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## Ethnomedicinal study of some medicinal plants from Kandhamal district, Odisha

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### Abstract

Ethnomedicinal study was carried out during 2014-15 in the tribal village of Kandhamal district is dominated by two tribal groups such as dongria and desia (kui language), documented the medicinal activity of plant for cure of various diseases in the locality. The present paper deals with traditional uses of 40 ethnomedicinal plant species 37 genera and 28 families along with correct botanical identification. Local names, parts used and mode of administration in respect to different diseases. The documented ethno medicinal plants are mostly used in skin disease, gastrointestinal disease, cold and cough and dysuria etc.

**Keywords:** Ethnomedicinal plants, Kandhamal district, Odisha

### 1. Introduction

Ethnobotany is a multidisciplinary science which is deals with the study of the interaction between plants and people<sup>[1]</sup>. Documenting the indigenous knowledge through ethno botanical studies is important for the conservation and utilization of biological resources<sup>[2]</sup>. The ethno botanical investigation has led to the documentation of a large number of wild plants used by tribals for meeting their multifarious requirements<sup>[3]</sup>. *Silybum mairanum* commonly known as milk thistle is one of the oldest and thoroughly researched plants in the treatment of liver diseases. It is used as a general medicinal herb from as early as 4<sup>th</sup> century B.C. and first reported by Theophrastus. Medicinal plants are important to the global economy. In 1980, WHO estimated that the world trade at US\$500 million. More than 80% of African rely on plant based medicines. In India about 2500 plants have been reported to be used in ethno medicine. India abounds in its ethnic diversity, in which many aboriginal cultures have retained traditional knowledge concerning the medicinal utility of the native flora. Tribal communities living in biodiversity rich areas possess a wealth of knowledge on the local utilization and conservation of food and medicinal plants.

Odisha claims to have a prominent position among the States and Union Territories of India for having the largest varieties of tribes that is 62 in number including 13 vulnerable tribal groups. It has the 3<sup>rd</sup> highest tribal populations numbering over 8 millions, which is about 9.7% of the country's total population constituting 22.13% of the state's total population as per 2001 census. It means among every five persons one belongs to a scheduled tribe community in the state. Every tribal group represents unique indigenous ethno botanical systems that include the mode of taking or applying externally or internally plant parts as a cure. Without proper documentation of such knowledge, the cultural and traditional heritage of Odisha is losing its importance and traditional indigenous knowledge and with the development of modern civilization, tribal communities are forced to change their livelihood which leads to ethno cultural degradation. In Kandhamal district of Orissa the major tribes are the Kutia Kandhas found mainly in Kotagarh, Tumudibandha and Belagarh area of Baliguda sub-division are Dongaria live in high lands of hilly area in the district. The Desia or Oriya Kandhas live in plain areas with the non tribals. The language they speak as Kui, which has no script, in present work an attempt has been made to explore the traditional health care system of Kandhas of Kandhamal district, Odisha for the treatment of the various types of diseases using local medicinal flora.

### 1.1 Objective of the study

Information is very less on local medicinal plants and plant parts used by traditional healers in Kandhamal districts. This study aims to documenting plant parts used exclusively for the management of various diseases used by traditional healers in targeted area of Kandhamal districts.

### 1.2 Study Area

The district "Kandhamal" has two sub-divisions, Phulbani and Balliguda located in the central Orissa. Phulbani sub-division forms a broken plateau of about 518 MTRS above sea level, girdled almost continuously by high ranges which cut it off from the surrounding area. On the north-east and west these ranges quite perceptibly rise abruptly from the plains of Boudh district while on the south they merge in the outlines of the Eastern Ghats of Balliguda Subdivision. The high plateau lying within these ranges is broken up by numerous smaller ranges which form an endless series of valleys varying in size. Thick forest still covers much of these tracks and the villages lie in scattered clearings along the hill sides and in valleys below, while some are in almost inaccessible. The district lies between 19.34° and 20.50° north latitude and 80.30° and 84.48° east longitude. It is bounded by Boudh district in north, Rayagada district in south, Ganjam &

Nayagarh district in East and Kalahandi district in west the district of Kandhamal is one of the new created districts carved out of the old Phulbani district. The total geographical area of Kandhamal I District is 7, 64,900 hectares.

### 2. Materials and Methodology

Ethno medicinal survey includes several anthropological field techniques of which participant observation and structural surveys for collection of qualitative and quantitative data constitutes the integral part. The knowledge of traditional societies on different aspects of the inquiry was explored during the survey.

A literature survey was carried out on the study area before the field work started [4-12]. Most of the works were based on ethno botanical study. Very few works were done on taxonomic survey. The present work is the outcome of extensive survey of different tribal villages of Kandhamal district undertaken during 2013-2014 to collect information on the medicinal uses of different plant species. Plant specimens were collected and deposited in the department of Botany, Berhampur University. Later on identified with local flora [13]. For the present study, standard procedures laid down by Girach, 1992 is followed [14].

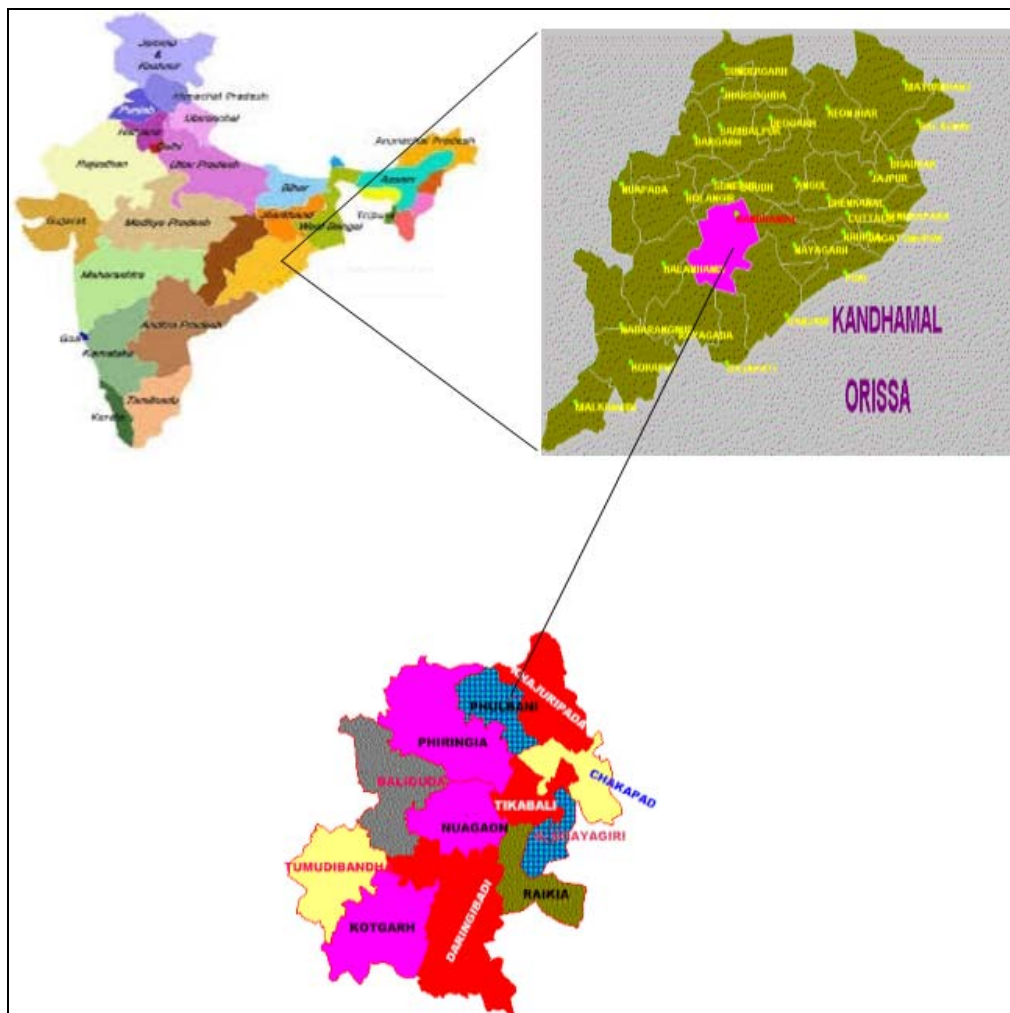


Fig 1: Index map of Kandhamal District

### Result

In Table 1, data obtained from the field survey are presented. The data on medicinal plants, which was collected from local

inhabitants in Kandhamal district, were analyzed. Detail description of these 40 plants and their medicinal uses as reported by different tribes.

### 3.1 Family wise classification of Plants

Family wise classification of the plants is 28 families and 37 genera were identified, are used for treatment. Approximately the total no. of 40 ethno medicinal plant species is used as 62 ailments or therapeutic agents. Euphorbiaceae is the dominant

family (4 spp.) followed by Zingiberaceae (3 Spp.), Fabaceae (3spp.), Caesalpiaceae, Liliaceae, Lamiaceae, Apocynaceae, Asclepiadaceae, each with two species. The other families contributed with one species.

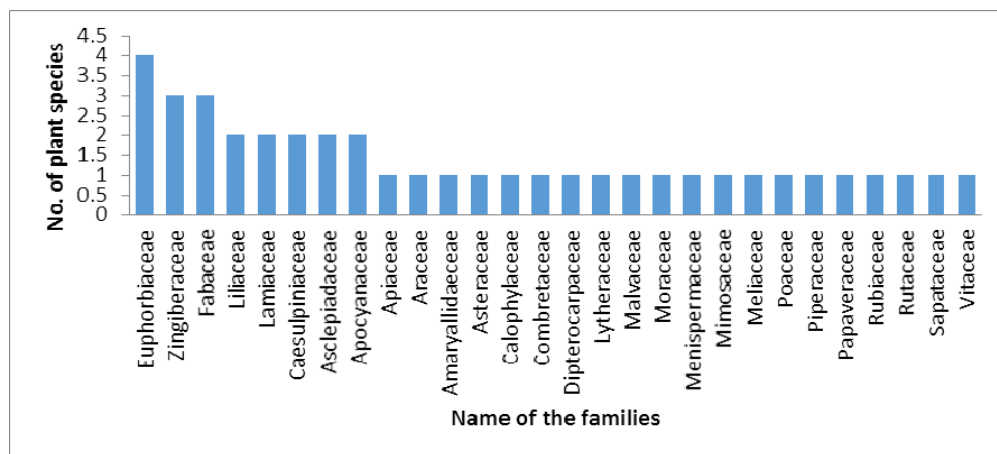


Fig 2: Distribution of Plants among Families

### 3.2 Major diseases wise plant distribution

A total no. of 40 plants has been found to be used for medicinal purposes by the tribal people of Kandhamal district, Odisha. Maximum plants are used by the tribal peoples for the

curing of major diseases like Skin disease (14 Plants), Gastrointestinal disease (11 Plants), cold and cough (5 Plants), Fever (4 Plants), Head ache (4 plants), Dysuria (4 Plants) and Sexual disorder (4 Plants).

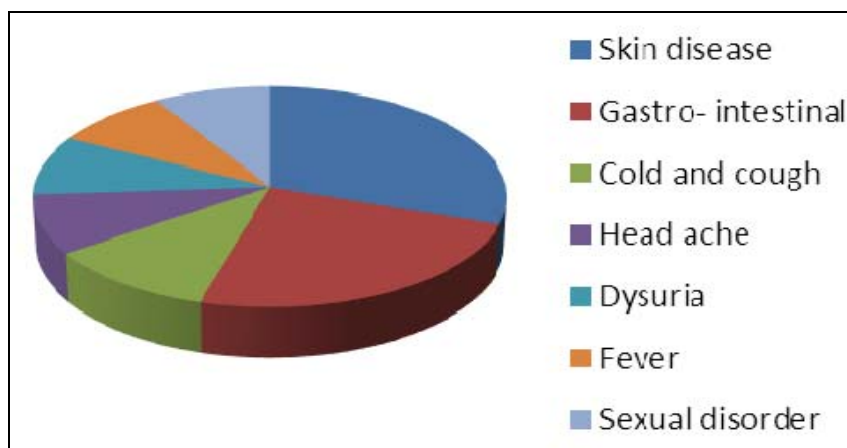


Fig 3: Major Diseases wise plant distribution.

Table 1: List of Plants with their scientific names, Local names, Parts used Traditional medicinal uses in Kandhamal District and uses in other districts and states of India

Sl.no.	Botanical name	Local name	Parts used	Medicinal use in Kandhamal dist	Medicinal Use in other dist. and States
1	<i>Acorus calamus</i> L.	Bacha	Rhizome	Promotion of memory power, epilepsy and worm infection	Used for cataract [15]
2	<i>Aloe vera</i> L.	Gheekunwari	Leaf Pulp, root	Madness, stomach disorder, mastitis, burnt skin and wound	Asthma [15]
3	<i>Argemone Mexicana</i> L.	Odosomari	Seed, bark, Leaf	Skin disease, syphilis, wound and rat bites	Cancer and viral fever [16]
4	<i>Asparagus racemosus</i> Wild	shatavari	Whole Plant	Protects pregnancy,	Rheumatism [17]
5	<i>Azadirachta indica</i> A. juss	Neema	Leaf, Bud	Boils, small pox, leprosy, skin disease	Mouth diseases and wounds [18]
6	<i>Calotropis gigantea</i> L.	Arakha	Root, Latex	Cat bite, headache and toothache	Induce abortion and migraine [19]
7	<i>Cassia occidentalis</i> L.	Bada chakunda	Seed, root	Eczema, filarial and asthma	Cough [19]
8	<i>Catharanthus roseus</i> (L). G.Don.	Sadabahar	Leaf, root	Skin disease, insect stings, diabetes and	Tumours [15]
9	<i>Centella asiatica</i> L.	Thalakudi	Leaf	Jaundice and for development of memory, I.Q and immunity	Anaemia [19]
10	<i>Cissampelos pareira</i> L.	Akanbindhi	Root, stem, bark	Leprosy, migraine, haemorrhoids and dysentery	Diabetes [20]

11	<i>Cissus quadrangularis</i> L.	Hadabhanga	Whole plant	Bone fracture and constipation	Appetizer <sup>[16]</sup>
12	<i>Clitoria ternatea</i> L.	Aparajita	Leaf, flower, fruit, root	Acne, boils and filarial	Used on poison affected area <sup>[19]</sup>
13	<i>Curculigo orchioides</i> Gaertn.	Talamuli	Root	Promotion of colour complexion, sexual strength, Dysuria and leucorrhoea	Diabetes and tonsillitis <sup>[19]</sup>
14	<i>Curcuma aromatic</i> Salisb.	Bana haladi	Rhizome	Blood dysentery, stomach disorder, indigestion, kill intestinal worms	Cardiovascular, Gastric disorder and snake bite. <sup>[21]</sup>
15	<i>Curcuma longa</i> L.	Haladi	Rhizome	Boils, eczema, chicken pox, allergies and kill worms	Ecchymosis <sup>[19]</sup>
16	<i>Cymbopogon martini</i> (Roxb.)	Dhanwantari	Leaf, Plant oil	Mosquito repellent, fever, constipation, cold, cough and headache	Asthma <sup>[22]</sup>
17	<i>Emblica officinalis</i> Gaertn.	ANLA	Fruit	Gout, Dysuria, urticaria, hair loss and dandruff	Dysentery <sup>[23]</sup>
18	<i>Euphorbia fusiformis</i> Buch.-Ham.exD.Don	Khirakanchana	Dry plant, root	Skin diseases and milk deficiency	Antibacterial activity <sup>[24]</sup>
19	<i>Euphorbia tirucalli</i> L.	Khadisiju	Latex, root	Toothache and stomach-ache	Rheumatism, anticancer and cough <sup>[25]</sup>
20	<i>Ficus benghalensis</i> Linn.	Bara	Bark, leaf	Mouth infection, skin diseases and diarrhoea	Sexual impotency <sup>[26]</sup>
21	<i>Hemidesmus indicus</i> R.Br.	Sugandhi	Root	Syphilis and piles	Teeth ache <sup>[21]</sup>
22	<i>Hibiscus rosasinensis</i> L.	Mandara	Flower, leaf	Growth of air and skin diseases	Leucorrhoea and indigestion <sup>[19]</sup>
23	<i>Lawsonia inermis</i> L.	Manjuati	Root, leaf	Jaundice and hair loss	Leprosy and skin diseases <sup>[19]</sup>
24	<i>Madhuca indica</i> Gmel	Mahula	Flower, root	Impotency and snake bite	Inflammation, snake bite and paralysis <sup>[27]</sup>
25	<i>Mesua ferrae</i> L.	Nageswara	Flower	Leucorrhoea, Menorrhagia and haemorrhoids	Antiarthritic <sup>[28]</sup>
26	<i>Mimosa pudica</i> L.	Lajakuli	Leaf, root	Eczema, piles and toothache	Psoriasis, wound and asthma <sup>[19]</sup>
27	<i>Murraya koenigii</i> (L).	Mersinga	Leaf	Belching and Hair loss	Diarrhoea, diabetes <sup>[24]</sup>
28	<i>Ocimum basilicum</i> L.	Durlava	Leaf, seed	Dysuria, cough and cold	Cold, cough and fever <sup>[22]</sup>
29	<i>Ocimum sanctum</i> L.	Tulasi	Leaf, seed	Diabetes, kill warts, cough and cold	Diabetes <sup>[22]</sup>
30	<i>Paederia foetida</i> (Lour). Merr	Posaruni	Leaf	Waist pain, blood dysentery and headache	Antidiabetic <sup>[29]</sup>
31	<i>Piper nigrum</i> L.	Gol maricha	Fruit	Nyctalopia, stomach pain during menstrual cycle, cough and cold	Indigestion <sup>[19]</sup>
32	<i>Phyllanthus niruri</i> Hook. F.	Badi anla	Whole plant	Leucorrhoea and alati	Leucorrhoea <sup>[18]</sup>
33	<i>Pongamia pinnata</i> L.	Karanja	Leaves	Diabetes, prevention of malaria and skin diseases	Mosquito bite and cold <sup>[17]</sup>
34	<i>Pterocarpus santalinus</i> L. F.	Rakta chandan	Bark, shoot	Headache, diarrhoea, burns and wounds	Hepatoprotective <sup>[30]</sup>
35	<i>Rauwolfia serpentine</i> Benth.ex.Kurz	Patalagaruda	Whole plant, leaf, rhizome	Fever, corneal capacity, high blood pressure and diabetes	Gonorrhoeal diseases <sup>[18]</sup>
36	<i>Saraca ashoka</i> (Roxb.) de Wilde.	Asoka	Bark, seed flower	Irregular menstruation, gum bleeding, Dysuria and calculus	For bleeding <sup>[19]</sup>
37	<i>Shorea robusta</i> Gaertn. F.	Sal	Bark, leaves	Measles, relieve pain from fractured spot	Curing wounds <sup>[31]</sup>
38	<i>Terminalia arjuna</i> Roxb.	Arjuna	Whole plant	Spermatorrhoea and acne	Heart disease <sup>[32]</sup>
39	<i>Tridax procumbens</i> L.	Bisalyakarani	Leaf	Cuts and wounds	Cuts and wounds <sup>[23]</sup>
40	<i>Zingiber officinale</i> Linn.	Ada	Rhizome	Vomiting, nausea, cold and indigestion	Gastroenteritis and whooping cough <sup>[19]</sup>

## Discussion

The prevalence of variety of climatic conditions puts India in a supreme position with respect to richness of tribal medicinal flora. Tribal medicinal formulation are popular among rural and unbanes of India. Interest on medicinal plant has been shown throughout the world because of the safe and effective on treatment on different diseases. The medicinal plants are used as cheap and safe remedies for various ailments by the tribal people. In our study all 40 plant species, herbs are found to be more (18) followed by tree (11), shrubs (10) and climber (1). Different parts of plants like leaves, roots, rhizome, inflorescence, fruits, seeds, flower, latex and bark are being used for different diseases include skin diseases, headache, stomach disorder, syphilis, diarrhoea, dysentery, eczema, hair loss, acne, cold and cough, piles, jaundice, snake bite, leprosy and asthma etc. But in other district and states same plants are

using against various diseases (Table 1).

## Conclusion

The information recorded from medicinal healers indicates that the tribals of these regions possess good knowledge of medicinal drugs. The collective efforts of ethnobotanists, phytochemists, pharmacognostical and pharmacologists are needed to document and evaluate the efficacy and safety of the claims. To test the scientific validity of the herbal preparation or drugs, clinical studies are required to be conducted. This can establish therapeutic properties of these preparations for safe and longer use. The indigenous knowledge and uses of medicinal plants of a particular area have to be analyzed to develop appropriate management measures (ex situ and in situ conservation) for best utilization of natural resources.<sup>32</sup>

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