



## International Journal of Home Science

ISSN: 2395-7476  
IJHS 2020; 6(1): 172-175  
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www.homesciencejournal.com  
Received: 27-11-2019  
Accepted: 28-12-2019

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### Plants used as medicine by the ethnic tribes: A case study of Kalahandi District, Odisha

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#### Abstract

The present study deals with the identification, documentation and ethno-botanical exploration with respect to food value of wild edible medicinal plants of Kalahandi district, Odisha. Total 30 wild edible fruits were surveyed. Fruits are the nature's gift to mankind. Out of 30 plant species, some are being used against jaundice, fever, diarrhoea, dysentery, cough, malaria fever, skin diseases. Due to urbanization and partial modernization, the primitive communities in this region are losing their traditional culture and practice of medicinal plant use in their daily life. Due to deforestation and shifting cultivation are the main causes of medicinal plant diversity. Due to poor condition of modern healthcare facilities and poverty, indigenous people of the district fully or partially depend on local medicinal plants. Currently the Government of India, realizing the value of the country's vast range of medicinal plant, has embarked on a mission of documenting the traditional knowledge about medicinal plants and herbs. This investigation in a small way takes of the enumeration of the plants, with medicinal values which are used by the tribal groups residing in and around Kalahandi district, Odisha.

**Keywords:** Ethno-botanical, documentation, wild, edible plants

#### 1. Introduction

The varied topographic and climatic conditions in India have produced a rich and diversified flora of which approximately 3,000 of the 20,000 angiospermic species are used medicinally. These medicinal plants, employed in plant-based medicaments since ancient times, are of great importance in the primary health care of individuals and communities in India (9). An estimated 65% of the population in rural areas in India uses the Ayurveda medicine system and medicinal plants to help meet their primary health care needs. Orissa state has one of the oldest and richest cultural traditions of using medicinal plants. The rural people of the state still depend on the traditional ethno medicine for their day-to-day primary health care. These medicinal plants gain further importance in the region where modern medical health facilities are either not available or not easily accessible. Orissa state is geographically divided into five regions i.e. Coastal Orissa, Southern Orissa, Western Orissa, Central Orissa and North Orissa. Kalahandi is a rich treasure of traditional knowledge. The total population of this district as per census is 13, 35,494 out of which 6, 67,526 are males and 6, 67,968 are females. According to 1991 census, the population of Kalahandi was 11, 30,903 of which 5, 65,595 were males and 5,65,308 females. The population of the scheduled tribes in the district constitutes 28.65 percent of the total population. Of the 46 tribes found in this district, numerically important tribes are *Banjara, Bhattada, Bhunjia, Binjhal, Dal, Gond, Kandha, Mirdha, Munda, Paroja* and *Shabar*. These 12 tribes together constitute 96.96% of the total tribal population of this district. Concentration of scheduled tribes was the highest in Bhawanipatna sub-division and the lowest in Dharamgarh subdivision.

While ethnobotanical studies have been done in Orissa, the medicinal plants available in this remote area have not been explored thoroughly, and no previous records on ethno medical knowledge from within the study area are available. Therefore, this paper deals with an attempt to gather information on some traditional uses of medicinal plants from different blocks of the district to document the medicinal uses of plants to cure the common diseases.

#### 2. Methods and Research Methodology

Extensive surveys were done during the period of 2013 to 2014 to document the use of medicinal

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plants by local communities within the study area. Semi-structured interviews were conducted with individuals and groups, such as herbal practitioners and the elderly persons, known to possess knowledge about medicinal plants. The interviews were a relatively open framework that allowed and encouraged focused, conversational, two-way communication about medicinal plants and medicinal plant use among those being interviewed. All interviews were performed in the local Oriya language. Throughout the interviews, information was collected on plant species, the usable plant part, and the medicinal preparation. The gathered information was cross-checked with people in other villages and other individuals practicing in or near the locality in which the plant material was collected. To assess the traditional knowledge on wild medicinal plants, frequent interactions and discussions were

made with the local villagers, which included farmers, herdsman, shepherds, housewives and children. The indigenous knowledge received from them was noted in special field books. Live specimens and available photographs were shown to them for local identification. The fruits were preserved and identified with the help of available literature.

### 3. Observations

In this study, we focused mainly on plant species reported by the local people in and around the study area for their medicinal uses. In the present investigation 26 medicinal plants are used for the treatment of various ailments. Folklore medicinal plants are arranged alphabetically which represents their botanical names followed by the family, local name and medicinal uses.

**Table 1:** Traditional uses of plants against various diseases

S. N	Botanical name, family & local name	Parts	Ailments	Mode of preparation
1.	<i>Aegle marmelos</i> (L.) Corr (Rutaceae) Bel	Leaf	Burn injuries	Crushed leaf paste is applied to cure burn injuries.
2.	<i>Andrographis paniculata</i> (Burm. f.) Wall ex. Nees (Acanthaceae) Bhuineem	Leaf	Headache	Leaf paste is applied on the forehead for 2-3 hours to relieve continuous headache.
3.	<i>Zinziber officinale</i> Rosc. (Zinziberaceae) Ada	Rhizome	Diarrhoea	Rhizome juice rubbed on and around the nose is helpful in checking diarrhoea.
4.	<i>Tridax procumbens</i> L. (Asteraceae) Bisalya karani	Root	Stomachache	Root decoction is used in stomach ache.
5.	<i>Terminalia chebula</i> Retz. (Combretaceae) Harda	Fruit	Skin disease & eczema	Fruit paste is applied locally to cure skin diseases and eczema.
6.	<i>Tamarindus indica</i> L. (Caesalpiniaceae) Tentuli	Fruit	Fever	The pulp is mixed with water and salt and is given to cattle to cure fever.
7.	<i>Tagetes erecta</i> L. (Asteraceae) Mada phul	Leaf	Boil	Leaf juice is applied on boils for relief from pain and healing.
8.	<i>Syzygium cumuni</i> (L.) Skeels (Myrtaceae) Ghulijam	Bark	Snakebite	Bark paste is used as an antidote to snakebite.
9.	<i>Ricinus communis</i> L. (Euphorbiaceae)	Leaf	Joint pain & body swelling	The leaf paste is used to massaging to get relief in joint pain and body swelling.
10.	<i>Rauwolfia serpentina</i> (L.) Benth. ex. Kurz. (Apocynaceae) Patal goruda	Plant	Dysentery	It is used for treatment of dysentery.
11.	<i>Phyllanthus emblica</i> L. (Euphorbiaceae) Amla	Fruit	Vomiting	Fruits are dried and ground and taken orally for stop vomiting.
12.	<i>Phyllanthus fraternus</i> Webster (Euphorbiaceae) Bhuiamla	Whole plant	Jaundice	Paste of whole plant is made in water and given once in morning for a fortnight to cure jaundice.
13.	<i>Cassia fistula</i> L. (Caesalpiniaceae) Sunari	Fruits	Constipation	The fruits are crushed and the paste is taken orally in very small quantity in case of constipation.
14.	<i>Azadirachta indica</i> A. Juss. (Meliaceae) Neem	Leaf	Wound	Leaf decoction is applied locally to cure wounds.
15.	<i>Michelia champaca</i> L. (Magnoliaceae) Champa	Leaf	Eye diseases	Leaf decoction is used to cure eye diseases.
16.	<i>Terminalia arjuna</i> (Roxb. ex DC.) W. & A. (Combretaceae) Arjuna	Bark	Bone fracture	Bark paste is used for bone fracture.
17.	<i>Terminalia bellirica</i> (Gaertn.)Roxb. (Combretaceae) Beheda	Fruit	Cough	Fruit is used to cure cough.
18.	<i>Desmodium gangeticum</i> (L.) DC. Prod. (Fabaceae) Salpami	Root	Malaria	Decoction of root is taken in empty stomach once for seven days for the treatment of malaria.
19.	<i>Dioscorea bulbifera</i> L. (Dioscoreaceae) Khamba alu	Tuber	Piles	Tuber paste with paste of keo kanda ( <i>costus speciosus</i> ) is used for cure piles.
20.	<i>Terminalia alata heyne</i> ex. Roth. (Combretaceae) Asan	Bark	Digestion	Bark is boiled in water, this water is taken internally to relieve chest pain
21.	<i>Wrightia tinctoria</i> L. (Apocynaceae) Pita karuan	Leaves	Dandruff	Leaves crushed and dipped in coconut oil ( <i>Cocos nucifera</i> ) exposed to sunlight for 3 days.
22.	<i>Aegle marmelos</i> Corr. ex Roxb. (Rutaceae) Bela	Plant	Mouth ulcer	Plant gum applied over affected area for 3-4 days
23.	<i>Coccinia grandis</i> (L.) Voigt. Kunduru	Leaves	Ear ache	The juice of fresh leaves is used as ear drops to subside ear ache
24.	<i>Madhuka Indica</i> Gmel. Mahul	Seed	Healthy skin	The seed oil is applied all over the body daily for a healthy skin.
25.	<i>Cymbopogon martinii</i> (Roxb.) Wats. Dhanantri	Leaves	Severe cold	The decoction of leaves is taken in severe colds.
26.	<i>Tamarindus indica</i> L. (Caesalpiniaceae) Tentuli	Seed	Scorpio bite	Paste is prepared from seeds and applied over the bitten area

*Emblica officinalis* (Amla)*Tagetes erecta* L. (Mada phul)*Melia azadirachta* or *Azadirachta indica* A. Juss. (Neem)*Phyllanthus niruri* Linn (Bhui amla)*Azadirachta indica* (Bela)**Fig 1:** Medicinal plants used for different ailments

#### 4. Conclusion

The results of the study demonstrated the persistence of folk medicine practices in Kalahandi district, that the people are still dependent on indigenous knowledge for health care that are being influenced by culture and socioeconomic aspects, providing a cheaper and accessible alternative to the high cost pharmaceutical remedies, in spite of the overwhelming influence and our dependence. Due to the growing importance of ethnobotanical studies, it is necessary to collect the information's about the knowledge of folklore medicinal plants, preserved in local communities of various parts of Kalahandi district before it is permanently lost. Having the

above facts in mind, an attempt was made to explore the medical remedies of some medicinal plants used by the local people of Kalahandi district for the treatment of various ailments. Use of traditional herbal medicines undoubtedly continues for two reasons: The treatments work, and allopathic medicines available in nearby towns are expensive and have undesirable side effects in comparison with the herbal medicines. The primary uses of the herbal medicines are probably predictable for communities living inside forested areas. Upon contact, spiny and thorny plants can cause skin cuts, stinging hairs on plants can irritate skin surfaces, and the multitude of pollen types within the forest

environment can initiate allergic reactions. Stomach complaints and other intestinal problems are probably due to poor hygiene and sometimes contaminated water.

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