Ethno-dentistry: popular medicinal plants used for dental diseases in India

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Received: March 09, 2012
Accepted: March 22, 2012
Published Online: April 08, 2012
DOI: 10.5455/jice.20120322035152

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Keywords:
Dental diseases, Indian population, medicinal plants

INTRODUCTION

Oral diseases continue to be a major health problem worldwide [1]. Dental caries and periodontal diseases are among the most important global oral health problems, although conditions such as oral and pharyngeal cancers and oral tissue lesions are also significant health concerns [2]. Despite general advances in the overall health status of the people living in industrialized countries, including oral and dental health, the prevalence of dental caries in school aged children is up to 90% and the majority of adults are also affected [1]. Oral health is integral to general well-being and relates to the quality of life that extends beyond the functions of the craniofacial complex. The link between oral diseases and the activities of microbial species that form part of the microbiota of the oral cavity is well established [3]. Over 750 species of bacteria inhabit the oral cavity (50% of which are yet to be identified) and a number of these are implicated in oral diseases [3]. The global need for alternative prevention and treatment options and products for oral diseases that are safe, effective and economical comes from the rise in disease incidence (particularly in developing countries), increased resistance by pathogenic bacteria to currently used antibiotics and chemotherapeutics, opportunistic infections in immunocompromized individuals and financial considerations in developing countries [4, 5].

The term ‘Medicinal Plant’ is not a taxonomic term, but based on the utility of the plants. Any plant used in any system of medicine can be categorized as a medicinal plant. In spite of the tremendous progress in the development of medical science, plants continue to be an important source of drugs in many countries around the world. During past two decades reliability and usage of herbal product has become of increasing importance, due to the side effects and complications of many chemical and synthetic medicines. About 25% of drugs are derived from plants and many other are formed from prototype compounds isolated from plant species [6]. Kanwar et al. [7] reported that about two million traditional health practitioners use over 7500 medicinal plant species.
A lot of research has been carried out on the utilization of medicinal plants in the treatment of a variety of ailments [7-12], more especially during last 2-3 decades, as a result the commercial use and exploitation of these herbal medicines has increased markedly as pointed out in the detailed review by Joshi [13]. However there are only a few reports on the utility of medicinal plants in the treatment of specific disease. For example Sadangi et, al. [14] have reported 10 species of medicinal plants used in the treatment of ear and mouth diseases by the tribal people of Kalahandi district, Jadhav [15] has documented 15 species of medicinal plants used in different types of fever, while Kadel and Jain [16] reported that 34 plant species are being used for the treatment of snakebite in Madhya Pradesh and Chhatisgarh states.

Teeth are very hard but sensitive organs which are implanted in the jaw bones. They not only help in the biting and grinding of food but also aid speech. Any malfunctioning of the teeth or a disease of the gums

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disturbs the process of digestion. Lack of oral hygiene, an excess of fleshy food and sweets harm our teeth by causing pyorrhoea, toothache, bleeding gums and dental caries. The use of medicinal plants to treat dental problems has been discussed from time to time by many researchers, viz. the use of Argemone maxicana, Azadirachta indica and Ocimum basilicum in dental health care has been reported by Singh and Dhakre [11] while the use of Hedychium spicatum and Zanthoxylum aromatum has been reported by Arya and Prakash [12]. Acharya et al. [17] have reported 26 herbal medicines used to treat dental diseases. In addition, Kanwar et al. [7] have reported the use of Achyranthes aspera, Aegle marmelos and Vitex negundo in dental care by the locals of Kangra district and Tomar [18] has reported the use of six species of plants by the local people of Meerut district (India) to treat dental caries. Sharma and Joshi [9] have reported the use of 30 species of medicinal plants in Almora district, with 5 of these plant species being used by the local people for dental health care.

Various plants used for the treatment of dental disease by Indian population

Many plants are being studied for their potential as phytonutrients or phytotherapy (Jiang et al.) [19]. The literature suggests several plants and plant parts which have anti-inflammatory, antioxidants, antibacterial, astringent and other useful properties. These properties can be made use of in the treatment of dental diseases. Compared to plant derived drugs that often consist of one single natural compound in combination with other chemicals, herbs or phytotherapy materials often contain multiples bioactive components with multiple targets during intakes and therapy. Various plants along with their useful parts and active constituents have been listed in Table 1.

Common uses of various medicinal plants

Among the reported plants, leaves were the dominant parts in oral care uses (25.44%), followed by root (20.17%), seed/nut/fruit (18.42%), bark (14.03%), young stem/stem/rachis (12.28%), whole plant (9.65%) and gum/latex (8.77%). Among the utilization, most of the plants were used to relieve from toothache (29.82%) followed by, used as dentifrice/toothbrush (25.43%), mouthwash/gargle (16.66%), against common dental diseases (14.03%), mouth related stomatitis/ulcer/gingivitis (12.28%) and gum bleeding/disorders (10.53%). The mode of utilization of these plants is either in the form of gargle of decoction of plant part(s), powder of dried material or toothbrush.

**CONCLUSION**

Healthy teeth are fundamental for the proper functioning of the human body. Proper and regular hygiene is required to prevent dental problems. In allopathy, the treatment of dental problems is expensive and cannot be afforded by poor people. So, these types of herbal medicines, which are almost free, are a great help. However these medicines are limited to rural areas and, so, it is necessary to carry out research into these medicines and make available to every part of the country. It was also observed that elderly people have more knowledge about these traditional herbal therapies than younger people. The main reason for this is the superstitious nature of local people. They do not reveal the methods used to prepare “magic” herbal medicines to anyone, even their family members, because they think that if they do, the effective medicinal qualities of the herbs will be lost. As a consequence, with the death of the elderly knowledgeable persons in these remote rural areas, this traditional knowledge could be lost forever.

**REFERENCES**


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