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Contribution of Trees to Oral Health in India.

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ABSTRACT

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. The ethno-medicine has gained considerable importance in the recent past, because of being safe and with no side effects. Documenting the indigenous knowledge through ethno botanical studies is important for the conservation of biological resources as well as their sustainable utilization. In the present review 44 species of trees have been recorded which are being potentially exploited by the Indian population for oral health care. Of these *Azadirachta indica* of Meliaceae, family is found to be dominantly used for oral health care followed by *Ficus benghalensis* of Moraceae family. This aim of this review is to document and summarize the information so as to create awareness on the medicinal value/of forest tree species.

Keywords: India, Trees, Oral, Heath.

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INTRODUCTION

Trees are vital, functional parts of our communities**,** and they of continued importance to the environment. Trees are more effective than samall trees in cooling urban areas, using carbon dioxide from the air, reducing water runoff and soil erosion, and generally improving our environment. They also play an important role in producing oxygen and reducing carbon dioxide in the atmosphere, as well as moderating ground temperatures. Forest tree species have been found to have potential therapeutic values that could meet the medicinal needs of people in the rural areas and those in the upland.

The search for an alternative approach to the possible improvement of the health condition of the people has long been a problem by the government. The cost of modern medicine is very prohibitive such that going back to the so-called traditional medicine seems to be inevitable. Today, there is an increasing interest in the development of traditional medicine (referred to by other people as herbal medicine) in the country as evidenced by the growing number of organizations focusing on it. Experts all over the globe have advocated the continued use of medicinal plants which are proven effective. They have further recommended greater awareness on the potential values of traditional remedies/indigenous materials which can be used either alone or together with modern medicine.

In many countries, scientific investigations of medicinal plants have been initiated because of their contribution to oral health care. The World Health Organization (WHO), 1978 has estimated that 80% of the populations of developing countries rely on traditional medicines, mostly plant drugs, for their primary health care needs [1]. The use of traditional medicines and medicinal plants in most developing countries as therapeutic agents for the maintenance of good health has been widely observed. Hence documenting the indigenous knowledge through ethno botanical studies is important for the conservation of biological resources as well as their sustainable utilization. In such a way the aim of this review is to list various trees used for oral health care by local communities in India.

Methodology of the review:

The literature search was performed between July 2010 to May 2011 using literature databases, including online catalogues of relevant institutions and e-journal consortia. Databases were chosen according to their topic (e.g. ethnology, agro forestry, ethnobotany and agriculture), geographical covering in English. Abstracts; extracted from the databases; were selected based on topic and geographical covering. Literature was downloaded as PDF-document from the Internet and obtained directly from authors. Literature comprising information without a clear source; be it primary data or other literature; was rejected. A search for additional literature; found in reference lists of collected publications (snowball principle) continued until May 2011.

RESULTS AND DISCUSSION

In the present review 25 families and 44 species of trees have been recorded which are being potentially exploited by the Indian population for oral health care as shown in Table 1. Of these *Azadirachta indica* of Meliaceae, family is found to be dominantly used for oral heath care followed by *Ficus benghalensis* of Moraceae family. Majority of these plant species are used as natural tooth brush. Certain trees are used for management of gum bleeding, tooth ache, sores in mouth and bad breath. Stem, Young Twigs, Leaves, Bark, Fruit, Spines , Seeds and latex are the parts of trees being exploited for oral health care. Plant-based traditional knowledge has become a recognized tool in search for new sources of drugs;it is clear that these herbal medicines can offer a platform for further research in dentistry.

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Table 1: List of botanical names of trees and their use towards oral health care from various parts of India

S.No.	Family name	Botanical name	Parts used	Medical uses
1	Achariaceae	*Gynocardia odorata*	leaves	Tooth decay [2]
2	Anacardiaceae	*Buchanania lanzan Spreng.*	Gum of the treeBark, seeds	toothache. mouth ulcer [3,4]
		Mangifera indica L.	Latex	toothache; latex is applied to relieve gingivitis. [3]
		Rhus parviflora Roxb.	Bark, twigs,	Cleaning teeth[5]
3	Apocynaceae	*Pulumaria acutifolia Pair.*	Latex	Mouth ulcer[6]
		Wrightia tinctoria (Roxb.) R. Br.	Leaf	Leaf paste is applied on aching teeth to get relief from toothache. [7]
4	Bombaceae	*Bombax ceiba Linn*	Stem	latex is useful in toothache and sores in mouth. [8]
5	Burseraceae	*Bombax ceiba L.*	bark	Toothache[9]
		Canarium bengalense Roxb	Latex	Latex is used in the treatment of wounds and gum infection. [9]
6	Caesalpiniaceae	*Bauhina Variegenta L.*	Twigs	Used as toothbrush for pyorrhea and toothache.
		Cassia javanica. L.	Young leaves	Young leaves munched to stop bad breath.
		Tamarindus indica	Bark	Bark powder of puli and karuvellam is mixed and used as tooth powder.
7	Caricaceae	*Carica papaya L.*	Latex	Latex is used to cure tooth ache and mouth ulcer..
8	Cleomaceae	*Cleistanthus collinus (Roxb.)Benth.*	Leaf	tooth-ache[8]
9	Combertaceae	*Terminalia chebula (Gaertn.) R etz.*	fruits	Grinding power of fruit is used for tooth ache[8]
10	Euphorbiacea	*Emblica officinalis Gaetrn.Syn.*	twig	twig worn into neck to cure tooth ache. [13]
		Phyllanthus emblica	Fruit	Fruit pulp is used for tooth decay. [12,14]
11	Fabaceae	*Pongamia pinnata (Linn.) Pierre.*	Tender leaf twigs	Tender leaf twigs are chewed for about 15 toothache. [3]
12	Juglandaceae	*Juglans regia L.*	Bark	For cleaning teeth [14].
13	Lamiaceae	*Lucas aspera Sprong.*	Leaf	Toothache, Gum infection [6,4]
14	Meliaceae	*Azadirachta indica (A.Juss).,*	twigs, flower	Tender twigs are used as tooth brush. flowers used for mouth infections, swelling or bleeding of gums. [3,12,16,17, 19]
		Melia azardiarachta.,	Leaves, Seeds Bark.	Tooth ache. Branches are used as toothbrush [17]
15	Mimosaceae	*Acacia arabica.(lamk)Willd.*	Bark	Gum diseases and mouth ulcer. [18]
		Acacia leucophloea (Roxb.) Willd.	Stem bark	Stem bark decoction gargled daily twice. [20]
		Acacia nilotia willd.	Young Twigs	Tooth ache, Used as tooth brush. [19,21]
		Albizia lebbeck (L.) Willd.,	Bark	Dried bark is made into powder and used as tooth powder [16]
		Albizzia amara(Roxb.)Bovin	Leaves, Bark, Fruit	Mouth ulcer [4]
16	Moraceae	*Artocarpus heterophyllus Linn,*	Spines	Ash of rind spines is used for tongue ulcer[22]
		Ficus bengalensis L.	Latex, Young Twigs	Prop root is used as toothbrush.Fresh latex of plant is

				applied to treat the bleeding and swelling of gums. [3,17,18,19]
		Ficus religiosa L.	twigs	Tender leaf twigs are chewed between the teeth to cure toothache. [3]
		Fiscus virens	Bark	Decotion is used as moth gargle for mouth ulcers. [3]
17	**Moringaceae**	***Moringa oleifera***	Flower	Cooked flower boiled and inhaled. [10]
18	**Myrtaceae**	***Syzgium cumini.L.***	Bark	Mouth wash[12]
19	**Oleaceace**	***Olea ferruginea Royle***	Leaves,. Fruit.	Leaves are antiseptic, toothache [18]
20	**Papilionaceae**	***Sesbania grandiflora***	Leaves	Boiled leaf is used for mouth ulcer.[18]
21	**Rhamnaceae**	***Ziziphus mauritina Lam.***	Whole plant	Steam of boiling plant juice with fruits of phyllanthus emblica is used as mouth freshner.[12]
22	**Rubiaceae**	***Anthocephalus chinensis Miq.***	Leaves	decoction made from leaves is used against mouth ulcer[14]
		Haldina cordifolia (Roxb.) Ridsd.	branches	Tooth is brushed with young branches.[18,24]
23	**Rutaceae**	***Glycosmis pentaphylla Corr.***	Leaves, Seed,	Tooth ache [18]
		Murraya paniculata (L.) Jack.	stem	Toothbrush of stem is found to be effective to cure toothache. [3]
		Zanthoxylum alatum Roxb.	Seeds	Seeds are chewed to relief from tooth problem[25]
24	**Sapotaceae**	***Madhuca longifolia (Koenig.) Macbride***	Small stem	Small stem is used as toothbrush, emerging in mustard oil to cure toothache. [3]
		Mimusops elengi Linn.	BarkFruit	Bark juice used as gargle for apthae and gum diseases[26,27]
25	**Verbenaceae**	***Semecarpus anacardium. L***	Leaf	toothache.[8]

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. The ethno-medicine has gained considerable importance in the recent past, because of being safe and with no side effects. Therefore, such plants should be investigated to better understand their properties, safety and efficacy [28].

Present literature documentation reveals that medicinal plants continue to play a major role in oral healthcare needs of Indian population. Hence there is an urgent need to conserve the biodiversity as well as the traditional knowledge by proper documentation and for further research in dentistry.

This review also shows the usage of trees for oral health care among Indians, is still a major part of their life and culture.. Earlier studies on traditional medicinal plants also revealed that the economically backward local and tribal people of India prefer folk medicine due to low cost and sometimes it is a part of their social life and culture. Due to lack of interest among the younger generation there is a possibility of losing this wealth of knowledge in the near future. It thus becomes necessary to acquire and preserve this traditional system of medicine by proper documentation and identification of specimens. The study also indicates that in spite of the establishment of a few modern health centres, the use of trees and traditional practices will continue to play a significant role in the socio-cultural life of these communities in India

CONCLUSION

This review is an attempt to call the government agencies concerned to document information and create awareness on the medicinal value/uses of forest tree species. Thus, researchers, students and the

public will find the series practical and useful. The continuing research efforts of various agencies, public and private, would eventually enable update the series.

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