

## **Traditional Practice for Oral Health Care in Nandurbar District of Maharashtra, India**

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### **ABSTRACT**

An ethnobotanical study was conducted from January 2006 to October 2008 to investigate the uses of medicinal plants for oral health care by different aborigines, such as Bhills, Gavits, Kokanis, Mavachis, Valvis, Pawras, Koknas and Vasaves, in the Nandurbar district of Maharashtra, India. Data were collected by interviewing native people, mainly elderly – engaged in farming and stock rising activities, housewives and local traditional medicinemen of different villages. The investigation revealed that a total 20 claims were obtained as distributed in 18 genera belonging to 14 families to treat various diseases and disorders of oral cavity, particularly in tooth decay. Information about local names, plant parts and different form of preparation used were recorded and are focused in given issue. In this study most commonly used family was Euphorbiaceae followed by Moraceae, Anacardiaceae, Fabaceae, Asteraceae, Acanthaceae, Meliaceae, Asclepiadaceae, Poaceae, Lythraceae, Sapotaceae, Cucurbitaceae, Rutaceae and Solanaceae. Present study indicated many tribal communities of visited villages of Nandurbar district still continue to depend on plant resources to meet their day-to-day needs and use plant based formulations from generation to generation for treatment of health related problems. Now, the tribal societies are progressing towards modernization; their knowledge of traditional use of plants might be lost. Therefore conservation of such heritage is warranted.

**Key words:** Teeth, Toothache, Medicinal plant, Tribal medicine, Nandurbar.

### **INTRODUCTION**

India has one of the world's most sophisticated indigenous medical cultures, with an unbroken tradition coming down across more than four millennia. Though this medical heritage is several centuries old, even today people in the rural and remote areas depend upon it for their health care needs. According to WHO report, over 80% of the world population relies on traditional medicine for their primary health care needs (WHO, 2000). Exploration of traditional medicine is a mysteriously interesting yet, scientifically significant and economically important task of

ethnobotanists. In past few decades pioneer work in identification, documentation and recognition of traditional medicine has been done in India. Ethnobotanical studies are often significant in revealing locally important plant species especially for the discovery of crude drugs (Jain, 1981). The science of ethnobotany is concerned with the relationships between man and vegetation involving man's dependence upon vegetation as well as the tremendous influence man has had on vegetation (Farnsworth, 1998). Right from its beginning, the documentation of traditional knowledge, especially medicinal uses of plants, has provided many important drugs of modern day (Pushpagandan and Kumar, 2005). Investigation of traditional medicine is very important for the welfare of rural and tribal communities for treatment of conventional illness. This is due to the health care facilities in rural areas are inadequate and expensive too. Moreover, traditional medicine based on plants provides utmost rural or tribal healthcare, because 80% of the raw materials used in the preparation of drugs obtained from medicinal plants. Even for oral health care, plants are used from generation to generation in the problem of teeth i.e. toothache (Badgujar and Patil, 2008). It is aimed to record medicinal folk-lore for oral health care that existing in threatened stage.

## **MATERIALS AND METHODS**

### **Location and study area**

Geographically Maharashtra is located in the center of North and South side of India and is the 3<sup>rd</sup> largest state with a geographical area 307690 sq.kms. and lies between 16<sup>o</sup> 40' to 22<sup>o</sup> 10' N latitude and 72<sup>o</sup> 56' to 80<sup>o</sup> 09' E longitude. Western border of it is linked with Arabian Sea having 825 sq.kms lengths, 750 sq.kms long Eastern side is connected to Madhya Pradesh (MP), 1875 sq.kms long Southern border is attached to Andhra Pradesh and Karnataka and 1725 sq.kms long Northern border is linked with Gujrat and MP. Maharashtra is distributed into 35 districts and 303 tahsils. There are four different regions of Maharashtra viz., Khandesh, Marathwada, Vidharbha and Kokan. Khandesh region of Maharashtra was divided into two parts since 1906 i.e. West Khandesh and East Khandesh which were, later on, renamed after the district headquarters as Dhule and Jalgaon district respectively. Later on Dhule was divided into two districts i.e. Nandurbar and Dhule, on 01 July 1998. Nandurbar district is bounded by Dhule in South, Gujrat and MP in West and North, MP and Dhule in Eastern side. (Figure 1) (Patil, 2003). Present study was carried out in several villages of West Khandesh namely Karanpada, Moranba, Ratanbara, Kolvimal, Kuwa, Ambabari, Aamli, Dab, Aamoni, Rapapur, Lakkadkot, Kothar, Bandhara, Dhanpur, Muktarzira, Mandvi Kh, Nigadi, Telkhedi, Godamba, Jugani, Welkhedi, Khadki and Kalapani. These belong to three tahsils i.e. Akkalkuwa, Taloda and Dhadgaon of Nandurbar district, lying between 17<sup>o</sup> 05' to 18<sup>o</sup> 11' N latitude and 73<sup>o</sup> 33' to 74<sup>o</sup> 54' E longitude of North Maharashtra (Figure 1) acquires 5035 sq. kms, geographical area and average rainfall (mm) of Akkalkuwa, Taloda and Dhadgaon is 1100.00, 481.00 and 767 respectively and the temperature of selected area varies from 19.9 to 46.9<sup>o</sup>C. Nandurbar district selected for present study because this area is bounded by Satpuda Mountain and most of the area is covered by forest and hills and also the present area is categorized as tribal region. Total population of the district is about 13,11,709 out of these, total tribal population is about 08,13,259 which is 62 % of total district population (As per census Jan- 2005) where modern facilities are lacking (Mahajan and Badgujar, 2008).

### **Methods**

An ethnomedicinal survey was conducted in three tahsils of Nandurbar district viz., Dhadgaon, Akkalkuwa and Taloda. These tahsils are inhabited by Bhills, Gavits, Kokanis, Mavachis, Valvis, Pawras, Kokna and Vasaves tribes. Regular visits were made during the period 2006 – 2008. The information was collected from local traditional

healers and aboriginal people of Nandurbar district through intensive interviews according to methodology suggested by Schultes (1960 & 1962) and Jain (1963). The gathered data was verified by repeated queries with different local herbalists in different seasons and compared with statement of, at least 3 – 4 medicineman (*Vaidyas*). The collected data has been compared with available literatures (Mahajan and Badgajar, 2008, Patil and Bhaskar, 2006 and Tayade and Patil, 2006). The fresh specimen of the plants were collected and identified taxonomically by the experts, matching with authentic herbarium, books on flora (Kirtikar and Basu, 1995, Naik, 1979, Naik, 1998 and Patil, 2003) and standard photographs. The collected specimens were made into herbariums and are deposited in the Department of Zoology, M. J. College, Jalgaon and Department of Botany, R. C. Patel A. S. C. College, Shirpur, Dist. Dhule, Maharashtra, India.

## **SPECIES ENUMERATION**

The plants are arranged alphabetically as per their botanical names. These are followed by the family names in bracket and then by their local names and plant part used along with the method of application described.

1) ***Achyranthes aspera* L.** (Acanthaceae) Aghada

Stem is used as toothbrush, also ash of the plant is used as tooth powder; it is used to relieve pyorrhea and toothache.

2) ***Azadirachta indica* A. Juss.** (Meliaceae) Neem

Toothbrush of neem stem is valued for healthy teeth and gums; paste or juice of stem is applied for swelling or bleeding of gums.

3) ***Buchanania lanzan* Spreng.** (Anacardiaceae) Charoli

Gum of the tree is washed with water and cut into small pieces. These pieces are kept on the affected tooth for overnight to cure toothache.

4) ***Calotropis procera* R. Br.** (Asclepiadaceae) Rui

Fresh root is used as tooth brush to cure toothache.

5) ***Desmodium gangeticum* (Linn.) DC.** (Fabaceae) Chiktya

Small pieces of root are chewed for about 20 minutes to cure toothache.

6) ***Desmostachya bipinnata* (L.) Stapf.** (Poaceae) Darbha

About 20 gms. of root powder boiled with 50 ml water, the liquid was reduced to its quarter volume which is applied to cure toothache and swelling of gums.

7) ***Emilia sonchifolia* (L.) DC.** (Asteraceae) Sadhimandhi

Juice of leaves is applied to treat toothache.

8) ***Ficus benghalensis* L.** (Moraceae) Wad

Fresh latex of plant is applied to treat the bleeding and swelling of gums.

9) ***Ficus religiosa* L.** (Moraceae) Pipal

Tender leaf twigs are chewed and pressed between the teeth for about 15 minutes to cure toothache.

10) ***Jatropha curcas* L.** (Euphorbiaceae) Vilayati-arandi

Small stem is used as toothbrush to cure pyorrhea and toothache.

11) ***Jatropha gossypifolia* L.** (Euphorbiaceae) Chandrajyot

Small stem is used as toothbrush to cure toothache.

12) ***Lawsonia alba* Lamk.** (Lythraceae) Mehendi

Bark of stem is chewed and kept between the teeth for about 20 minutes to

cure toothache.

13) *Madhuca longifolia* (Koenig.) Macbride (Sapotaceae) Mahuvo

Small stem is used as toothbrush, emerging in mustard oil to cure toothache.

14) *Mangifera indica* L. (Anacardiaceae) Amba

Toothbrush of small stem is used to cure toothache; latex is applied to relieve gingivitis.

15) *Mukia maderaspatna* (L.) Roem. (Cucurbitaceae) Kharwad

Root is chewed for about 15 minutes to relieve toothache.

16) *Murraya paniculata* (L.) Jack. (Rutaceae) Kunti

Toothbrush of stem is found to be effective to cure toothache.

17) *Pongamia pinnata* (Linn.) Pierre. (Fabaceae) Karanj

Tender leaf twigs are chewed and pressed between the teeth for about 15 minutes to cure toothache.

18) *Ricinus communis* L. (Euphorbiaceae) Erandi

Cotyledon is fried in mustard oil and the smoke is emitted by this process is inhaled through the mouth and kept closed for about 10 minutes to relieve dental caries.

19) *Solanum virginianum* Linn. (Solanaceae) Bhoiringni

Powder of dried fruit is used in cigarette and the smoke is kept inside the mouth for about 10 minutes to relieve dental caries.

20) *Spilanthes clava* DC. (Asteraceae) Akkalkhar

Root and flower head is chewed for about 10 minutes to relieve dental caries.

## RESULT AND DISCUSSION

The present investigation comprises 20 species of ethnomedicinally important plant under 18 genera and 14 families used for oral health care. For each species scientific name, family, local name, part used, method of preparation, administration and ailment treatment has been provided. Figure 2 illustrates the family wide distribution of medicinal plant species. Euphorbiaceae was the most commonly used family for oral health care. The most commonly utilized part of the plant was root (35%) and stem (35%) followed by leaf twig (10%), seed (10%), latex (5%) and gum (5%) (Figure 3) are used in the form of paste, juice, latex, powder and smoke. To cure dental caries and toothache, small pieces of fresh bark of *Desmodium gangeticum*, *Lawsonia alba*, *Mukia maderaspatna* and *Spilanthes clava* are kept between the teeth for about 10 – 20 minutes. Likewise tender leaf twigs of *Ficus religiosa* and *Pongamia pinnata* are chewed for about 10 – 20 minutes to cure same ailment of teeth mentioned above. Cotyledon of *Ricinus communis* and dry seed powder of *Solanum virginianum* are used in the form of smoke. The information generated from the present study about ethnomedicinally important plants used by traditional people needs to be evaluated for proper biochemical analysis, level of toxicity, phytochemical investigation including alkaloid, flavonoid, terpenoids, tannins, saponins etc. extraction and isolation along with few clinical trials. Phytochemical examination of these plants may lead to development of potential bio-product in the treatment of diseases and disorders of oral cavity, particularly in tooth decay. This could help in creating mass awareness of conservation of such plants to promote ethno-medico-botany knowledge within the region, besides contributing to the preservation of such medicinally important species before they are lost forever.

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## REFERENCES

1. Badgujar, S. B. and Patil, M. B. 2008. Ethnomedicine for Jaundice from tribal areas in North Maharashtra. *Natural Product Radiance*. 7 (1):79-81.
2. Farnsworth, N. R. 1998. Screening plants for new medicines. In Biodiversity Ed Wilson EO. National Academy Press, Washington, DC; 83-97.
3. Jain, S.K. 1963. Studies in Indian Ethnobotany plants used in by the tribals of Madhya Pradesh. *Bull. Regional Research Lab*. 1: 126-129.
4. Jain, S. K. 1981. Glimpses of Indian Ethnobotany. Oxford and IBH Publication, New Delhi.
5. Kirtikar, K.R. and Basu, B.D. 1995. Indian Medicinal Plants. Vol. I – IV. International Book Distributors, Dehradun.
6. Mahajan, R. T. and Badgujar, S. B. 2008. Ethnomedicinal values of Laticiferous plants used by tribal people of North Maharashtra, India. *Research Link*. 55, VII (8): 20-25.
7. Naik, V.N. 1979. Flora of Osmanabad. 1<sup>st</sup>ed. Venus Publisher, Aurangabad.
8. Naik, V.N. 1998. Flora of Marathwada. Vol. I– II. Amrut Prakashan, Aurangabad.
9. Patil, D.A. 2003. Flora of Dhule and Nandurbar Districts. Bishen Singh Mahendra Pal Singh, Dehradun.
10. Patil, H.M. and Bhaskar, V.V. 2006. Medicinal uses of Plants by Tribal Medicine men of Nandurbar district in Maharashtra. *Natural Product Radiance*. 5(2): 125 – 130.
11. Pushpagadan, P. and Kumar, B. 2005. Ethnobotany, CBD, WTO and the Biodiversity Act of India. *Ethnobotany*. 17: 2-12.
12. Schultes, R.E. 1960. Tapping our heritage of ethnobotanical lore. *Econ. Bot*. 14: 257-262.
13. Schultes, R.E. 1962. The lore of the Ethnobotanist in search for new medicinal plants. *Lloydia* 25: 257-366.
14. Tayade, S.K. and Patil, D.A. 2006. Ethnomedicinal Wisdom of Tribals of Nandurbar district (Maharashtra). *Natural Product Radiance*. 5(1): 64 – 69.
15. WHO 2000. General Guidelines for Methodologies on Research and Evaluation of Traditional Medicine Geneva, Switzerland WHO/EDM/TRM/2000.1 pp 1-80.

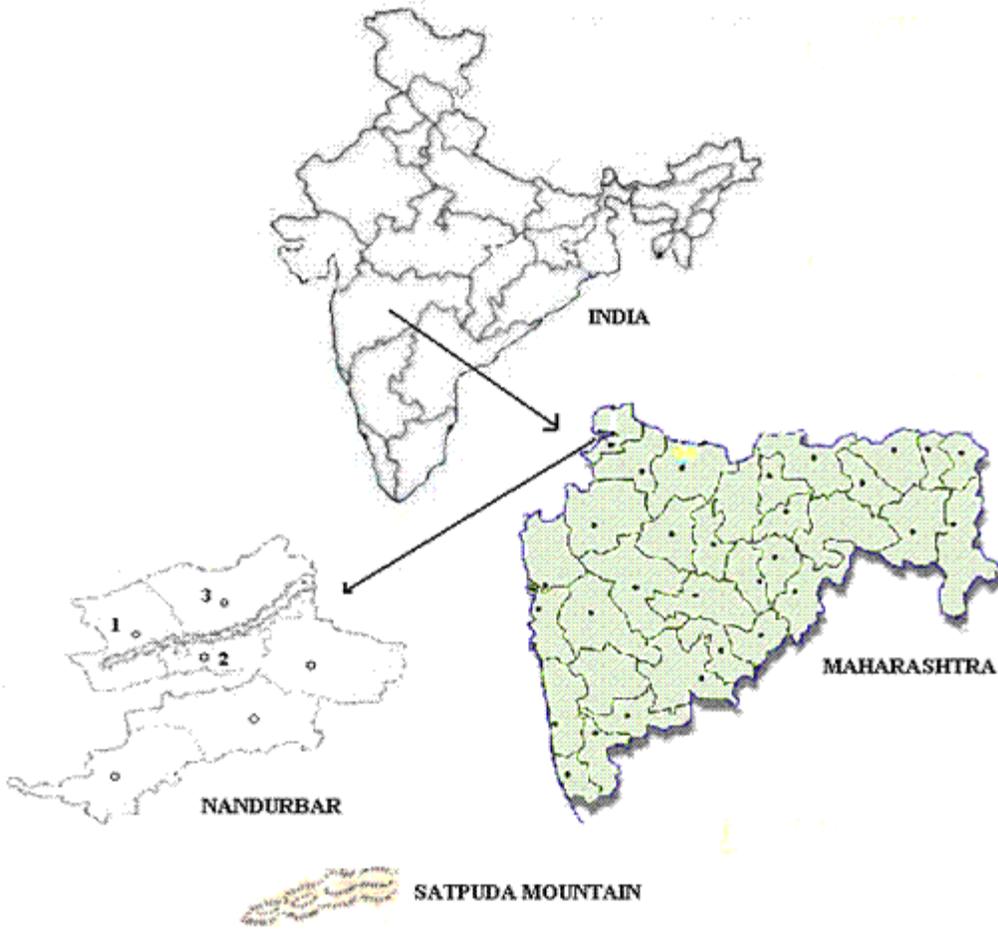


Figure 1: Spot map showing location of Satpuda Mountain to be investigated tahsil 1) Akkalkuwa, 2) Taloda 3) Dhadgaon of Nandurbar district, Maharashtra.

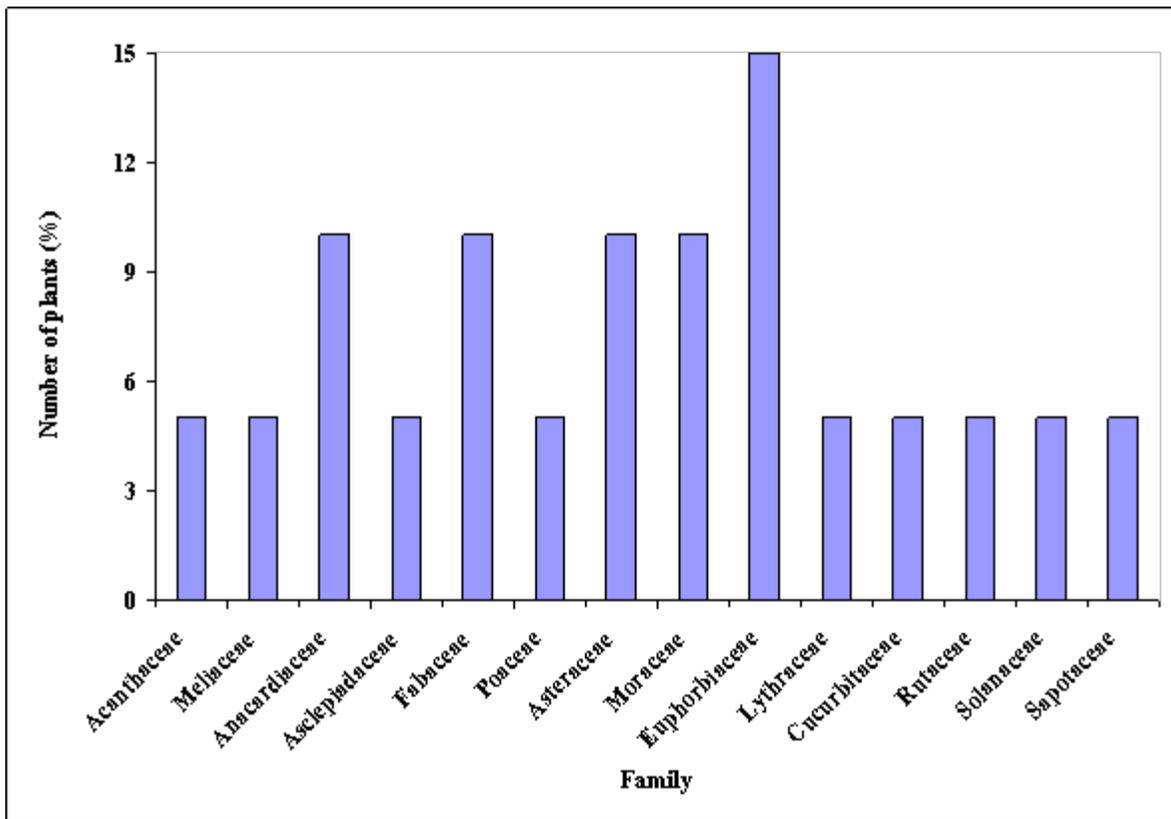


Figure 2: Family wise distribution of medicinal plants occurred in Nandurbar District of, Maharashtra

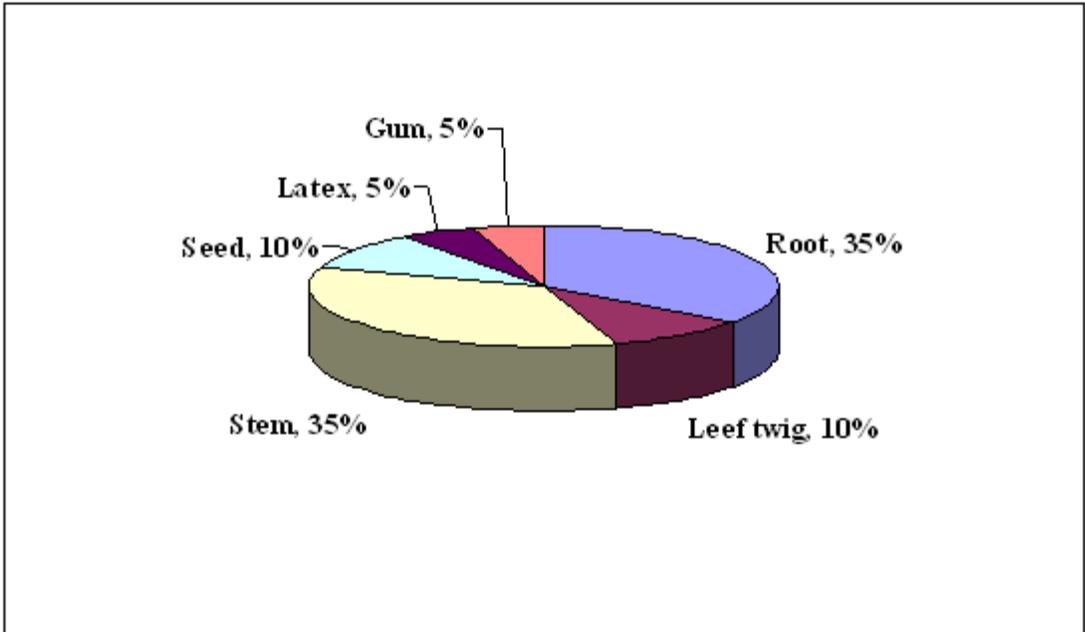


Figure 3: Frequency of plant parts used (%) for the preparation of remedies.





Author (Shri.Badgujar S. B.) in his enquiry of indigenous medicinal plants with aborigines of Akkalkuwa, Taloda and Dhadgaon tahsils of Nandurbar district.