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Ethnomedicinal Practices for Tooth Problems by the Tribals of Khammam District, Andhra Pradesh, India

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The paper deals with 46 species of plants, covering 44 genera and 31 families used for curing tooth ailments by the tribes of Khammam district in Andhra Pradesh. Fabaceae is the dominant family with 5 species followed by Myrtaceae and Solanaceae (each 3 species) and others. Habit-wise analysis showed the dominance of trees (19 spp) followed by shrubs (15 spp), herbs (11 spp) and a lone climber. Root is used in 10 practices followed by leaf (8 practices), whole plant and stem (6 practices each), stem bark (5 practices), seed (4 practices) and others. The use of *Capparis brevispina, Leucas aspera*, and *Plumbago auriculata* and 20 practices were found to be new. There is a need for scientific validation of these practices and their efficiency, credibility, and applicability need to be established through phytochemical, pharmacological, and clinical screenings.

Keywowrds: Andhra Pradesh, Khammam district, Tooth problems, Tribals.

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Introduction

Since the twentieth century, varying degrees of attention have been given to the significance of dental infection for the well-being of the entire body. At present dental infection as a source of the spread of micro-organisms to other critical sites in the body is considered to be a serious threat to the health of certain high-risk patients. The dental diseases were most often treated with herbs. In India from ancient times, the herbalists treated the gums and infectious diseases with indigenous herbs which were free from side effects. Though, there are publications on tooth problems by different tribes and folklore in different parts of India[1-5], exclusive publications by the tribes of Khammam district were not undertaken necessitating the present study. In the present study, an attempt was made to thoroughly survey the traditional systems adapted by the tribes for curing dental diseases prevalent in their habitat.

The tribal people of Khammam district of Andhra Pradesh are still practicing herbal remedies for the treatment of their common diseases and disorders. Khammam district lies between 16^0 45' and 18^0 35' N latitudes and 79^0 47' to 81^0 47' E longitudes occupying an area of 16, 029 sq km with a total forest area of 7, 594.38 sq km. The largest river of South India, the Godavari passes through this district. As per Census 2011[6], the total tribal population of India, Andhra Pradesh, and Khammam district are 104,281,034 (8.6 %); 2,739,919 (5.53 %) and 765,565 (26.47 %). The district has the distinction of having the largest tribal population in the state housing six tribal communities, viz., *Koya, Lambada, Gond/Naikpod, Yerukula, Nayak*, and *Konda Reddi*.

Material and Methods

Ethnobotanical survey[7,8] was conducted once in every two months from 2008 to 2012 with a duration of 10-15 days. About 4-7 days were spent during each field trip with different tribal communities at their dwellings. After establishing good rapport with the tribals, the utility of plants and detailed methods of uses were documented once the prior consent was obtained from them. Voucher specimens were deposited in the Herbarium of the Department of Botany (BDH), Andhra University, Visakhapatnam, after proper identification by T.V.V. Seetharami Reddi, Professor of Botany (Retd.), Andhra University, Visakhapatnam, India.

Enumeration

The plants are arranged in a tabular form alphabetically with valid botanical name, followed by voucher number, family/locale, vernacular/English name and method of practice. Each ethnomedicinal practice is provided with the part(s) used, method of preparation of the drug, dosage, mode of administration and duration of the treatment. Plant species and practices marked with an asterisk (*) are considered to be new or less known.

Results and Discussion

The study documented 46 species of plants belonging to 44 genera and 31 families used for

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curing various tooth problems by the tribals of Khammam district of Andhra Pradesh (Table 1). Fabaceae is the dominant family with 5 species followed by Myrtaceae and Solanaceae each represented by 3 species; Cucurbitaceae, Sapotaceae, Verbenaceae, Lamiaceae, Euphorbiaceae, Rhamnaceae, Moraceae and Plumbaginaceae each represented by 2 species and the rest of the families each with one species. Habit-wise analysis showed the dominance of trees (19) followed by shrubs (15), herbs (11) and a lone climber. Analysis of study of parts used showed the maximum utilization of root in 10 practices followed by leaf (8 practices), whole plant and stem (6 practices each), stem bark (5 practices), seed (4 practices), flower, tuber, root bark, fruit, petiole, gum, and latex in one practice each. They are mostly used to brush or gargle, either in the form of decoction, juice, powder, paste, pulp, or smoke.

Table 1—Ethnomedicinal uses of plants used for curing tooth problems

S. No.	Botanical Name/ Voucher No	Family/ Locale	Vernacular name/ English name	Method of practice
1	*Abutilon indicum* (L.) Sweet/ 10111	Malvaceae/ Peruru	Duvvena kaya/ Indian abutilon	Tooth ache: Whole plant decoction is gargled once a day till cure
2	*Acacia ferruginea* DC/10101	Fabaceae/ Chikupalli	Valasandra/ Kanti,	* Tooth problems: Stem bark decoction mixed with zinger paste is gargled twice a day for 5 days
3	*A. nilotica* (L.) Willd. ex Del./ 10002	Fabaceae/Bethampudi	Nallathumma/ Black babool	*Tooth infection: Stem bark is ground along with leaves of guava and applied on the affected teeth.
4	*Achyranthes aspera* L./ 10001	Amaranthaceae/ Chintur	Uthareni/ Prickly chaff flower	*Tooth infection: Root is used as tooth brush and brushed once a day till cure.
5	*Agave cantula* Roxb./ 10061	Agavaceae/ Chintur	Kithanara/ American aloe	*Tooth ache: Leaf pulp is applied on the affected teeth.
6	*Alstonia scholaris* (L.) R. Br./ 10064	Apocynaceae/ Chikupalli	Edakulapala/ Devil tree	Tooth problems: Stem bark decoction is gargled once a day till cure.
7	*Ampelocissus latifolia* (Roxb.) Planch./ 10063	Vitaceae/ Yerrampadu	Adaviteegadraksha/ Wild grape	*Tooth problems: Root decoction is gargled twice a day for 5 days.
8	*Aristida setacea* Retz./ 10139	Poaceae/ Edugurallapalli	Cheepurugaddi/ Broom grass	*Tooth infection: Whole plant mixed with that of *Euphorbia hirta* is ground and applied on the affected teeth once a day till cure.
9	*Azadirachta indica* A. Juss./ 10144	Meliaceae/ Madupalli	Vepa/ Neem	Tender stems are used as tooth brushes.
10	**Capparis brevispina* DC./ 10180	Capparaceae/ Chiruthapalli	Adaviuppi/ Indian caper	Tooth ache: Leaf decoction is gargled thrice a day for 5 days.
11	*Centella asiatica* (L.) Urban/ 10021	Apiaceae/ Kappalabandham	Saraswathi aaku/ Indian pennywort	Tooth infection: Whole plant decoction is gargled once a day till cure.
12	*Cinnamomum camphora* (L.) J. Presl/ 10193	Lauraceae/ Soraveedu	Karpuramu/ Camphor tree	*Tooth infection: Latex is applied on the affected teeth.
13	*Citrullus colocynthis* (L.) Schrad./ 10192	Cucurbitaceae/ Bethampudi	Erripuchcha/ Bitter apple	Tooth ache: Root paste is applied on the infected teeth.
14	*Clitoria ternatea* L./ 10189	Fabaceae/ Mettugudem	Sankupusphalu/ Butter fly pea	*Tooth problems: Flower decoction is gargled once a day till cure.
15	*Coldenia procumbens* L./ 10128	Boraginaceae/ Parnasala	Hamsapadi/ Trailing coldenia	*Tooth infection: Whole plant decoction is gargled once a day till cure.
16	*Datura innoxia* Mill./ 10256	Solanaceae/ Sambaigudem	Nallaummetha/ Downy thorn apple	Tooth ache: Root paste is applied on the affected teeth.

(*Contd*.)

Table 1—Ethnomedicinal uses of plants used for curing tooth problems (*Contd*.)

S. No.	Botanical Name/ Voucher No	Family/ Locale	Vernacular name/ English name	Method of practice
17	*Euphorbia nivulia* Buch.-Ham./ 10292	Euphorbiaceae/ Peruru	Aaku Jemudu/ Dog's tongue	*Tooth ache: Root juice is applied on the infected teeth.
18	*Ficus racemosa* L./ 10365	Moraceae/ Dummugudem	Medi/ Gular fig	*Tooth infection: Stem bark juice is applied on the affected teeth.
19	*Gardenia gummifera* L.f./ 10253	Rubiaceae/ Madupalli	Bikki/ Cumbi gum	Tooth ache: Gum is applied on the painful teeth.
20	*Gmelina asiatica* L./ 10394	Verbenaceae/ Peruru	Nela gummudu/ Small cashmere tree	*Tooth ache: Root paste mixed with that of *Eugenia carica* is applied on the painful teeth.
21	*Jasminum grandiflorum* L./ 10216	Oleaceae/ Nimmagadda	Jaji/ Spanish jasmine	Tooth problems: Whole plant decoction is gargled once a day till cure.
22	*Jatropha curcas* L./ 10272	Euphorbiaceae/ Nimmagadda	Nepalam/ Physic nut	Tooth ache: Brush the teeth with tender branches once a day till cure.
23	*Lantana camara* L./ 10276	Verbenaceae/ Gummadidoddi	Lavangipulu/ Wild sage	*Tooth ache: Whole plant decoction is gargled thrice a day for 5 days.
24	*Lepidogathis cristata* Willd./ 10239	Acanthaceae/ Yetapaka	Nakkapithagadda/ Cristata	*Tooth ache: Tuber powder is used as tooth powder for 5-10 days.
25	***Leucas aspera* (Willd.) Link./ 10277	Lamiaceae/ Ellendu	Tummi/ Thumbe	Tooth ache: Leaf decoction is gargled once a day till cure.
26	*Madhuca indica* Gmel./ 10208	Sapotaceae/ Bayyaram	Ippachettu/ Indian butter tree	Tooth infection: Tender stems are used to brush the teeth once a day till cure.
27	*Mimusops elengi* L./ 10308	Sapotaceae/ Ayyanapalem	Pogada/ Spanish cherry	Tooth ache: Seed powder is used as tooth powder.
28	*Moringa oleifera* Lam./ 10307	Moringaceae/ Vajedu	Karumunaga/ Drumstick tree	Tooth ache: Root bark mixed with cloves of garlic made into paste is applied on the affected areas once a day till cure.
29	*Mukia maderaspatana* (L.) M. Roem./ 10205	Cucurbitaceae/ Tekulapalem	Kuthurubudama/ Rough bryony	*Tooth problems: Brush the teeth with roots once a day for 3 days.
30	*Myristica fragrans* Houtt./ 10236	Myrtaceae/ Chiruthapalli	Jajikaya/ Nutmeg	*Tooth problems: Brush the teeth with fruit powder once a day till cure.
31	*Nicotiana tabacum* L./ 10340	Solanaceae/ Tekulapalem	Pogaku/ Tobacco	Tooth ache: Chew the petiole twice a day till cure.
32	*Ocimum tenuiflorum* L./ 10233	Lamiaceae/ Thaliperu	Krishna tulasi/ Holy basil	*Tooth infection: One spoonful of leaf paste mixed with one spoonful of cloves powder is applied on the infected teeth.
33	*Oroxylum indicum* (L.) Vent./ 10201	Bignoniaceae/ Chinthuru	Dundilam/ Indian trumphet flower	Tooth problems: Stem bark decoction is gargled once a day till cure.
34	***Plumbago auriculata* Lam./ 10457	Plumbaginaceae/ Tekulapalem	Neelichitramulam/ Lead wort blue flower	Tooth infection: Root paste decoction is gargled once a day till cure.
35	*P.rosea* L./ 10436	Plumbaginaceae/ Chinnamunagala	Yerrachitramulamu/ Rosy flowered lead-wort	Tooth infection: Root paste is applied on the affected teeth.
36	*Psidium guajava* L./ 10489	Myrtaceae/ Jannaram	Jama chettu/ Guava	Tooth ache: Leaf decoction is gargled twice a day till cure.
37	*Psoralea corylifolia* L./ 10509	Fabaceae/ Enkuru	Bavanchalu/ Babchi	Tooth problems: Root is used as tooth brush once a day till cure.
38	*Solanum surattense* Burm. f./ 10406	Solanaceae/ Kappalabandam	Vakudu/ Dwarf lid brinjal	Tooth ache: Seeds are burnt on fire and the teeth are exposed to the smoke once a day till cure.

(*Contd*.)

Table 1—Ethnomedicinal uses of plants used for curing tooth problems (*Contd*.)

S. No.	Botanical Name/ Voucher No	Family/ Locale	Vernacular name/ English name	Method of practice
39	*Sterculia foetida* L./ 10407	Sterculiaceae/ Yetapaka	Seema badam/ Pinari	*Tooth infection: Seeds are roasted without seed coat and powdered and mixed with powders ofcardamom, clovesand cinnamon. Brush the teeth with this powder.
40	*Streblus asper* Lour./ 10468	Moraceae/ Buvannapalem	Barrinka/ Sand paper mulberry	Tender shoots are used as tooth brushes.
41	*Syzygium cumini* L./ 10467	Myrtaceae/ Mandalapadu	Adaviijinne/ Indian cherry	*Tooth problems: Teeth are brushed with tender branches once a day till cure.
42	*Tephrosia purpurea* (L.) Pers./ 10418	Fabaceae/ Bayyaram	Vempali/ Wild indigo	Tooth problems: Tender shoots are used as tooth brushes.
43	*Terminalia chebula* Retz./ 10503	Combretaceae/ Lankapalli	Karakkaya/ Chebulicmyrobalan	Tooth problems: Seed decoction is gargled thrice a day for 5 days.
44	*Ventilago denticulata* Willd./ 10500	Rhamnaceae/ Medaram	Surugudu/ Red creeper	Tooth infection: Leaf decoction is gargled once a day for 3 days.
45	*Woodfordia fruticosa* (L.) Kurz/ 10514	Lythraceae/ Bayyaram	Adavidraksha/ Fire flame bush	Tooth ache: Leaf decoction is gargled once a day till cure.
46	*Ziziphus mauritiana* Lam./ 10095	Rhamnaceae/ Tekulapalem	Regu/ Indian jujube	*Tooth problems: Leaf decoction is gargled once a day till cure.

Capparis brevispina, Leucas aspera and *Plumbago auriculata* and 20 practices were found to be new or less known[9,10]. *Acacia nilotica, Achyranthes aspera, Psidium guajava, Solanum surattense* are also used as dental protectors by the tribals and village folk of Rayalaseema region, Andhra Pradesh[1]. *Gmelina asiatica, Jatropha curcas, Madhuca indica, Mimusops elengi, Myristica fragrans, Plumbago auriculata* are also used for curing dental disorders by the *Yanadi, Nakkala, Yerukala, Koya, Kattunayaka* tribes of Tirumala Hills of Chittoor District, Andhra Pradesh[2]. *A. nilotica, A. aspera, Ficus racemosa*, and *M. indica* are also used as tooth brush to treat severe toothache, infected gums, and pyorrhoea by the tribes of Sabarkantha District of North Gujarat[3]. *A. aspera. Streblus asper*, and *Syzygium cumini* are used for oral and dental health care by the folklore of Jajpur, Dhenkanal, and Bhadrak Districts of Orissa[4]. *P. guajava* is also used for tooth diseases by *Bhar* tribe in Gonda district of Uttar Pradesh[11]. *J. curcas* is also used for treating toothache by the *Mullukuruma* tribe of Wayanad District, Kerala[12]. *Nicotiana tabacum, P. guajava*, and *Syzygium cumini* are also used by the people for dental problems in Chikmagalur district of Karnataka[13]. *Azadirachta indica, Clitoria ternatea*, and *Tephrosia purpurea* are also used for dental problems by the local people of 11 districts of Karnataka[14]. *A. nilotica, A. aspera, A. indica, J. curcas, M. indica, M. elengi, Tephrosia purpurea* are also used for dental care by *Ahir, Bathudi, Binjhal, Bhumij, Bhunya, Dal, Gauda, Gond, Ho,Juang, Kharia, Khond, Kisan, Kol, Kond, Lodha, Lohar, Matiya, Mirdha, Misan, Munda, Oraon, Paudi Bhuinya, Puran, Rautia, Sabar*, and *Santhal* tribes of Sundargarh, Mayurbhanj, Angul, and Balangir Districts of Odisha[5]. It was observed that the tribal herbalists still dpend upon wild plants around them for meeting their needs; they possess good knowledge of the medicinal use of plants. Due to constant associaton with the forest environemnt, they have evolved knowledge by trial and error and have developed their own way of diagnosis and treatment for different ailments. The data collected on dental protective plants needs to be systematically screened by phytochemists and pharmacologists for anti-microbial properties and any potent active principle(s).

Conclusion

The study provides empirical primary ethnomedicinal data on the use of traditonal medicine to treat tooth ailments and can contribute in preserving indigenous knowledge of triblas in Khamma district of Andhra Pradesh. It is anticipated that this primary data will open new avenues to identify novel drugs that can help to alleviate sufferings of mankind.

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References

1 Balaji Rao N S, Rajasekhar D, ChengalRaju D and Nagaraju N, Folk medicine of Rayalaseema Region, Andhra Pradesh: I Dental Protectors, *Ancient Sci Life,* 1995, **XV**: 15-20.

2 BalajiRao N S, Rajasekhar D, Chengal Raju D and Nagaraju N, Ethno-Medicinal notes on some plants of Tirumala Hills for dental disorders, *Ethnobotany,* 1996, **8,** 88-91.

3 Bhasker L Punjani, Plants used as tooth brush by tribes of District Sabarkantha (North Gujarat), *Ethnobotany*, 1998, **10,** 133-135.

4 Mohanty R B, Oral and dental healthcare in folklores of Orissa: An ethnobotanical observation, *Ethnobotany,* 2003, **15,** 125-126.

5 Singh H, Krishna G and Baske P K, Ethnomedicinal plants used for dental care in Sundargarh, Mayurbhanj, Angul, and Balangir districts of Odisha, India, *Indian J Nat Prod Resour*, 2013, **4,** 419-424.

6 Census 2011: Demographic Status of Scheduled Tribe Population of India & maps- Govt. of India. www.indiantribalheritage.org.

7 A Manual of Ethnobotany, Jain S K, Ed, Scientific Publishers, Jodhpur, 1987.

8 Bellany B, Ethnobiology-Expedition Field Techniques, Expedition Advisory Centre, Royal Geographical Society, London, 1993.

9 Jain S K, Dictionary of Indian Folk Medicine and Ethnobotany, Deep Publications, New Delhi, 1991.

10 Kirtikar K R and Basu B D, Indian Medicinal Plants, Oriental Enterprises, Dehra Dun, Uttaranchal, 2003.

11 Upadhyay R and Singh J, Ethno-medicinal plants of Tikri forest in Gonda district of Uttar Pradesh, *J Non-Timber For Prod*, 2007, **14,** 147-153.

12 Silja V P, Samitha Varma K and Mohanan K V, Ethnomedicinal plant knowledge of the *Mullukuruma* tribe of Wayanad district, Kerala, *Indian J Tradit Know,* 2008, **7,** 604-612.

13 Prakasha H M, Krishnappa M, Krishnamurthy Y L and Poornima S V, Folk medicine of N R Pura *taluk* in Chikmagalur district of Karnataka, *Indian J Tradit Know*, 2010, **9,** 55-60.

14 Shiddamallayya N, Yasmeen A and Gopakumar K, Hundred common forest medicinal plants of Karnataka in primary healthcare, *Indian J Tradit Know*, 2010, **9,** 90-95.