MEDLINE
Authors
Yarde A; Robinson M.

Title
The miswak chewing stick: a traditional oral hygiene aid.

Source

Abstract
The miswak chewing stick is an oral hygiene device used by the majority of people in Arab Gulf countries. Despite its widespread use, few studies demonstrated its benefits or applications as an alternative and convenient means for cleansing the teeth. This paper will examine the unique properties of the miswak chewing stick and its proper use.

Publication Type
Journal Article.

Date Created
20000725
The miswak as an aid in oral hygiene. [Review] [23 refs]

Source

Abstract
The Miswak is chewing stick used throughout the Middle East. In this article for FDI World, Drs. John Hardie and Khaled Ahmed, both practitioners in Saudi Arabia, review the literature on its mechanical cleansing action and the chemicals within its fibres which may be more effective in promoting oral health. They speculate that, since the plaque removing properties of the miswak and conventional toothbrush are similar, the beneficial effects of the toothbrush may also depend less upon the mechanical efficiency of its bristles and more upon the chemical constituents of the toothpaste.

The effect of the extract of the miswak (chewing sticks) used in Jordan and the Middle East on oral bacteria.

Abstract
Chewing sticks are commonly used in Jordan, Saudi Arabia and the United Arab Emirates in particular, and the Middle East, Asia, and Africa in general, in addition to many other areas for oral hygiene, religious and social purposes. Recently, the World Health Organisation (WHO) has recommended and encouraged the use of these sticks as an effective tool for oral hygiene. The antibacterial activity of one of these sticks has been tested against some oral aerobic and anaerobic bacteria. Three methods of antibacterial activity were carried out: streaked plate method, ditch plate method, and tube dilution test for minimum inhibitory concentration (MIC). It was found that the extract of these sticks had a drastic effect on the growth of Staphylococcus aureus with MIC values of 69 mg/100 cc, while a variable effect on other bacterial species was noted. It is concluded that using chewing sticks twice a day on a regular basis may reduce the incidence of gingivitis and possibly dental caries. Apart from their antibacterial activity which may help control the formation and activity of dental plaque, they can be used effectively as a natural toothbrush for teeth cleaning. Such sticks are effective, inexpensive, common, available, and contain many medical properties.
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MISWAK USE IN DENTISTRY

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Unique Identifier
9588141
Status
MEDLINE
Authors
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Authors Full Name
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Title
A retrospective study on the relationship between miswak chewing stick and periodontal health.
Source
Local Messages
THIS JOURNAL IS AVAILABLE IN THE BDA LIBRARY
Abstract
Chewing sticks have been used for centuries as a tooth cleaning device. One of the most commonly used types is known as the miswak. Despite its wide use, few studies have examined its effects on the gingival health. The purpose of this study is to examine the relationship between miswak and gingival health in terms of pocket depths, periodontal disease severity and gingival recession. The incisors, canines and premolars were examined in a total of 264 patients who were seen for routine periodontal treatment. Information regarding the use of the miswak, oral hygiene habits, as well as clinical measurements of pocket depth, periodontal disease and gingival recession were obtained from patients charts. Patients were divided into two groups: a miswak group and a Toothbrush group. The results of this study indicated that the use of miswak may influence periodontal health and may be considered as a factor contributing to gingival recession. It is suggested that additional research is needed to examine the relationship between miswak and periodontal health.
Publication Type
Comparative Study. Journal Article.

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Title
The miswak, an aspect of dental care in Islam.
Source
Other ID
Source: NLM. PMC1036668
Publication Type
Historical Article. Journal Article. Research Support, Non-U.S. Gov't.
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1790476
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Authors
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Title
Periodontal treatment needs among Saudi Arabian adults and their relationship to the use of the Miswak.
Source
Local Messages
THIS JOURNAL IS AVAILABLE IN THE BDA LIBRARY
Abstract
The main aims of this study were, first, to estimate the need for periodontal care among adult residents of Saudi Arabia using the community periodontal index of treatment need (CPITN) and, second, to quantify the relationship between the frequency of using the 'Miswak' and the need for periodontal care. The Miswak is a stick made from the roots of the Arak tree (Salvadora persica) and is used for oral hygiene purposes by many cultures. A total sample of 480 adults aged 35 to 44 years and 65 years and older from the cities of Mecca and Jeddah was included in the study. The findings indicate that the level of need for periodontal care in the sample chosen is low when compared with the findings of similar studies undertaken in other countries. The frequent use of the 'Miswak' was associated with a lower need for treatment.
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Comparative Study. Journal Article.

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1991

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Title
The relationship between chewing sticks (Miswak) and periodontal health. 3. Relationship to gingival recession.

Source

Abstract
Aggressive or improper toothbrushing techniques may have a detrimental impact on the gingiva. The purpose of this study was to examine the relationship between chewing sticks (Miswak) and gingival recession. Gingival recession was measured on the mid facial surfaces of the incisors, canines, and premolars in 238 patients presenting for routine dental appointments. All patients had been interviewed previously regarding their oral hygiene habits and use of Miswak. Patients were divided into three groups: Miswak group, toothbrush group, and Miswak/toothbrush group. The Miswak users had significantly more (P less than or equal to .05) sites gingival recession than did the toothbrush users. Furthermore, the severity of the recession was significantly more (P less than or equal to .05) pronounced in the Miswak users than it was in the toothbrush users.

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Journal Article. Research Support, Non-U.S. Gov't.

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1990

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MEDLINE

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Title
The relationship between chewing sticks (Miswak) and periodontal health. Part 1. Review of the literature and profile of the subjects. [Review] [27 refs]

Source

Abstract
For more than 1,000 years, Moslems all over the world have used chewing sticks (Miswak) as an oral hygiene aid. In spite of the introduction of modern oral hygiene devices, many Moslems still prefer to use the natural Miswak. Despite its common use, there is a paucity of data about its effects on the periodontal structures. This is the first of a three-part series examining the relationship between Miswak and periodontal health. Part I presents a review of the current literature and a demographic profile of the study population. Patients presenting for routine dental appointments were subjected to a comprehensive interview regarding their demographic data, oral hygiene habits, and use of Miswak. Clinical examination included scoring of plaque and periodontal health. [References: 27]

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Journal Article. Review.

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1990

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2084794
For centuries, chewing sticks have been used as a tooth-cleaning device. One of the most commonly used types is known as the Miswak. Despite its common use, few studies have examined possible effects on the gingiva and the surrounding structures. The purpose of this study was to examine the relationship between Miswak and periodontal health. The incisors, canines, and premolars were examined in 236 patients. All patients were interviewed regarding their demographic data, oral hygiene habits, and use of Miswak. Clinical examination included scoring of plaque, gingival inflammation, pocket depths, attachment loss, and gingival recession. Patients were divided into three groups: a Miswak group, a toothbrush group, and a Miswak/toothbrush group. The results of this study indicated that use of the Miswak may influence plaque accumulation and periodontal health.