ROLE OF A NATURAL TOOTHPASTE OF HOLISTIC ORAL HEALTH (MISWAK)

1Rajesh Dnyaneshwar pawar, 2Harish Ashok kate, 3Dhiraj purushottam pil
1B pharmacy, 2B pharmacy, 3B pharmacy
1Shastry Institute of pharmacy, Erandol (Jalgaon), 2Shastry Institute of pharmacy, Erandol (Jalgaon), 3Shastry Institute of pharmacy, Erandol (Jalgaon)

INTRODUCTION

Different oral hygiene methods have been used to overcome widely endemic diseases such as dental caries and oral infections. Due to Increasing awareness and expected evolving population; the use of safe, effective and economical products have expanded drastically. Both chemical and mechanical ways are being used in achieving good oral hygiene. However; mechanical cleaning using the toothbrush plays the most vital role. The advancement of the modern toothbrushes can be traced back to chewing sticks used by the Babylonians (the Greek and Romans) 7000 years ago. The use of miswak becomes very popular in

STATISTICAL ANALYSIS

be dna were sextTyzed by student t-test and js value web Found be all activities which are shown in lit end of cosh ubef1Vzpolerof}998)

Research Methods

This research method is qualitative through literature and field studies (Dnrmnlnksnna, 2020b). While the methods applied are takhrirj and syarah lindith (Soetari, 2015). The interpretation in this study used an approach with chemical analysis (Istijabatun, 2008).

In general, there are two stages of research on hadith, namely takhrij and syara. Takhrij is the process of extracting a hadith from a hadith book to examine its validity, while syarah is an explanation of the hadith with a certain analysis (Soetari, 2015). The field of chemistry itself, as a means of interpretation in this research, is a branch of natural science that studies the composition, structure, properties, and changes of matter and that it (Istifabatun. 2008).
TYPES OF CHEWING STICKS

There are more than 180 plant species that can be used as a natural toothbrush. These species differ from each other on the basis of appearance, scent, texture and taste. Some of the most commonly practiced species are S. prisica (Peelu), Azndii•ncii nt i iirlicn (Neem), Olen ci roynen ( Za i toon), Acncin nt nbnicn (Kikar), Gli cositispcitnyll I/lno (Dms), Chyyni is nyliylm (Khiran). "Most of these sticks are easily available in different parts of Pakistan, Midd le East and African countries. Arak (S. ycrsicn) is the most commonly used miswak in Saudi Arabia while litmus and orange tree are common in West Africa. 7  S. yci Rica obtained from Arak tree is the most popular having spongy characteristics and stem that can easily be crushed between teeth. The stick is widely accepted by people around the world due to its pleasant flavor, texture and its effectiveness in maintaining oral hygiene."

HOW TO USE MISWAK EFFECTIVELY?

Miswak has its own unique aspects that must be adapted prior to use for the best results. The functional end of a thin bark piece is striped off followed by chewing. Chewing of miswak separates fibers and giving it a brush like appearance that helps to cleaning the teeth easily. The recommended length for a stick is about 15 cm so that it can easily be grasped along with ease to carry around, whereas, the diameter is preferred to be <1 cm."

There are two methods documented to hold the miswak. One is the thee finger grip technique and the other is five finger grip technique [Figure 2a].

THERAPEUTIC EFFECTS OF MISWAK ON ORAL AND GENERAL HEALTH

Chemistry of miswak
Different evidences and rcsearc1ie•s have suggested that miswak contains more than 10 natural occurring constituents essential for maintaining good oral and general health [Table 1]. S. yer sicn (miswak) has a number of numerous oral heal th beieifs. Upon chewing, it releases antibacterial extracts and improves primary and secondary dental development.10

Table 2 demonstrates different therapeutic effects of miswak on the oral cavity. Its antimicrobial action lowers the proportion of oral candidiasis in patients with renal transplant. The antiplasmodial content in miswak is used to treat malaria and the seed oil is used for the treatment of J0lnts and skin diseases. Use of miswak is also found to regulate peristaltic movements, lowers high lipoprotein cholesterol and improves appetite.11

TOOTHPASTE AND MOUTHWASH

The utmost and primary method of plaque removal and to maintain good oral hygiene is to remove plaque mechanically using brushing and flossing. " A variety of S. jersir-n toothpastes are readily available in the market, i.e., Dentacare Miswak (Saudi Arabia)
Figure 2: Manipulation of inis x’ak for oral hygiene maintenance, (a) Palin grid fnr IqrIcting, (h) schematic grusei1tatiri1 of various s\eds frir using inis vak

ANTIPLAQUE EFFECTS

The main cause of gingivitis and other periodontal conditions is the accumulation of bacterial plaque; hence it is of great importance to avoid plaque accumulation and maintaining good oral hygiene. Miswak is practiced by rubbing it on the surface of the teeth and thus is an effective mechanical tool for reducing the level of daily plaque accumulation.

<table>
<thead>
<tr>
<th>Chemical substance</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-sitosterol and m-anisic acid</td>
<td>[22]</td>
</tr>
<tr>
<td>Chlorides, salvadora and gypsum; organic such as pyrrolidine, pyrrDle, and piperidine derivatives</td>
<td>[23]</td>
</tr>
<tr>
<td>Flavonoids, including kaempferol, quercetin, quercetin rutin, and a quercetin glucoside</td>
<td>[24]</td>
</tr>
<tr>
<td>Glycosides, such as salvadoside and salvadoraside bicarbonate</td>
<td>[25] Sodium [26]</td>
</tr>
<tr>
<td>Resin large amounts of salts containing chlorine</td>
<td>[27]</td>
</tr>
<tr>
<td>Trimethylamine, an alkaloid, chlorides, high amounts silica, sulfur, Vitamin C</td>
<td>[28] of fluoride,</td>
</tr>
</tbody>
</table>

Table 1: Chemical analysis of various components of miswak Salvadora persicaj
ANTIMICROBIAL ACTIVITY

Miswak has been endowed with the property of ceasing growth potential of bacteria causing periodontal disease and dental caries. The antimicrobial effects of miswak is more pronounced against *Eiilcrococciis fnccnlis, Idol ›lyrcnmiins giiginnli, Acliioibncilliiis, Haeiic ›liifiis iifliciciizn, S. iiiitaiais and limited against *Lntohncilliiis!*". Furthermore, extracts obtained from the root of miswak have better antimicrobial property compared to miswak from other parts of the tree." The incidence of caries is notably low in miswak users owing to the presence of a strong antimicrobial thiocyanate agent, accompanied by other chemicals such as sodium cl€oride, potassium chloride, saponin, tanins." The extracts of miswak showed significant reduction in the growth of cariogenic bacteria. " The miswak soaked in 0.1-0.5% NaF solutions help to reduce the cariogenic bacterial count and dental decay." Fluoride is well known for antimicrobial activates in the oral cavity."^^

SALVADORA PERSICA AS A POTENTIAL FOOD BIO PRESERVATIVE

In recent years, customers have developed extra awareness regarding processed foods. Synthitic preservatives in canned and processed foods may lead to hazardous health effects." Since the roots of *S. yci sien* contain antimicrobial, antifungal and antioxidant properties, it can be used as a potential food preservative with no side effects. A recent study by Zaid rf aL concluded that adding aq neons extract of *S. prisica* as a natural food preservative in chicken burgers improved the shelf life. The aqueous extract showed the strDn gest il2hibitory effects agarist (*Streycocciis iiitis, Sti'8[J1060Cciis snlinni, ii, iS. miitiiis, _Stnlylococciis niiss, Bnci111s siibtliis, i?sci'tonioiins new cigiiosn, Esclii'ticiii in c l, Snliaeioilln hpliitiifiiriim, alid C. afbicn[is] after 48 la. Based on these results *S. irrsira can be recommended as a safe and economical natural food and pharmaceutical preservative. However further research is needed on this aspect.

ANTIFUNGAL EFFECTS

Recent studies have endorsed the fact that *S. persira* has antifungal properties." Recently, Alii ci nl. compared antifungal property of solid miswak with grounded miswak particles against different strains of *Candida*. It was concluded that solid miswak exhibited strong antifungal property wile pulverized miswak presented no antifungal property." Similarly, an in oittO study by Naeini ci of. explored that alcoholic extracts Df *S. persicfi showed ontifungal properties against all strains of *Candida* except *Hnidin* porn *S]JOSIS and Cml 4!dn lcriisei. Furthermore, the hexane components in the rDDTs Df miswak was found robust against *Hiididn* alhicuxs and E. fnecnlis."
Evidence suggests that *S. yersinii* is a miraculous stick for oral health care along with being a cost-effective solution to improve and maintain good dental care. In certain developing countries where use of toothbrush is still considered expensive, miswak is an ideal alternative oral hygiene tool. Its recommendation is also dependable with the notion of the primary healthcare approaches that focus on prevention, community participation, and the use of appropriate technology. Due to its enormous medicinal and therapeutic properties, it is highly commended in oral care but being technique sensitive its method of use and handling must first be adapted for best results. It is permitted to use toothbrush in combination with miswak for superior oral hygiene and more possibilities should be explored to use miswak extracts in mouthwash and roof canal irritants.