

Emerging Trends of Herbal Care in Dentistry

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ABSTRACT

Herbs are staging a comeback and herbal 'renaissance' is happening all over the globe. The herbal products, today, symbolize safety, in contrast to the synthetics that are regarded as unsafe to humans and the environment. A herb, botanically speaking, is any plant that lacks the woody tissue which is characteristic of shrubs or trees. More specifically, herbs are plants which are used medicinally or for their flavour or scent. Herbs with medicinal properties are a useful and an effective source of treatment for various disease processes. Herbal extracts have been successfully used in dentistry as tooth cleaning and antimicrobial plaque agents. The use of herbal medicines continues to expand rapidly across the world. Many people take herbal medicines or herbal products now for their health care in different national healthcare settings. Herbal extracts have been used in dentistry for reducing inflammation, as antimicrobial plaque agents, for preventing release of histamine and as antiseptics, antioxidants, antimicrobials, antifungals, antibacterials, antivirals and analgesics. They also aid in healing and are effective in controlling microbial plaque in gingivitis and periodontitis, thereby improving immunity.

Key words: Herbal extracts, Dentistry, Antiseptics and antibacterials

INTRODUCTION

Herbs are one of remedial agents which God has created for afflicted humans. Herbal extracts have been used in traditional medicine for several thousand years [1]. The knowledge on medicinal plants has been accumulated in the course of many centuries, based on different medicinal systems such as Ayurveda, Unani and Siddha. In India, it has been reported that traditional healers use 2,500 plant species and that 100 species of plants serve as regular sources of medicine. During the last few decades, there has been an increasing interest in the study of medicinal plants and their traditional use in different parts of the world [2-6].

According to the World Health Organization (WHO), as many as 80% of the world's people depend on traditional medicine (herbal) for their primary healthcare needs. The development of indigenous medicines and the use of medicinal plants carry considerable economic benefits in the treatment of various diseases [7]. In the developed countries, 25% of the medical drugs are based on herbs and their derivatives [8].

Since tooth brushing is the most basic process in oral care, indigenous people, the world over, use natural tooth brushes which are made from healing plants. These primitive twig 'brushes' actually work quite well and they provide natural-bristle, disposable brushes with healing ingredients which have already been incorporated right in the plants. Herbalist, Lesley Tierra, in her book, 'The Herbs of Life' (Crossing Press, 1992), suggests that 'twigs contain volatile oils which stimulate blood circulation, tannins that tighten and cleanse gum tissue and other materials, such as vitamin C, which maintain healthy gums. Bay, eucalyptus, oak, fir and juniper, all work well for this'. In Asia, people often use twigs of the neem tree (*Azadirachta indica*).

The Natural Dentist Healthy Gums Daily Oral Rinse (The Natural Dentist, Medford, Mass.) which was formerly named, Herbal Mouth and Gum Therapy, has been shown to have beneficial effects in the oral environment, such as reduction of gingival bleeding and gingivitis and inhibition of the growth of aerobic, micro-aerophilic and anaerobic bacteria [9]. This mouth rinse contains several naturally occurring, anti-inflammatory agents such as aloe vera and calendula and antimicrobial agents such as Golden Seal and

grapefruit seeds. It was opined that when it was applied specifically against the broad spectrum of oral bacteria which are responsible for gingivitis, plaque and periodontal disease, this herbal mouth rinse could prove beneficial for maintaining oral health [10].

USES OF HERBS

The use of herbal remedies have assumed a global dimension, which has culminated in their being used in the treatment of various ailments in both developed as well as developing countries. Although today, only a few of these many herbs have been approved for their commendable medicinal properties, a large majority of naturally occurring herbs are only considered as food supplements, because of the lack of a randomized controlled clinical trials. Currently, many studies are being conducted, to know these herbs in depth. The uses of different herbs in dentistry have been listed below [Table/Fig-1].

Toxicity

Herbal medicines are believed to be benign and to not cause severe toxicity. This, coupled with lower costs as compared to those of conventional medications, is the major attraction of these treatments. Despite the general belief, use of herbal medicines can cause severe toxicity and even death. There are several potential causes of toxicity which result from these medications and they include [Table/Fig-2].

DISCUSSION

Herbal medicines have been used for many years. Their history can be rooted from ancient civilization, where their roles as a primary source of medication have been evident. There are various plants which are used as chewing sticks in different parts of the world. Several studies have reported on the antimicrobial effects of chewing sticks on oral bacteria and it was found that a 50% concentration of Kikar (*Acacia arabica*) and Arak (*Salvadora persica*) produced an antimicrobial effect on *Streptococcus fecalis* [10].

The herbal mouth rinse compared favourably, particularly in inhibiting the growth of Actinomyces species, the periodontal pathogens, *E. nodatum*, *Prevotella intermedia*, *Prevotella melan-*

Myrrh (<i>Commiphora myrrha</i>)	It helps promote healing in cases of pyorrhoea, Gargle with myrrh to help eliminate bad breath.
Prickly Ash (<i>Zanthoxylum</i>)	Used to increase the flow of saliva and relieve pain in toothache.
Peppermint (<i>Mentha piperita</i>)	Use peppermint oil for toothache. Soak a cotton ball in the oil and place it in the cavity or rub it on the tooth. Use peppermint mouthwash to relieve gum inflammation.
Red clover (<i>Trifolium pretense</i>)	Red clover mouthwash is healing for irritated and diseased gums, After making red clover tea, prepare an ointment from the strained blossoms and leaves. Rub the ointment, which has antibiotic properties, on gums that are abscessed from disease or sore and inflamed from root canal therapy or other dental procedures.
Rosemary (<i>Rosmarinus officinalis</i>)	Use rosemary mouthwash for the treatment of gum disease and bad breath.
Sanicle (<i>Sanicula Europaea</i>)	Use as a powerful antioxidant, Use as a salve or ointment to heal septic wounds.
Shepherd's Purse (<i>Capsella bursa-pastoris</i>)	Use the fresh tops of shepherd's purse to help stop bleeding after tooth extraction.
Tree tea oil (<i>Melaleuca alternifolia</i>)	Rub the tree tea oil directly on sore, inflamed gum for temporary relief. Use tree tea mouthwash to soothe oral inflammation. It also has mild solvent action, and hence could hold potential applications in root canal treatment for dissolving the necrotic pulp tissue.
Thyme (<i>Thymus vulgaris</i>)	Use a salve made of thyme, myrrh and goldenseal to treat oral herpes, It contain fluorine used in toothpaste. Thymus Vulgaris extract is effective against <i>Streptococcus Mutans</i> .
Violets (<i>Clematis virginica</i>)	Mouthwash made from violets helps relieve the pain and tenderness from sores caused by oral cancer. It is also helpful in soothing canker sores and cold sores.
Wintergreen (<i>Gaultheria procumbens</i>)	Wintergreen mouthwash is an excellent astringent and antiseptic. Soak a cotton ball in wintergreen oil and place it on a sore tooth or rub it on inflamed gums for temporary relief.
Yarrow (<i>Achillea millefolium</i>)	Used to treat hemorrhages, ulcers and to improve blood clotting, Use yarrow mouthwash to promote healing of cuts in mouth due to surgery, teeth cleaning and braces.

[Table/Fig-1]: Common herbs which are used in dental treatment [9-17].

inogenica, *Prevotella nigrescens*, *T. forsythia* and the dental caries pathogen, *S. mutans*. The effectiveness of the herbal mouth rinse, most likely, was due to its antimicrobial effect. Goldenseal had antimicrobial properties against oral pathogens such as *S. mutans* and *Fusobacterium nucleatum* [13].

A review suggested the potential of using aloe vera with its antibacterial, antifungal and antiviral properties. The antimicrobial effects of aloe vera have been attributed to the plant's natural anthraquinones: aloe emodin, aloetic acid, aloin, anthracene, anthranol, barbaloin, chrysophanic acid, ethereal oil, ester of cinnamic acid, isobarbaloin, and resistanol. In relatively small concentrations, together with the gel fraction, these anthraquinones provide analgesic, antibacterial, antifungal, and antiviral activities; in high concentrations, they could be toxic. The aloe vera tooth gel and the toothpastes were equally effective against *Candida albicans*, *Streptococcus mutans*, *Lactobacillus acidophilus*, *Enterococcus faecalis*, *Prevotella intermedia* and *Peptostreptococcus anaerobius*. Aloe vera tooth gel also has an enhanced antibacterial effect against *S. mitis* [9].

Toxicity	Herbal Medicine
Seizure	Cimifunga racemosa, Cicuta douglasii, Acrostaphylos uva-ursi, Herba ephedrea, Piper Mysticum,
Cardiovascular Toxicity	
Ventricular Tachycardia	Aconitine-containing Herbs, Ma huang, Angel trumpet poisoning, Tripterygium wilfordii poisoning.
Ventricular Fibrillation	Aconitine-containing Herbs
Complete A-V block	Cardiac glycoside poisoning, Nerium oleander poisoning
Bradycardia	Jin bu huan poisoning, Tripterygium wilfordii poisoning.
Shock and Hypotension	Tripterygium wilfordii
Pulmonary Toxicities	
Anaphylaxis	Peumus boldus, Willow bark-containing dietary supplement.
Interstitial pneumonitis	Ouren-gedoku-to, Saiboku-to, Sairei-to, Shosaiko-to
Non-Cardiogenic pulmonary edema	Kamishoyo-san, Otsuji-to, Sairei-to, Shosaiko-to.
Pulmonary infiltrates with eosinophilic	Shosaiko-to, Shoseiryu-to.

[Table/Fig-2]: Herbal Medicines which are associated with toxicity [18-25]

The free radical scavenging property and the antimicrobial activity of Triphala, a herbal product which was made from equal proportions of Terminalia chebula, Terminalia bellerica and Emblica officinalis, have been evaluated. This herbal extract effectively inhibited bio-film formation and the better antioxidant activity which is exhibited by this extract could protect the gum cells effectively from free radicals than the commercial toothpastes. Thus, Triphala could be used as an effective antiplaque agent [26]. It inhibits aggregations of *S. mutans*, thus acting as an anticarcinogenic, inhibiting increase in red blood cells and aiding in removal of undesirable fat. It can also be used in the treatment of cancers [27].

Herbal extracts have been successfully used in dentistry as tooth cleansing and antimicrobial plaque agents. The barberry (*Berberis vulgaris*) dental gel has been shown to effectively control gingivitis and microbial plaque formation in children [28]. Barberry juice contains a large amount of Vitamin C and so it increases the activity of immune system, stimulates to absorb iron and avoids scurvy [29].

An extract which was made from the leaves of the tree, *Newbouldia laevis* (a medium sized angiosperm of the Bignoniaceae family) was tested as a bactericide for the bacteria which were implicated in dental caries and it was found that *Newbouldia laevis* had a bactericidal action against *Streptococci mutans* and *Lactobacilli* [30].

Herbal extracts are a matter of scientific interest in efforts which are being made to inhibit plaque accumulation on teeth. The ability of the herbal extract, German chamomile, in mouthwashes to reduce gingival inflammation and plaque formation and for use as an irrigant to disinfect the root canal with less toxicity, has been well documented [31,32].

CONCLUSION

The use of herbal medicines continues to expand rapidly across the world. Many people take herbal medicines or herbal products now for their health care in different national healthcare settings. Herbal extracts have been used in dentistry for reducing inflammation, as antimicrobial plaque agents, for preventing release of histamine and as antiseptics, antioxidants, antimicrobials, antifungals, antibacterials, antivirals and analgesics. They also aid in healing and are effective in controlling microbial plaque in gingivitis and periodontitis and thereby improving immunity.

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