



RESEARCH ARTICLE

Ethno-medicinal plants of Panchlingeshwar sacred grove, Nandikurali, Raibag, Belagavi, Karnataka

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Abstract: Sacred groves are the places, where number of medicinal plants are conserved and preserved for providing traditional health care for local people. This traditional information needs to be documented before it is lost forever. Hence, an ethnobotanical survey was carried out in June 2020-May 2021 to document traditional medicinal information from Panchlingeshwar sacred grove. A total of 54 species belonging to 48 genera under 28 families were recorded to be used to treat for trending 21 human disorders. Most of the medicinal plant species are distributed under the family Anacardiaceae, followed by Apiaceae, Lauraceae and Moraceae. The information about plant species local names, parts used, mode of preparation, dosage also has been documented.

Keywords: Medicinal plants, Nandikurali, Raibag, Sacred groves

Introduction

Sacred groves are considered as (small or large) patches of vegetation of varying sizes, conserved on the basis of the religious beliefs and faith of the local community (Kotresha and Kambhar 2016). Sacred groves are the greatest repositories of biological diversity and got protected on the basis of spiritual values and faith (Hasting 1934).

These sacred groves areas harbouring rich biodiversity, are protected by the local people based on the ground of indigenous culture, religious belief and taboos (Airi *et al.* 2000). These ethничal peoples protect the plants because of worshipping and also medicinal value. The uses of plants as medicines have been practiced from an ancient time and Rig Veda is one of the important earliest available documents, which emphasizes about herbal medicinal knowledge (Sinhababu and Banerjee 2013). Now-a-days sacred groves are islands of

biodiversity protecting a good number of plant and animal species including some rare, threatened and endemic taxa. In general, these are the repositories and nurseries of many of the local ayurvedic, unani, tribal and other folk medicines (Singh *et al.* 1994).

In India, more than 7000 plant species have been recognized for their medicinal value and are used by village communities, particularly tribal communities (Ramesh *et al.* 2014). Thus, the sacred groves serve as unique examples of in situ genetic resource conservation through the involvement of local people in the most economic and efficient manner (Khoshoo 1996). So, the present study deals with documentation of the ethno-medicinal plants present in Panchlingeshwar sacred groves Nandikurali, Raibag, Belagavi, Karnataka.

Study area

Nandikurali village is in Raibag taluka. It is located between 16°25' N latitude and 74°35' E longitudes with 510m AMSL. The average rain fall measures about 180.4mm maximum and minimum of 78mm. The vegetation is of thorny forest. Here Sri Panchalingeshwar temple is situated on the banks of Parameshwar stream, which joins Karka river. Traditionally, it is said that Dakshyani,

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Figure 1 (A-F): A. Lord Shiva statue, B. Sacred Nandi statue, C. Shri Lingas inside the Sacred Nandi, D & E. Ayurvedic medicine preparation and storage, F. Parameshwar stream near the grove.

daughter of Dakshabrahma descended here from Heaven and went to her father on the back of Nandi, sacred bull. So it gets the name Nandikurali. Five Sri Lingas out of sixty Lings have been seen and the people even today worship them (Fig 1). God Shiva himself has taken the shape of Linga according to anecdotes. Folklore says that Sri Rama and Sri

Bharat met here when Sri Rama was wanderer in forest. The area consists of about 28.10 acres.

Methodology

Ethno-medicinal survey was carried out from June 2020 to May 2021. The information on

Table 1: Enumeration of the medicinal plant species with their common name and mode of preparation and administration against the diseases.

Sl.No.	Aliments	Botanical name with local name, parts used and mode of preparation
1	Abdominal pain	5 gram of black salt along with 5 gram of cumin seeds (<i>Cuminum cyminum</i> L.), piper seeds (<i>Piper longum</i> L.), dry ginger (<i>Zingiber officinale</i> Roscoe), hingu seeds (<i>Ferula assa-foetida</i> L.), garlic (<i>Allium sativum</i> L.) each. All seeds are ground into homogeneous paste and prepared small tablets, one should take around 21 days to get cured from abdominal pain.
2	Acidity	20 to 40 gram dry ginger (<i>Zingiber officinale</i> Roscoe), dry dates (<i>Phoenix sylvestris</i> (L.) Roxb.), curcuma (<i>Curcuma longa</i> L.), <i>Terminalia catappa</i> L. (badam), <i>Anacardium occidentale</i> L. (godambi), dry grapes (<i>Vitis vinifera</i> L.), pulp of gorakhachinch (<i>Adansonia digitata</i> L.) ground well in to fine powder and prepared tablets, taken two times in a day for 21 days.
3	Blood purifier	10 gram of <i>Santalum album</i> L. bark boiled for 20 minutes. Take 3 spoon of this decoction twice in a day for 14 days.
4	Constipation	Fruits of <i>Cassia fistula</i> L. (Kaki mara), <i>Phyllanthus emblica</i> L. (Nelli) and <i>Terminalia bellirica</i> (Gaertn.) Roxb. (Tare mara), ground into fine powder. One spoon taken daily with warm water.
5	Cough of children	Prepared a juice (around 5 to 10 ml) of zinger, ocimum and adathoda (<i>Justicia adhatoda</i> L.) mix it well and collect 1 spoon from the mixture, add 1 spoon honey and fruit pulp golli kayi (<i>Vachellia farnesiana</i> (L.) Wight & Arn.), take it twice in a day for three days.
6	Dizziness (Weakness)	Prepare the fine powder of (<i>Hygrophila auriculata</i> (Schumach.) Heine) (Talimkhana) (10 gram), <i>Terminalia catappa</i> L. (badam), <i>Anacardium occidentale</i> L. (godambi), dry dates (<i>Phoenix sylvestris</i> (L.) Roxb.), dry coconut (<i>Cocos nucifera</i> L.), cardamom (<i>Elettaria cardamomum</i> (L.) Maton), black ocimum leaves (<i>Ocimum basilicum</i> L.) and pulp of sitaphala (bahubijaka) (<i>Annona squamosa</i> L.). Take 2 spoon of above powder and add 2 spoon honey. Take it with 1 glass of milk, twice in a day for a month.
7	Dry cough	Prepare the fruit juice of adathoda (<i>Justicia adhatoda</i> L.) mix with neem juice, 1 spoon honey and little amount of sugar powder. Take 1 spoon two times in a day for 3 days.
8	Dysentery	The fruit of <i>Aegle marmelos</i> (L.) Corr. (Patri) burned it and collects inner pulp and grinds it with sugar and prepare decoction, take it with 1 glass of water.
9	Dysmenorrhea	Take equal amount of bark of <i>Mangifera indica</i> L., <i>Ficus benghalensis</i> L., <i>F. religiosa</i> L., (<i>Monooon longifolium</i> (Sonn.) B.Xue & R.M.K.Saunders), boiled and prepare the decoction. Take 4 spoons with water for 21 days.
10	Earache	Collect the dry seeds of <i>Solanum virginianum</i> L. and prepare decoction and put it into ears.
11	Eczema	50 gram of curcuma (<i>Curcuma longa</i> L.), 40 gram of camphor (<i>Cinnamomum camphora</i> (L.) Persl) and boil it in 1 year old cow butter and extract the filter. This filter is grind with carrot root (<i>Daucus carota</i> subsp. <i>sativus</i> (Hoffm.) Schübl. & G. Martens) apply over the infected eczema portion on the body for 21 days.
12	Fever	The leaves of <i>Azadirachta indica</i> A. Juss., <i>Tinospora cordifolia</i> (Willd.) Hook.f. & Thomson, <i>Nyctanthes arbor-tristis</i> L., <i>Justicia adhatoda</i> L. and <i>Conocarpus lancifolius</i> Engl., should boil in 1 liter of water for 30 min and then filter it. Take 1 spoon twice in a day for 3 days.
13	Hair fall	50 grams seeds of Keru (<i>Semecarpus anacardium</i> L.f.) and boiled it, filter the oil. This oil is again mix with powder of dry mulberry fruit (approx. 10 gram) (<i>Morus alba</i> L.) and add lime powder into it and prepare paste apply over the hairs to get cure from hair fall. This prepared paste is used only twice in a week.
14	Jaundice	Leaves of <i>Cassia fistula</i> L., <i>Conocarpus lancifolius</i> Engl., <i>Azadirachta indica</i> A. Juss., <i>Tinospora cordifolia</i> (Willd.) Hook.f. & Thomson, <i>Nyctanthes arbor-tristis</i> L. grind well and prepare 20 gm of juice. Add 10 gram of <i>Toxicodendron succedaneum</i> (L.) Kuntze (Karkshingi) leaves powder in to above juice mixture and boil it in 4 liters of water. Filter the decoction and take ½ of cup twice in a day for 7 days.
15	Joint Pain	The leaves of <i>Azadirachta indica</i> A. Juss. (Bevu), <i>Calotropis gigantea</i> (L.) W.T.Aiton, (Yakki), <i>Tagetes erecta</i> L., (Zandu), <i>Eucalyptus globulus</i> Labill. (Nilgiri gida), <i>Senegalia ferruginea</i> (DC.) Pedley (Banni), <i>Tamarindus indica</i> L. (Hunase mara), <i>Brugmansia arborea</i> (L.) Sweet, (Maduginake), <i>Jasminum arborescens</i> Roxb. (Mallige huvu), <i>Tinospora cordifolia</i> (Willd.) Hook.f. & Thomson. (Amrutballi), <i>Nyctanthes arbor-tristis</i> L. (Parijat gida), <i>Phyllanthus emblica</i> L. (Nelli) and <i>Ocimum sanctum</i> L. (Tulasi), approximately 5 to 10 gram each is mixed in 4 liter of Gomutra (Cow urine) and prepare the decoction. The decoction should boil with sunflower oil for 2 hours. Cool it and filter the oil. This oil is applied on the joint pain and the remaining residue is used to apply on ringworm, burned area and old injuries.
16	Nail infection	Grind the seeds of piper seeds (<i>Piper longum</i> L.) and mix it with butter milk and prepare the paste, apply on the infected nails of our body.
17	Old wounds	50 gram of barks of <i>Azadirachta indica</i> A. Juss., <i>Tamarindus indica</i> L., <i>Mangifera indica</i> L., <i>Vachellia farnesiana</i> (L.) Wight & Arn., <i>Syzygium jambos</i> (L.) Alston, <i>Ficus benghalensis</i> L. (Alada mara), <i>F. racemosa</i> L. (Atthi mara) and <i>F. religiosa</i> L., <i>Santalum album</i> L. (Sriagnatha) and <i>Ziziphus mauritiana</i> Lam. (Bare hanu) and mix 50 gram of Catechu (<i>Senegalia catechu</i> (L.f.) P.J.H. Hurter & Mabb.), prepare into fine powder mix with water and the paste is apply over the old wounds for around 15 days.
18	Piles	Grind the leaves of <i>Momordica charantia</i> L. (Hagalkayi), add some cumin seeds (<i>Cuminum cyminum</i> L.) and cardamom seeds (<i>Elettaria cardamomum</i> (L.) Maton). Add the sugar powder in it and take 1 spoon of powder with 1 glass of milk for 21 days

- 19 Scorpion bite Latex of *Calotropis gigantea* (L.) W.T.Aiton (Yakki gida) and directly applied over the bite portion.
- 20 Stomachache 1 kg seeds of gajaga (*Guilandina bonduc* L.) fry it and collect pulp of seed and grind it into fine powder along with 10 to 20 gram of dry zinger (*Zingiber officinale* Roscoe), clove (*Syzygium aromaticum* (L.) Merrill & Perry), piper seeds (*Piper longum* L.), Ajwain (*Trachyspermum ammi* (L.) Sprague), cumin seeds (*Cuminum cyminum* L.), cardamom (*Elettaria cardamomum* (L.) Maton), coriander seeds (*Coriandrum sativum* L.), ocimum leaves (*Ocimum sanctum* L.) and damas leaves (*Conocarpus lancifolius* Engl.). One spoon powder is taken along with 1 glass of hot water, twice in a day to get relief from stomachache.
- 21 Toothache Collect latex of *Calotropis gigantea* (L.) W.T.Aiton (Yakki gida) and applied over the place of pain.
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use of medicinal plants was gathered through oral interviews of the local informants (Healer) specially the geriatric person. All six informants submitted data through semi-structured, open-ended interviews and a questionnaire (Martin 1995). Different plants and its different parts used to cure different ailments are recorded during this interview. All the gathered information was cross checked with available published literature. The plants were identified as per the local name (Gurudev 2001, Balakrishna 2004) and regional and state flora of Karnataka (Saldanha 1984, 1996; Kotresha and Kambhar 2016). The specimens were deposited in the Herbarium, Department of Botany, Government First Grade College, Raibag, Belagavi.

Results

The present study area encountered with 54 medicinal plant species belonging to 48 genera and 28 families are used against 21 different kinds of ailments (Table 1). Among the families, four families contributing with 4 species each are Anacardiaceae, Apiaceae, Lauraceae and Moraceae. This was followed by Caesalpiniaceae, Combretaceae and Mimosaceae representing with 3 spp. each; eight families are represented with 2 spp. each, (Acanthaceae, Annonaceae, Arecaceae, Lamiaceae, Liliaceae, Oleaceae, Solanaceae and Zingiberaceae). Remaining thirteen families were contributing only one species each (Asclepiadaceae, Asteraceae, Bombacaceae, Cucurbitaceae, Euphorbiaceae, Meliaceae, Menispermaceae, Myrtaceae, Piperaceae, Rhamnaceae, Rutaceae, Santalaceae and Vitaceae).

Discussion and Conclusion

It was observed that most of the people are using both traditional and modern systems of medicine for their ailments. The people prefer plants as medicine, due to thesis effectiveness without any side effects. Though some of the information already exists in published literature, some have been documented for the first time during the study. The major contribution by Kirthikar and Basu (1933) on the 'Indian Medicinal Plants' deals with the therapeutic properties of Indian medicinal plants and assigned the pride of place to Ayurveda and Yunani.

During the last few decades a number of studies on documentation of medicinal plants have been conducted in different parts of the Karnataka. Bhandary *et al.* (1995) worked on the medical ethnobotany of the Siddis of Uttar Kannada district and reported 98 medicinal preparations, involving 69 species of plants used by the Siddis of Uttar Kannda. Harsha *et al.* (2002) worked on the ethnomedical knowledge of plants used by Kunabi tribe of Karnataka and they-reported 45 species of plants used by Kunabi community people, and these plants belong to 26 families and are used to treat wide ranges of discomforts like fever, cough, skin diseases, rheumatism, snakebite, jaundice, dysentery etc.

Apart from this, Pranita *et al.* (2004) worked on the ethno-botanical wealth of Bhadra wild life sanctuary in Karnataka and reported 60 plant species belonging to 50 genera and 35 families used for preparing at least 78 herbal drugs by the medicine men. Ayyanar and Vidyasagar (2006) documented 30 plant species belonging to 29 genera and 20 families largely used as medicine by tribals and local people of Bidar district,

Karnataka. Ayyanar and Ignacimuthu (2009) documented 46 plant species belonging to 44 genera and 26 families for their therapeutic use against wounds and related injuries.

Subsequently, Shivanna and Rajkumar (2010) worked on the ethno-medico-botanical knowledge of rural folk in Bhadravati taluk of Shimoga district, Karnataka and reported 40 medicinal plants used to treat 25 human diseases and disorders. Prakash *et al.* (2010) worked on the Folk medicine of NR Pura taluk in Chikmagalur district of Karnataka and reported total of 59 plant species belonging to 53 genera and 34 families for different therapeutic uses which include about 31 wild plant species, 18 cultivated species and 10 were both wild and cultivated species. Ghatapanadi and Shivanna (2010) worked on the traditional herbal medicinal knowledge in Sagar taluk of Shimoga district and documented 48 plant species belonging to 44 genera and 31 families used by folk practitioners to treat various common to chronic human and veterinary ailments.

Besides this, Hirem *et al.* (2010) reported 13 plant species belonging to 10 families extensively used to treat kidney stone and urinary tract infections. Kotresha and Kambhar (2010) worked on the Traditional orthopedic treatment with medicinal plants in Gadag District. Hiremath *et al.* (2010) documented 40 medicinal plant species under 36 families for the treatment of 42 diseases either in single or in combination with some other ingredients. Hiremath and Taranath (2011) reported 28 plant species under 24 genera and 20 families from Chitradurga district used to treat the jaundice. Suresh *et al.* (2011) reported the 108 species of ethnomedicinal plants belonging to 102 genera and 59 families, among them 31 were herbs, 17 were shrubs, 3 were small trees, 26 were big trees and 31 were climbers. In Gadag district. Shaik Shivali (2001) recorded 221 medicinal plant species in Kappatha gudda. Harihar and Kotresha (2010) worked on the wild medicinal plants of Kappath hills, Gadag district, Karnataka and documented 43 species belonging to 39 genera and 31 families. They also reported on the parts used and methods of drug preparations along with the local name of all the plants.

India has one of the oldest, richest and most diverse cultural traditions associated with the use of

medicinal plants. The local people used locally available herbal medicine for ailments due to high cost and side effects of Allopathic medicine. The local medicine men acquired the medicinal knowledge orally and traditionally from their ancestors. These herbal medicines needed clinical trials to prove their efficacy and also to develop new drug.

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References

- Airi S R, Dhav R S and Parohit A N 2000 Assessment of availability and habitat preference of Jatamansi-a critically endangered medicinal plant of Western Himalaya. *Curr Sci.* **79(10)**1469.
- Ayyanar M and Ignacimuthu S 2009 Herbal medicines for wound healing among tribal people in Southern India: Ethnobotanical and scientific evidences. *Int. J. Appl. Res. Nat. Prod.* **2(3)** 29-42.
- Balakrishna G 2004 *Vanaspati kosha plant wealth of Sringeri, Karnataka*. Kalpatharu Research Academy, Bangalore.
- Bhandary M J, Chandrashekhar K R and Kaveriappa K M 1995 Medical ethnobotany of the Siddis of Uttar Kannada district, Karnataka, India. *J of ethnopharmacology.* **47**149-158.
- Ghatapandi S R, Johnson N and Rajasab A H 2010 Medicinal plants of North Karnataka used in treatment of kidney stones and urinary tract infections. *The Socioscan.* **2(3&4)** 23-24.
- Gurudev M R 2001 *Botanical and Vernacular names of South Indian Plants*. Divyachandra Prakashan Bangalore.
- Harihar N S and Kotresha K 2010 Wild medicinal plants of Kappat hills, Gadag District, Karnataka. *Res. Rev. Biomed. Biotech.* **1(2)**111-118.
- Harsha V H, Hebbar S S, Shripathi V and Hegde G R 2002 Ethnomedical knowledge of plants used by Kunabi Tribe of Karnataka in India. *Fitoterapia.* **73** 281-287.

- Hasting J 1934. *Encyclopedia of religion and ethics*, Vol. 12, 448-452.
- Hiremath V T and Taranath T C 2011 Phytotherapy associated with Jaundice in Chitradurga District, Karnataka. *Int. J. Med. Arom. Plants* **1(2)**162-165.
- Hiremath VT, Vijaykumar M M J and Taranath TC 2010 Survey of Ethnomedicinal plants of Jogimatti forest Chitradurga district, Karnataka, India. *Environ. We Int. J. Sci. Tech* **5** 223-233.
- Khoshoo T N 1996 India needs a national conservation board. *Curr Sci.* **71**506-513.
- Kirtikar K R and Basu B D 1933 *Indian Medicinal Plants*. 2nd ed. Vol. 1&2, Lalit Mohan Basu Publishers, Allahabad.
- Kotresha K and Kambhar S V 2016 *Flora of Gadag District Karnataka*. Lambert Academic Publishers, Germany.
- Kotresha K and Kambhar S V 2010. Traditional orthopedic treatment with medicinal plants. *Indian For.* **136(9)**1281-1282.
- Martin G J 1995 Ethnobotany: A methods manual. Ch a p m a n a n d H a l l , L o n d o n . <https://doi.org/10.1007/978-1-4615-2496-0>
- Prakash H M, Krishnappa M, Krishnamurthy Y L and Poornima S V 2010 Folk medicine of NR Pura taluk in Chikmagalur district of Karnataka. *India J of traditional knowledge*. **9(1)**55-60.
- Pranita M, Harish G U, Vivek N C, Mahesh T and Shivanna M B 2004 Ethno-botanical wealth of Bhadra wild life sanctuary in Karnataka. *Indian J of traditional knowledge*. **3(1)** 37-50.
- Prashantkumar P and Vidyasagar G M 2006 Documentation of traditional knowledge on medicinal plants of Bidar District, Karnataka. *Indian J of traditional knowledge*. **5(3)** 295-299.
- Rajakumar N and Shivanna M B 2010. Traditional herbal medicinal knowledge in Sagar taluk of Shimoga district, Karnataka, India. *India J of traditional knowledge*. **1(1)**102-108.
- Ramesh D, Anbazhagan M and K Arumugam 2014 Ethnomedicinal plant survey in different sacred groves of Panruti Taluk, Cuddalore District, Tamil Nadu. *International J of Research in Plant Science*. **4(1)** 13-21
- Saldanha C J 1984 *Flora of Karnataka*. Vol 1, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
- Saldanha C J 1996 *Flora of Karnataka*. Vol 2, Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
- Shaik Shivali P 2001 *Studies on some medicinal plants of Kappatha gudda, Gadag District*. M.Phil. Dissertation, submitted to Karnatak University, Dharwad.
- Shivanna M B and Rajakumar N 2010. Ethno-medico-botanical knowledge of rural folk in Bhadravathi taluk of Shimoga district, Karnataka. *Indian J of traditional knowledge*. **9(1)** 158-162.
- Singh J S, Raghubanshi A S and Varshney K 1994 Integrated Biodiversity Research in India. *Curr Sci* **66(70)** 109.
- Sinhababu A and Banerjee A 2013 Ethno-botanical survey of medicinal plants used by tribals of Bankura District, West Bengal, India. *J. of Medicinal Plants Studies*. **1(3)** 98-104.
- Suresh K, Kottaimuthu R, Norman T S J and Simon S M 2011 Ethnobotanical study of medicinal plants used by Malayali Tribals in Kollihills of Tamilnadu, India. *International J of research in Ayurvedic and Pharmacy*. **2(2)** 502-508.