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ETHNOMEDICINAL PLANTS USED FOR ORAL HEALTH CARE BY TRIBES INHABITING NORTH DANGS REGION OF SOUTH GUJARAT, INDIA

Krishna Gorfad^{1*}, B.S. Desai², S.S. Jha³, V.M. Prajapati⁴, A.A. Mehta¹, A. Shrivastava⁵ and Y.A. Garde⁶

¹Department of Forest Products and Utilization, College of Forestry, Navsari Agricultural University, Navsari, Gujarat, India.

²Department of Basic Science and Humanities, College of Forestry, NAU, Navsari, Gujarat, India.

³Department of Forest Biology and Tree Improvement, College of Forestry, NAU, Navsari, Gujarat, India.

⁴Department of Silviculture & Agroforestry, College of Forestry, NAU, Navsari, Gujarat, India.

⁵Department of Agricultural Statistics, N. M. College of Agriculture, NAU, Navsari, Gujarat, India.

⁶ICAR-Indian Agricultural Statistics Research Institute, PUSA, NEW Delhi-110012, India

*Corresponding author E-mail : kpgorfad1999@gmail.com

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ABSTRACT

Scientific documentation on ethnomedicinal plants used for oral health care by the tribes of North Dangs, South Gujarat, India was carried out. The survey was carried out have been carried out during 2022 - 25. The Dangs district is situated between the parallels of latitude 20. 03' N and 21.05' E and the meridians of longitude 73. 02' N and 73. 05' E. The Dangs is amongst the richest forest in the whole of Gujarat state having most of *Tectona grandis* L. f. trees of high quality, along with *Dendrocalamus strictus* (Roxb.) Nees and *Bambusa arundinacea* L. Along with the rich forest diversity, the Dangs region is predominantly inhabited by different tribes Kokna, Kukna, Bhil, Kunbi, Warli, Dhubda, Kokni, Dhodiya, Gamit, Nayaka and Mavchi.. Eleven tribes mentioned above utilizes 30 ethnomedicinal plants belonging to 16 plant families are used for oral health care. The plant species exhibit various life forms viz., Herbs (6 spp.), Shrubs (5 spp.), Climbers (4 spp.), Trees (8 spp.), and Grasses (1 sp.), respectively. These plant spp. are spread across plant families - Acanthaceae, Amaranthaceae, Apocynaceae, Euphorbiaceae, Fabaceae, Lauraceae, Mimosaceae, Moraceae, Myrtaceae, Poaceae, Rhamnaceae, Apiaceae, Araceae, Combretaceae, Lamiaceae and Zingiberaceae. These plants are administered using 10 different plant parts (bark, flower buds, latex, leaves, rhizomes, roots, seeds, stem/twig, Fruits and whole plant) and 6 different modes of administration (chewing/oral/raw/chips, oil, paste, Juice, Pills and powder) for ethnomedicinal purposes. 14 villages and 10 tribal healers/bhagats were selected for data collection.

Key words : Oral Health Care, Ethnomedicinal, Tribe, North Dangs.

Introduction

Traditional societies throughout the world possesses a wealth of botanical knowledge, which they have accumulated during prolonged interaction with the natural world, and which remains fundamental to their physical, spiritual and social well-being. As during the last 100 years, the momentum of ethnobotanical research has been more towards primitive people, as with the rapid growth in modern day facilities, elements of their knowledge would get lost, as also its accepted fact that the traditional botanical knowledge (TBK) is hardly passed on to next generation or filial generations are reluctant to

learn it from elderly experienced people of the society they belong (Jain and Jain, 2017). Even now the villages inhabited by the tribals are considered ideal for ethnobotanical studies and the field methods in literature are largely aimed towards their study. Dr. E. Janaki Ammal and S. K. Jain, who is popularly known as Father of Indian Ethnobotany.

The region of Dangs was left unexplored as far as ethnomedicinal claims on oral health care is concerned. Reviewing various references and literature available on plants used to cure dental problems, only few authors viz., Kumar (2014), Maurya *et al.* (2024), Mukaila and

Ajao (2024), Neelamana *et al.* (2020) and Rajeev *et al.* (2025) have attempted to document plants for Oral hygiene. Hence present work was carried out to fill up exciting lacunae of ethnic knowledge available on Oral diseases.

Materials and Methods

Scientific documentation on ethnomedicinal plants used for oral health care system by the ethnic people of North Dangs, South Gujarat, India was conducted during 2022 to 2025. Villages were selected based on availability of tribal healers/bhagats. Structured interviews were carried out along with selective sampling so that tribal healers as well as local traditional practitioners are contacted the most for documenting Ethnomedicinal data (Photo 1) (Anonymous, 2015). Besides interviews, tribal markets (Haat bazars) were also visited for collecting information on plants used for oral health care. Proforma was as adopted from Jain and Mudgal (2000) and translated into local language.

List of villages surveyed, as also name of the tribal bhagats/healers are depicted in Tables 1 and 2. Plants were identified using regional floras and taxonomic literature by Shah (1978) and Singh (2000). Documentation is well depicted using graphs and pie diagrams (Figs. 1-5).

Results and Discussion

The plant spp. used by eleven tribes of North Dangs for oral health care are enumerated below. Enumeration includes botanical name, family, plant parts used and mode of administration employed (Photo 2). Plants are arranged in alphabetic order and classified as per the Bentham & Hooker's system of classification.

Table 1 : List of villages surveyed for documenting ethnomedicinal data on plants used in oral health care.

Ahwa	Dhongiamba	Burthadi	Jamalpada	Subir
Bibupada	Hanvantpada	Chinchpada	Borkhet	Gimal
Bilbari	Chikatiya	Gadvahir	Kadmal	

Table 2 : List of Tribal Healers/Bhagats interviewed for collecting ethnomedicinal data

Shankarbhai Kamdi	Kashirambhai	Aafanaben Pawar
Lahnubhai Bhusara	Kashubhai	Madhuben
Sonebhai	Shukarbhai Pawar	Sayajibhai Thakre
Rohidasbhai		

1. Botanical Name: *Abrus precatorius* L.

Local Name: Chanothi, Black and White Chanothi

Family: Fabaceae

Habit of Plant: Climber

Plant part used: Leaves

Mode of Administration: Raw/Oral, Paste

Ethnomedicinal uses: Leaf paste used for Mouth Ulcers and Oral cancers.

2. Botanical Name: *Acacia pennata* L. Willd.

Local Name: Chilora, chilarvel

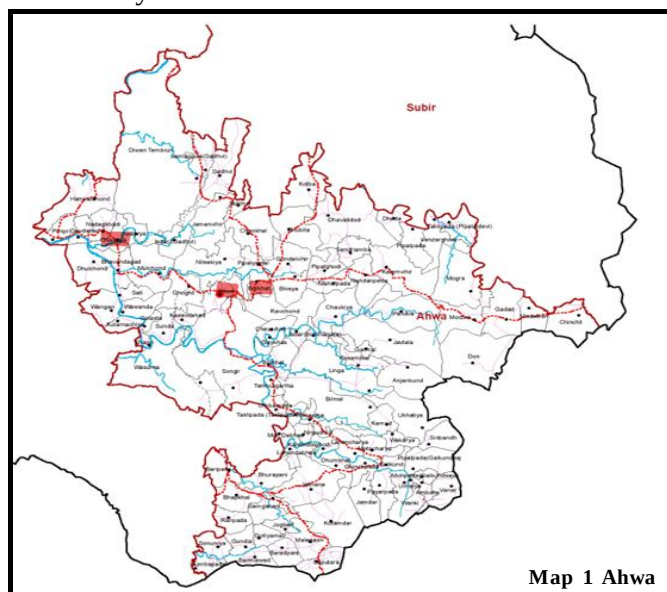
Family: Mimosaceae

Habit of Plant: Climber

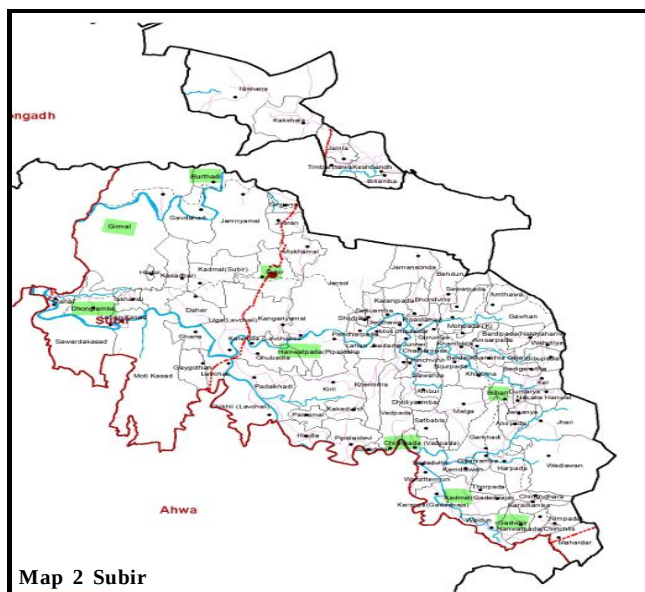
Plant part used: Leaves

Mode of Administration: Paste

Ethnomedicinal Uses: Leaf paste used in Bleeding Gums.



Map 1 Ahwa



Map 2 Subir

Photo 1 : MAP of study area.

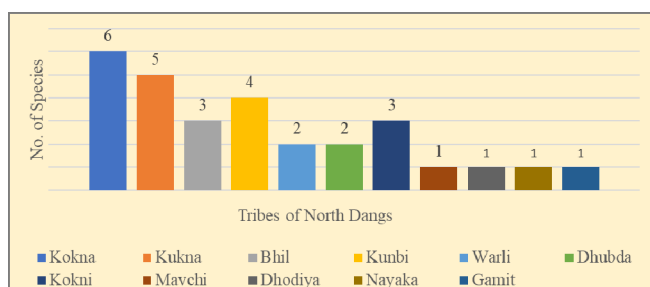


Fig. 1 : Tribe wise utility of Spp. for Oral Health Care in North

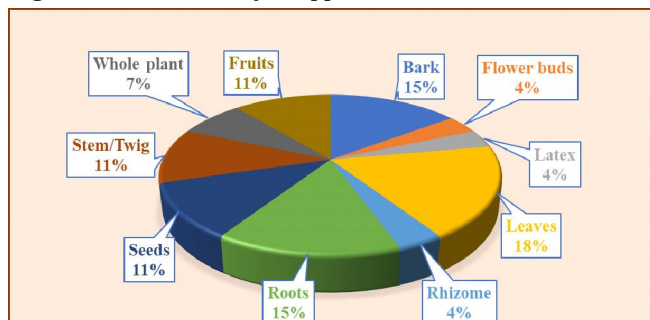


Fig. 2 : Various Plant parts used for Oral health care.

3. Botanical name: *Amaranthus viridis* L.

Local name: Dhimdo, Ranbhaji, Kantemath, Maath, Unadbhaji

Family: Amaranthaceae

Habit of plant : Herb

Plant part used: Roots

Mode of administration: Paste

Ethnomedicinal uses : Root paste administered for mouth ulcers and pyorrhoea.

4. Botanical name: *Apluda mutica* L.

Local name: Ponai

Family: Poaceae

Habit of plant: Grass

Plant part used: Whole plant

Mode of administration: Powder

Ethnomedicinal uses: Whole Plant Powder is employed for mouth ulcers and for oral cancers.

5. Botanical name: *Azadirachta indica* A. Juss.

Local name: Neem

Family: Meliaceae

Habit of plant: Tree

Plant part used: Leaves, Fruits, Stem/Twig

Mode of administration: Raw/Chewing

Ethnomedicinal uses: Leaves chewed, whereas fruits eaten to kill mouth bacteria, as also tender twigs are used for toothache and to overcome foul smell from

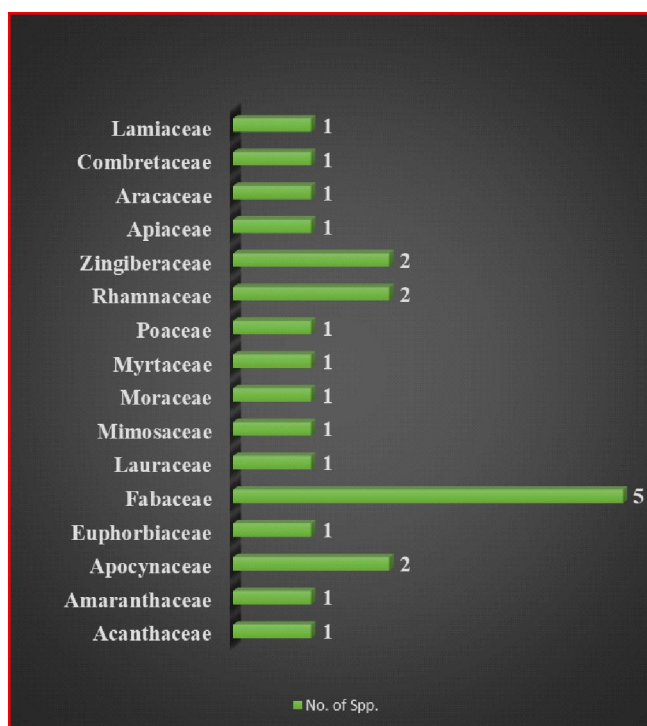


Fig. 3 : No. of Spp. used as per Plant Families for Oral Health Care.

mouth.

6. Botanical name: *Baliospermum montanum* Muell.

Local name : Danti

Family: Euphorbiaceae

Habit of plant: Climber

Plant part used : Stem/Twig

Mode of administration : Raw/ Chewing

Ethnomedicinal uses: Tender twigs chewed in dental problems and also for weak teeth.

7. Botanical name: *Barleria prionitis* L.

Local name : Kantashero

Family : Acanthaceae

Habit of plant: Shrub

Plant part used: Leaves, Bark, Roots

Mode of Administration: Juice and Raw

Ethnomedicinal uses: Leaf juice taken for dental problems as mouth wash/ cleaner. Bark, Leaves and Roots are chewed for toothache.

8. Botanical name: *Borassus flabellifer* L.

Local name: Tad

Family: Arecaceae

Habit of plant: Tree

Plant part used: Fruits

Mode of administration: Raw

Ethnomedicinal uses: Fruits are taken in candy form as mouth freshener.

9. Botanical name: *Calotropis gigantea* (L.) R. Br.

Local name: Aakdo

Family: Apocynaceae

Habit of plant: Shrub

Plant part used: Roots and whole Plant

Mode of administration: Powder

Ethnomedicinal uses: Root powder taken for dental issues and whole plant powder used as remedy for toothache.

10. Botanical name: *Calotropis procera* (Ait.) R. Br.

Local name: Safed Aakdo

Family: Apocynaceae

Habit of plant: Climber

Plant part used: Latex

Mode of Administration: Raw

Ethnomedicinal uses: Plant latex used to remove damage tooth as pain reliever.

11. Botanical name: *Cinnamomum zeylanicum* J. Presl

Local name: Taj

Family : Lauraceae

Habit of plant: Tree

Plant part used: Bark

Mode of administration: Powder

Ethnomedicinal uses: Bark Powder used for toothache as “Dashan Sanskar Churna”.

12. Botanical name: *Dalbergia volubilis* Roxb.

Local name: Nilsoti

Family: Fabaceae

Habit of plant: Climber

Plant part used : Leaves

Mode of administration: Oral

Ethnomedicinal uses: Leaves are Orally chewed for mouth gargle.

13. Botanical name: *Elletaria cardamomum* (L.) Maton

Local name: Elaichi

Family: Zingiberaceae

Habit of plant: Herb

Plant part used : Seeds

Mode of administration: Raw

Ethnomedicinal uses : Seeds taken for toothache with *Zizyphus* bark paste and tender twigs of *Pithocellobium dulce*.

14. Botanical name: *Ferula asafoetida* L.

Local name: Hing

Family: Apiaceae

Habit of plant: Herb

Plant part used: Seeds

Mode of administration: Pills

Ethnomedicinal uses: Seeds used for mouth freshener as hing pedha/Hing vati

15. Botanical name: *Ficus benghalensis* L.

Local name: Vad

Family: Moraceae

Habit of plant: Tree

Plant part used: Tender twig

Mode of administration: Chewing

Ethnomedicinal uses: Tender twigs chewed for toothache and pyorrhoea.

16. Botanical name: *Foeniculum vulgare* Mill

Local name: Variyali

Family: Apiaceae

Habit of plant: Herb

Plant part used: Seeds

Mode of administration: Raw

Ethnomedicinal uses : Seeds chewed as Mouth freshener and for treating mouth ulcers.

17. Botanical name: *Glycyrrhiza glabra* L.

Local Name: Jethimadh

Family: Fabaceae

Habit of Plant: Herb

Plant part used: Roots

Mode of Administration: Oil

Ethnomedicinal uses: Root oil applied in mouth ulcers.

18. Botanical name: *Mentha piperita* L.

Local name: Mint

Family : Lamiaceae

Habit of plant: Climber

Plant part used : Leaves

Mode of administration : Pills

Ethnomedicinal uses: Leaf pills are administered as Mouth freshener (Pudina vati). Fresh leaves are also chewed as mouth freshener.

19. Botanical name: *Millettia pinnata* L.

Local name: Karanj

Family: Fabaceae

Habit of plant : Tree

Plant part used : Tender twigs

Mode of administration : Raw/Chewing

Ethnomedicinal uses : Tender twigs use as for toothache and also for all type of dental problems.

20. Botanical name : *Ocimum sanctum* L.

Local name : Tulsi

Family : Lamiaceae

Habit of plant : Shrub

Plant part used : Leaves

Mode of administration : Chewed

Ethnomedicinal uses: Leaves are chewed as Mouth freshener and for bleeding gums.

21. Botanical name: *Phyllanthus emblica* L.

Local name : Aonla

Family : Euphorbiaceae

Habit of plant: Tree

Plant part used : Fruits

Mode of administration : Raw

Ethnomedicinal uses: Fruits are taken as mouth freshener. Chewed for toothache.

22. Botanical name : *Piper betel*

Local name : Pan

Family : Piperaceae

Habit of plant : Climber

Plant part used : Leaves

Mode of administration : Chewed

Ethnomedicinal uses: Leaves are chewed as Mouth freshener and bleeding gums.

23. Botanical name : *Pithocellobium dulce* C. E. P. Mart.

Local name : Gorakhamli

Family : Fabaceae

Habit of plant : Tree

Plant part used : Stem/Twig

Mode of administration : Raw

Ethnomedicinal uses : *Pithocellobium dulce* tender twigs taken for toothache with *Zizyphus mauritiana* bark paste and *Elletaria cardamomum* seeds.

24. Botanical name : *Syzygium aromaticum* L.

Local name : Laving

Family : Myrtaceae

Habit of plant : Tree

Plant part used : Flower buds

Mode of administration: Powder

Ethnomedicinal uses : Powder of flower buds taken for toothache as Dashan Sanskar Churna.

25. Botanical name : *Tamarindus indica* L.

Local name : Imli, Khati amla

Family: Fabaceae

Habit of plant: Tree

Plant part used : Fruits

Mode of administration : Pills

Ethnomedicinal uses : Fruit pills are given as Mouth freshener (Imli goli)

26. Botanical name : *Terminalia chebula* Retz.

Local name : Harde

Family: Combretaceae

Habit of plant : Tree

Plant part used : Fruits

Mode of administration : Pills

Ethnomedicinal uses : Fruits used as mouth freshener as Harde vati/Pills

27. Botanical name: *Trachyspermum ammi* L.

Local name : Ajma

Family: Apiaceae

Habit of plant : Climber

Plant part used : Leaves and seeds

Mode of administration : Pills

Ethnomedicinal uses : Leaves and Seeds (Ajwain vati) used as mouth freshener.

28. Botanical name : *Zingiber officinale* Rosc.

Local name : Ginger

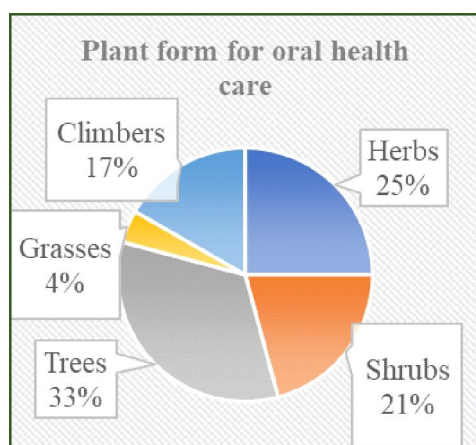


Fig. 4 : Life forms used for oral health care.

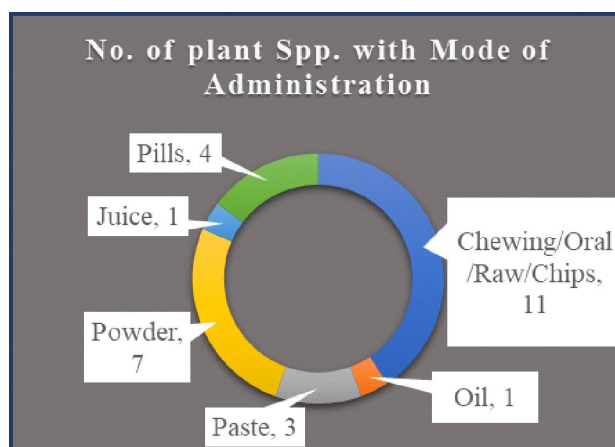


Fig. 5 : Mode of administration of plant parts administered for oral health Cared for oral health care.



Photo 2 : Photographs in sequence Left to right- Proforma for information collection; Collecting information, Tribal women selling *Azadirachta indica*, *Millettia pinnata* and *Acacia nilotica* tender twigs as tooth brush for oral hygiene.

Family : Zingiberaceae

Habit of plant: Herb

Plant part used : Rhizomes

Mode of administration : Powder

Ethnomedicinal uses : Rhizome powder taken for toothache as Dashan Sanskar Churna.

29. Botanical name : *Zizyphus mauritiana* Lam.

Local name : Ber

Family : Rhamnaceae

Habit of plant : Tree

Plant part used : Bark

Mode of administration : Paste

Ethnomedicinal uses : Bark paste taken for toothache with cardamom seeds and *Pithocellobium dulce* tender twigs.

30. Botanical name : *Zizyphus rugosa* Lam.

Local name : Toran Vel

Family: Rhamnaceae

Habit of plant : Shrub

Plant part used : Bark

Mode of administration: Powder

Ethnomedicinal uses : Bark Powder used for mouth ulcers.

Discussion

11 different tribes (Fig. 1) inhabiting plants for Oral health care problems like Kokna (6 spp.), Kukna (5 spp.), Bhil (3 spp.), Kunbi (4 spp.), Warli (2 spp.), Dhubda (2 spp.), Kokni (2 spp.) Dhodiya (1 spp.), Gamit (1 spp.), Nayaka (1 spp.) and Mavchi (1 spp.). For Oral Health care, 30 plant species used which had distributed in different life forms (Fig. 4) viz., Herb (6 spp.), Shrub (5 spp.), Climber (4 spp.), Tree (8 spp.) and Grass (1 Spp.). Also, 16 Plant Families (Fig. 3) likewise, Acanthaceae (1 spp.), Amaranthaceae (1spp.), Apocynaceae (2 spp.), Euphorbiaceae (1 spp.), Fabaceae (5 spp.), Lauraceae (1 spp.), Mimosaceae (1 spp.), Moraceae (1 spp.), Myrtaceae (1 spp.), Poaceae (1 spp.), Rhamnaceae (2 spp.), Apiaceae (1 spp.), Areacaceae (1 spp.),

Combretaceae (1 spp.), Lamiaceae (1 spp.) and Zingiberaceae (2 spp.). Different 10 plant parts (Fig. 2) like, Bark (4 spp.), flower buds (1 spp.), latex (1 spp.), Leaves (5 spp.), Rhizome (1 spp.), Roots (4 spp.), Seeds (3 spp.), Stem/Twig (3 spp.), Fruits (3 spp.) and Whole plant (2 spp.) and 6 types mode of administration (Fig. 5) used likewise, Powder (7 spp.), Paste (3 spp.), Oil (1 spp.), Juice (1 spp.), Pills (4 spp.) and Chewing/Oral/Raw/chips (11 spp.) were used for ethnomedicinal purposes. Such type of documentation and results are in accordance with Diwan *et al.* (2013), Bloor *et al.* (2014), Agbor and Naidoo (2015), Sahu and Sahu (2017), Sahu *et al.* (2020) and Shanmugam *et al.* (2020).

Conclusion

Given results on ethnomedicinal species, which have thrown light on various plant spp. used for oral health care. Ethnomedicinal knowledge is largely preserved orally and practiced by tribal healers, but there is a growing disconnect between generations. Efforts toward systematic documentation, validation and scientific exploration of this knowledge are required both qualitatively as well as quantitatively. Further study on their distribution and conservation status would help in sustainable use of important plant species. Along with traditional knowledge Phytochemical and pharmacological validation of key ethnomedicinal species would be beneficial and efforts can be made for the same to add value added products beneficial to human society.

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Conflict of interest

The author declares no conflict of interest.

Author contribution

KPG: Conduct field survey and Data collection from different villages, Preparation of graphs and tables, writing of the manuscript for publication. BSD, SSJ, VMP, AAM, YAG, AS: Research methodology, supervision, data analysis. All the authors have read and agreed with the published version of this manuscript.

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