Ayurvedic Herbs in Dentistry: Learn How to Manage Oral Health and Tooth Decay with these Modest Herbs?

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ABSTRACT

Herbal medicines have been used for many years. Their history can be rooted from ancient civilization wherein their role as a primary source of medication is evident. Many people are looking for a natural approach for caring for teeth after becoming disillusioned with the side effects of modern methods. Despite the advances in various field of medicine, oral infections and dental caries are still considered as serious public health problems and inflict a major burden to health care services around the world and especially in developing countries. Development of resistance against antibiotics and antiseptics is a growing cause of concern which have limited the preventive measures. Therefore, there is a continuing need to search for new antimicrobial agents. Ayurveda has been used for more than five thousand years and has many applications in improving dental health. Ayurveda gives natural ways to prevent and treat oral disease. In rural India, dental care usually not accessible instantly and even not affordable to them but there are so many ayurvedic remedies which they come across in day to day life. The basic idea is that with the help of this article, people will know about the use of various ayurvedic home remedies for oral health and disease, it will encourage the people to maintain their oral health and prevent them from oral disease.

Keywords: Ayurveda, Herbal medicines, Aloe vera, Turmeric, Chewing sticks, Glycyrrhiza glabra.


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INTRODUCTION

In ayurveda dental health (danta swasthya in Sanskrit) is very individualist and varies with each person’s constitution (prakriti) and climatic change resulting from solar lunar and planetary influences (kala parinama). The body constitution is classified based on the predominance of one or more of three physical humors (dosa). These are wind (vata), bile (pitta) and phlegm (kapha). The presences of specific dosa in an individual and in nature determine healthcare in ayurveda including dental health. Oral health is integral part of the general health, Oral health when neglected result in different type of oral ailments like dental caries and periodontitis. Oral cavity lesions can significantly affect the general well being of a person like pain discomfort and thus affecting their quality of life. The two common threats to oral health are dental caries and periodontal diseases which is an important public health problem and inflict a costly burden to healthcare services around the world and especially in developing countries because of their prevalence, their impact on individual and society and the expense of their treatment. Dental treatment is usually a high expense remedy it mainly utilizes some antiseptics as well as antibacterial agents like triclosan, chlorhexidine, and amine based fluorides. But the major drawback of these products is that they possess significant toxicity. There are Several commercially available agents, these chemicals can alter oral micro biota and have undesirable side effect, such as vomiting, diarrhea, burning sensation and tooth staining. Hence, a good alternative to commercially available agents are the natural phytochemicals which are isolated from plants. However 80% of the population use plant as their primary source of medication in view of the fact that antibiotics are sometimes associated with adverse side effects to the host including hypersensitivity, immunosuppressive and allergic reactions, it is of interest to develop alternative antimicrobial drugs such as medicinal plants for treatment of infectious diseases. The rich plant diversity of India is utilized by the native communities in various forms of medicine. For the past thousand years, medicinal plants have been used in folk medicine for maintaining oral hygiene and these herbs are alkaline in nature with high antibacterial activity, which further help to maintain acidalkaline balance of saliva decrease plaque and calculus formation and further reduces the risk of periodontal diseases. However, there is an urgent need to address the knowledge and importance of rapidly vanishing awareness about traditional methods used for routine oral practices and herbal remedies for various dental diseases. Thus, this...
article is aimed at reviewing, various herbal extracts and their effects on oral diseases and document indigenous uses of medicinal plants in various oral hygiene practices and local remedies used traditionally in treating oral diseases for better and safe future by maximize the benefits and minimize the side-effects.

ALOE VERA GEL

The fresh gel or mucilage is known as aloe vera is widely used as a moisturizing agent and for the treatment of minor burns, skin abrasions and irritations. This gel is derived from Aloe barbadensis Mill (Family Liliaceous). It has been widely used in externally in promoting wound healing and also has been used to treat gingivitis and been effective against herpes simplex viruses infection.6

GEL CONSTITUENTS

The chemical composition of the aloe vera gel is complex and consists of 75 potentially active constituents, including vitamins, enzymes, lignin, saponins, salicylic acids, and amino acids as suggested by Vogler and Ernst in 1999. In same year, some authors reported listed 39 chemical constituents, including the essential acids; numerous monosaccharide and polysaccharides; vitamins B1, B2, B6 and C; niacin amide and choline; several inorganic ingredients; enzymes such as acid phosphates, alkaline phosphatase, amylase, lactic dehydrogenate and lipase; and numerous organic compounds such as aloin, barbloin, and emodin which has been used for the treatment of lichen planus. Reynolds and Dweck listed 16 different polysaccharides that have been extracted from the aloe vera leaf gel, in addition to polypeptides whose molecular weights ranged from 15,000-77,000 Daltons, and various glycoproteins with a molecular weight of a study done by Yamaguchi et al on aloe vera gel reported the presence of aluminum, boron, barium, calcium, iron, magnesium, sodium, phosphorous, silicon and strontium.6

BIOLICAL EFFECTS

A number of investigations have attempted to relate the chemical constituents in the gel to specific biological effects. Following are the various therapeutic effects of Aloe vera:6-9

- Moisturizing properties
- Anti-inflammatory
- Antibacterial
- Antifungal
- Antiviral
- Wound healing
- Pain relief
- Treatment of minor burns, skin abrasions and irritations
- Treatment of psoriasis and frostbite.

USES OF ALOE VERA IN DENTISTRY

Few article on use of aloe vera suggested various application of its in dentistry.6,7,9

1. Application directly at the site of periodontal surgery.
2. Application to the gum tissue that has been traumatizes or injury abrasion brushes, dental floss, toothpicks, etc.
3. Extraction site respond comfortably and empty purses not develop when aloe vera is applied.
4. Acute lesions of the mouth are improved by direct application in viral lesion, aphthous ulcer and cracks in the corner of lips. Abscess in mouth are reduced with the implementation of plant.
5. Other oral chronic diseases respond kindly. Even gum problem associated with tongue and burning mouth syndrome are much improved.
6. Patient with sore gums and teeth with denture maladap-tive may also benefit.
7. Aloe vera can also be used to control inflammation around dental implants caused by bacterial contami-nation. But no clinical studies are present to support these applications.

TURMEIC

Turmeric has been used for thousands of year as a dye, a flavoring agent, and a medicinal herb. In India it has been use traditionally as a remedy for stomach and liver ailment as well as topically to heal sore. Ancient Indian medicine touted turmeric as an herb with the ability to provide glow and lustier to skin as well as vigor and vitality to the body.10 Since turmeric has antimicrobial, antioxidant, astringent and other useful properties, it is quite useful in dentistry also. It is one of the important ingredients usually found in Indian kitchen, so its availability is easy and can be use as a medicine.11

THERAPEUTIC USES11

The active ingredient of turmeric is known as curcumin. It has been shown to have a wide range of therapeutic actions:

1. It protects against free radical damage, because it is a strong antioxidant.
2. It acts as anti-inflammatory by reducing histamine level and possibly increasing the natural cortisone by the adrenal glands.
3. It has been shown to prevent platelets from clumping together, which in turn to improve circulation may help protect against atherosclerosis.
4. Turmeric when applied to skin and expose to sunlight is act as strong antibacterial.
5. Useful in treatment of urinary disorder like diabetes mellitus.
6. It acts as anti-mutagenic, as it prevents new cancer that are caused by chemotherapy or radiation used in treating existing cancers.

**DENTAL APPLICATION OF TURMERIC**

Turmeric can be use in the following way in order to get relief from dental problems:
1. Rinse the mouth with turmeric water (boil 5 gm of turmeric powder two cloves and two dried leaves of guava in 200 gm water) gives instant relief.
2. Massaging the aching teeth with roasted, ground turmeric pain and swelling.
3. Apply the powder of burnt turmeric and bishops weed seed on teeth and cleaning them makes the gum and teeth strong.
4. Paste of turmeric with salt and mustard oil when apply over gums prevents gingivitis and relief from pain.
5. Dental plaque detection system contains staining agent which contain at least one selected from yellow pigment of beni-koji, turmeric extract and curcumin.

**CHEWING STICKS**

The chewing stick has different names depending on different societies and culture for instance, Miswak, Siwak or Arak is used in middle-east, Miswaki in Tanzania, Datun in India and Pakistan. A number of plants are used as chewing sticks in West Africa, the lime tree (Citrus aurantiifolia) the orange tree citrus (Citrus sinensis) sometimes provides chewing sticks. The roots of senna (Cassia vinnea) were used by American Negroes and those of African Laburnum (Cassia sieberiana) were used in Sierra Leone. Neem (Azadirachta indica) is widely used to provide chewing sticks in the Indian subcontinent, these are just to mention a few of the plants used as chewing sticks.12,13

**Chewing Stick Definition**

Pencil-sized sticks of various plants are fashioned from certain plant - parts and are chewed on one end until they become frayed into a brush. The brush-end is used to clean the teeth in a manner similar to the use of a toothbrush. When used in this manner, they are commonly referred to as chewing sticks or Miswak.

The use of chewing sticks is most common in Asian countries especially in the Indian subcontinent and the Middle East region; furthermore chewing sticks are cheap, readily available in urban and rural areas of the countries. Their taste is agreeable and not unpleasant and reported to have anti plaque and many other pharmacological properties so helps in preventing dental caries and periodontal disease.

It is claimed that the mechanical plaque-removing properties of chewing sticks may be similar to that of a conventional toothbrush. These chewing sticks are also useful to for maintaining oral hygiene, to treat toothache, gingivitis and periodontal diseases. Buffered extracts of some common chewing sticks show antimicrobial activity against oral microbial flora but to varying degrees. Some African chewing sticks are also reported to contain fluoride ions, silicon, tannic acid, sodium bicarbonate and other natural plaque inhibiting substances that can reduce bacterial colonization and plaque formation.12

**SALVADORA PERSICA (MISWAK)**

Miswak was used by the Babylonians some 7000 years ago; they were later used throughout the Greek and Roman empires and have been used by Jews, Egyptians and in the Islamic empires. It is believed that this precursor to the modern day toothbrush was used in Europe until about years ago. Today, Miswak is being used in Africa, South America, Asia, the Middle East including Saudi Arabia, and throughout the Islamic countries.13 Ayurvedic name of salvadora persica is Pilu, hindi name is khara jal. Chemically, the air dried stem bark of S Persica through chemical studies showed that it is composed of trimethyl amine, salvadorin, chlorides, high amounts of fluoride and silica, sulphur vitamin C, small amounts of tannins, saponins, flavonoids and sterols. It has been shown that vitamin C and sit sterol content of this plant have great roles in strengthening the gum capillaries and preventing gum inflammation. Similarly, calcium salts and fluoride are quite effective in preventing dental caries. Moreover, the silica and calcium salts in the plant act as grinder and detergent. Trim ethylamine is known to be effective in reducing surface adhesion and also in decreasing plaque accumulation. Tannins, tannic acid, sulfated compounds and benzyl isothiocyanate, are reported to have antimicrobial effects and help the healing of gum inflammation. Leaves, fruits and seeds of this plant have been used in traditional medicine as appetizer, mild laxative, diuretic and anti-fungal medication and people in some Asian and African countries have used it for many years.

**AZADIRACHTA INDICA (NEEM)**

This tree, in Sanskrit, Nimba and Arishta, is a native of India, and is cultivated in all parts of the subcontinent on account of its medicinal properties. The leaves bark and other products of Neem have been articles of the Indian material medica since antiquity and are mentioned in the Ayurveda of Sushruta.
Salimuzzaman Siddiqui, while working at the Scientific and Industrial Research Laboratory at Delhi University, for the first time extracted three bitter compounds from neem oil, which he provisionally named as Nimbi, Nimbinin and nimbidin respectively. Azadirachtin is a chemical compound belonging to the limonoids. It is a secondary metabolite present in the Neem tree seeds. This compound is found in the seeds of the Neem tree (0.2 percent by weight). Many more compounds, related to Azadirachtin, are present in the seeds as well as in the leaves and the bark of the Neem tree which also show strong biological activities. Apart from many other uses of Neem, Neem mouth rinse is very effective in the treatment of infections tooth decay, bleeding and sore gums. A mouthwash, using Neem oil, has been manufactured and used for the treatment of mouth ulcers.13

**GLYCYRRHIZA GLABRA (LICORICE)**

G glabra, commonly called as Licorice and in India its Hindi name is Mulathi, is one of the important traditional medicinal plants grows in the various part of the world and has been used for medicinal purposes for at least 4000 years.14 Root of this plant has several pharmacological properties such as anti-inflammatory, antiviral, antimicrobial, and anticancer activities in addition to immunomodulatory, hepatic protective and cardiac protective effects. Licorice roots extract contains Glycyrrhizol A, a compound that has strong antimicrobial activity against cariogenic bacteria.13,15-17 Two pilot human studies indicate that a brief application of Licorice roots extract lollipop led to a marked reduction of cariogenic bacteria in oral cavity among most human subjects tested.15 G glabra root extract might be useful as antibacterial agents against oral pathogens. Studied have revealed that it acts as antimicrobial, antibacterial and antifungal.17

**CLOVES**

Cloves (Syzygium aromaticum syn. Eugenia aromaticum or Eugenia caryophyllata) are the aromatic dried flower buds of a tree in the family Myrtaceae. Cloves are used in Ayurveda Chinese medicine and Western herbalism. Cloves are used as a carminative, to increase hydrochloric acid in the stomach and to improve peristalsis Phyllis & James, 2000). It is also used in dentistry where the essential oil of clove is used as anodyne for dental emergencies. In cloves are antmutagenic, anti-inflammatory, antioxidant, antilulcerogenic, antithrombotic and antiparasitic.18,19 Of clove, has been used for analgesic, local anesthetic, anti-inflammatory and anti-pains, sore throats, cramps, constipation, indigestion, vomiting, hypertension dementia, fever, infectious diseases and helminthiasis.20

**Use**

A paste made by blending ginger and honey could be use as mouth wash for treatment of dental caries, mouth sore, throat sore and can be incorporated into tooth paste for prevention of dental caries.20

**CONCLUSION**

In the age of intensive investigations aiming to discover new compounds, which can be used in treatment, we shall not forget about natural substances of herbal origin. Plants are a precious source of natural compounds which can be used both in prophylaxis and treatment of oral cavity and teeth diseases. Herbal medicines are useful in the treatment of chronic pathological conditions in which medicines are not well tolerated. Herbal drugs can be used for a long time, they do not cause addiction and allergic reactions. Nowadays, there are many herb-based specimens. Knowledge on their properties may help to choose the optimal one. Herbal compounds should be administered following its instructions, on proper time and dosage.

**REFERENCES**