

## **ETHNOMEDICINAL PRACTICES FOR ORAL HEALTH AND HYGIENE OF TRIBAL POPULATION OF WAYANAD, KERALA**

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### **ABSTRACT**

The present study was conducted to document the ethno medicinal practices followed for oral health and diseases by tribal people of Wayanad district, Kerala, India. A survey was undertaken to collect information from traditional healers, elders and heads of the tribal community and botanists on the use of medicinal plants and traditional oral care practices of this region. Systematic recording of data was done using a specific questionnaire subsequent to personal interview. This study identified 24 herbs and various traditional methods used by people of this region to maintain oral health and hygiene and as a remedy for dental diseases. Since the use of plant materials with medicinal potential represent a valid alternative for treatment of different diseases, the documentation of the valuable ethno medicinal practices become essential. This would contribute to the body of knowledge and help in exploration of new and novel bioactive compounds to fight against oral diseases.

**Key Words** - Herbs, Oral hygiene, Oral diseases, Wayanad Tribals

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### **INTRODUCTION**

Herbs have long been used traditionally for routine cleaning of teeth and to treat various oral and dental diseases. In many traditional cultures, herbal chewing sticks are widely used instead of plastic-bristle brushes to maintain oral health and hygiene. These chewing sticks are usually taken from plants, shrubs or trees. Similarly leaves and fibers of some plants are also used for cleaning teeth, preventing and treating dental caries, gingival and periodontal diseases and other oral mucosal diseases<sup>1,2</sup>. Recently many of the traditional practices are not a part of everyday life and are fast disappearing due to modernization and emergence of new advanced methods. Various ethno medicinal practices are getting replaced by modern medicines. However herbal remedies are practiced even today at homes for oral and dental problems in some rural population<sup>3,4</sup>. There is an urgent need for documentation of indigenous knowledge as they are in danger of dying with old generation.

Wayanad is a less densely populated district of Kerala state, and its population constitutes only 2.47% of Kerala's total population. Adivasi community constitutes 17% of total population of Wayanad. These communities

form the poorest section of the population of the district and they fall behind the rest of population of Kerala in terms of literacy, income and health. There are six main tribal communities - Paniyan, Adiyan, Kattunaikckans, Mullu Kurumans, Urali Kurumans and Kurichians. Each tribe differs in their characters and socio economic status. Since their culture is closely related to forest and forest products, they have rich traditional knowledge about the indigenous herbal remedies for various diseases. Studies carried out on the Wayanad tribal population about their ethno medicinal practice on medical health problems revealed their rich knowledge on herbal remedies<sup>5</sup>. Therefore this tribal community was chosen to explore and document various ethno medicinal practices traditionally followed for oral health and hygiene.

### **MATERIALS AND METHODS**

The present study was conducted in Wayanad district of Kerala, India. Four traditional healers, 2 botanists and 12 elderly people, 2 Moopans (head of the tribes) were interviewed for the purpose of documentation of various herbs and their parts used in oral health. The ethno medicinal investigation was done systematically using a

specific questionnaire. In addition to the general information, details of the plant or parts of plant used, their vernacular name, the purpose for which it is used such as routine teeth cleaning, tooth decay, gum diseases, oral mucosal diseases such as stomatitis or oral aphthous ulcers were noted down. The practitioners of herbal formulations, their mode of administration and dosage, were also documented. Interview was carried out in local language and the details were recorded. The ethnomedicinal data collected was entered in a data base and the names of the species were alphabetically arranged.

## RESULTS

Information on 24 plants that were traditionally being used for oral health and hygiene by the tribal people of Wayanad was documented. Many of these plants are still being used. Out of the 24 species, 3 species are used for routine oral hygiene practices (Table I), which are used to clean the teeth and massage the gums. The leaves are rolled and one end of the roll is chewed to make it soft and fibrous and used for cleaning. Alternatively whole leaves are chewed to make an infusion of the leaf extract and saliva. This mixture along with fibrous leaf material is rubbed against teeth and gum using finger for cleansing. Similarly 8 species are used for tooth decay, 13 for tooth ache and 6 for stomatitis or oral ulcers. The various parts of plants used, preparation and mode of administration are discussed in detail in Table II, III & IV. In addition to the herbs mentioned in the Table I, some people of Wayanad are also using charcoal, half burnt rice bran mixed with salt, soot formed on the vessels or chimneys after heating with wood etc for regular cleaning of teeth.

## DISCUSSION

Natural products have been used for thousands of years in folk medicine for several purposes including oral care. The present study was conducted in tribal population of Wayanad district, Kerala about the maintenance of oral health and hygiene through ethno medicinal practice. This study provides information on various traditional oral hygiene practices and herbs used for oral health and diseases. These practices which were wide spread in the past are now being used only by few elderly people of the tribe, but the knowledge still survives in the memories of the middle aged group. These types of surveys would help in proper documentation of valuable ethno medicinal practices and protecting this wealth of knowledge from the danger of losing because this is not transferred to younger generation. Documentation also would help the pharmacologists to isolate the active ingredients of these plants and incorporate it into the

modern healthcare practices for easier and cheaper oral health treatments<sup>5,6</sup>.

Use of herbs in traditional oral care has some advantages over modern techniques. As most of the medicinal plants confer considerable antibacterial activity against various microorganisms including bacteria responsible for dental caries and periodontal diseases, the use of herbs also protects the teeth and supporting structures from these common dental diseases<sup>7</sup>. Similarly the alkaline nature of these herbs helps to maintain acid-alkaline balance of the saliva contributing further to protect the teeth from caries-attack<sup>8</sup>. Studies have revealed that the microorganisms present in inflamed gingiva are resistant to some antibiotics but not to antibacterial plant extracts like neem. Unlike antibiotics, antibacterial plant extracts produced no adverse reactions in the gingiva<sup>9,10</sup>. There are many studies conducted to prove the antibacterial property of many plant extracts<sup>11,12</sup>. Herbal remedies are also found to be highly effective in treating a variety of oral mucosal diseases including aphthous stomatitis. The plant products are greatly explored for therapeutic potential to cure various oral ailments; but they have not gained adequate popularity among dental professionals and common public. Literature survey revealed only few published articles on survey conducted to document herbal plants used for dental health and disease. Hebber et al reported 35 plants belonging to 26 families used to treat different types of oral ailments like toothache, plaque and caries, pyorrhea and aphthae by people of Western Ghat region of Dharwad district of Karnataka, India<sup>2</sup>. Veena Bhasin conducted a detailed survey on oral health behavior among Bhils of Rajasthan, the third largest tribal group of India and reported various traditional methods and techniques of dental care followed by Bhils and the herbal remedies used by them for various oral diseases. Many plant species which are widely used by Bhils are used even in this region for routine oral hygiene practices and to treat dental caries<sup>13</sup>. There are chances of tooth abrasion, injury to the gingiva and gingival recession due to hard abrasive plant materials. But these factors should not outweigh the beneficial aspect of herbs in oral health and hygiene. In addition research on various herbs should be promoted further to identify the useful components that can be incorporated in to tooth pastes or tooth cleaning powders. This may provide the possibility of combining the beneficial effects of traditional and modern practices to offer maximum benefit to mankind. Similarly herbal remedies to fight the dental diseases also should be made available to the public in an 'easy to use' form.

## CONCLUSION

Currently natural products are the leading source in the search of new biologically active compound. Although not scientifically proven the beneficial effects of ethno medicinal practices are well established and time tested. Proper documentation is necessary to preserve the rich herbal treasure of our tribal people. Furthermore efforts have to be made to systematically investigate the potential effect and to identify the active compounds so that these can be incorporated in to modern oral care system which can be made available for the use of all and sundry.

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TABLE I – HERBS USED FOR ROUTINE CLEANING THE TEETH

No	TAXON	Family	Vernacular Name	Part used	Method of use
1	<i>Mangifera indica</i> , Linn	Anacardiaceae	Mavu	Leaf	Folded leaf rub on the surface of teeth with salt
2	<i>Oryza sativa</i>	Poaceae	Nellu	Husk	Burnt husk mixed with salt and rub on the surface of teeth with fingers
3	<i>Piper nigrum</i> Linn	Piperaceae	Kurumulaku	Fruit	Grind pepper fruit along with salt and rub on teeth with finger

TABLE II - USED AS REMEDY FOR DENTAL CAVIES/ TOOTH DECAY

No	TAXON	Family	Vernacular Name	Part used	Method of use
1	<i>Curcuma longa</i>	Fabaceae	Manjal	Rhizome	Placed in to the carious cavity of tooth in the form of paste
2	<i>Lobelia nicotianaeefolia</i> Roth	Lobeliaceae	Kattupukayila	Leaf	Chewed and kept in the carious cavity of tooth
3	<i>Nicotiana tabaeum</i> Linn	Lobeliaceae	Pukayila	Leaf	
4	<i>Vitex negundo</i> L.	Verbenaceae	Nochi	Leaf	Chewed and left in the mouth for some time
5	<i>Solanum anguivi</i> Lam	Solanaceae	Puthirichunda	Fruit	
6	<i>Piper nigrum</i> Linn	Piperaceae	Kurumulaku	Root	
7	<i>Allium sativum</i> Linn	Liliaceae	Velluli	Bulb	Milky juice with the help of cotton pellet is inserted into the carious tooth
8	<i>Tabernaemontana divaricata</i> Linn	Apocynaceae	Nandyarvattam	Latex	

TABLE III - USED AS REMEDY FOR TOOTH ACHE

No	Taxon	Family	Vernacular Name	Part used	Method of use
1	<i>Careya arborea Roxb</i>	Barringtoniaceae	Pezhu	Bark	Steaming and gargling water boiled with the plant parts
2	<i>Centella asiatica</i>	Mackinlayoideae	Kadangal/ Kaduku	Leaf & stem	
3	<i>Psidium guajava Linn</i>	Myrtaceae	Perakka	Root	
4	<i>Phyllanthus emblica Linn</i>	Euphorbiaceae	Nelli	Bark	
5	<i>Mangifera india, Linn</i>	Anacardiaceae	Mavu	Leaf	
6	<i>Nicotiana tabaeum Linn</i>	Lobeliaceae	Pukayila	Leaf	After chewing, keep it in mouth for short period of time
7	<i>Wrightia tinctoria R.Br</i>	Apocynaceae	Danthapala	Leaf	
8	<i>Tabernaemontana dichotoma Roxb</i>	Apocynaceae	Kokkapala	Leaf	
9	<i>Curcuma longa</i>	Fabaceae	Manjal	Rhizome	
10	<i>Solanum xanthocarpum Schrad &amp; Wendl</i>	Solanaceae	Kandakari	Fruit	
11	<i>Solanum anguivi Lam</i>	Solanaceae	Puthirichunda	Fruit	Insert a cotton pellet soaked with the latex into the carious cavity of aching tooth and bite hard for 10 minutes
12	<i>Globulus labill</i>	Myrtaceae	Eucalyptus	Oil	
13	<i>Jatropha curcas Linn</i>	Euphorbiaceae	Kattavanaku	Latex	

TABLE IV - USED AS REMEDY FOR ORAL ULCERS/ SORE MOUTH

No	Taxon	Family	Vernacular Name	Part used	Method of use
1	<i>Ageratum conyzoides Linn</i>	Asteraceae	Appa	Leaf	Grind to a fine paste and apply over the ulcerated area
2	<i>Vitex negundo</i>	Verbenaceae	Nochi	Leaf	
3	<i>Cassia fistula Linn</i>	Caesalpiniaceae	Konna	Leaf	
5	<i>Areca catechu L</i>	Arecaceae	Adakka	Root	
6	<i>Tamarindus indica Linn</i>	Caesalpiniaceae	Puli	Fruit	Apply on ulcerated area



Fig 1: *Tabernaemontana divaricata* Linn



Fig 2: *Areca catechu* Linn



Fig 3: *Magnifera indica*



Fig 4: *Ageratum conyzoides* Linn



Fig 5: *Phyllanthus emblic* Linn



Fig 6: *Cassia fistula* Linn.



Fig 7: *Piper nigrum* Linn



Fig 8: *Psidium guajava* Linn



Fig 9: *Oryza sativa*



Fig 10: *Curcuma longa*

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