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## Traditional Herbal Remedies for Various Diseases Used By Tribals of Boudh District, Odisha, India for Sustainable Development.

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An ethnobotanical survey was conducted to collect information about the medicinal plants used by different tribes in Boudh district of Odisha, India. Information presented here was gathered from various tribes of the district using an integrated approach of botanical collections and interview schedules. A total of 15 informants were interviewed and 35 ethnomedicinal plant species distributed in 27 families have been documented. Collected information depicts that Boudh tribes largely depend on medicinal plants to meet their primary health care needs.

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**Keyword:** Ethnomedicinal, Tribes, Boudh, Diseases, Odisha.

### 1. Introduction

All the plants on the earth are important for humanity as human beings are influenced in various ways by plants and their products. Existence of mankind is impossible without plant kingdom as they provide balanced ecosystems, major source of nutrition, preventive aspects of medicine, primitive aspects of health and curative aspect of disease. The World Health Organisation (WHO) has estimated that 80% of the people in the developing countries of the world rely on traditional medicines and 85% of the traditional medicines involve the use of plant extracts [1].

India has ancient history of use of plants in the indigenous system of medicine (Ayurveda, Unani, Sidha) in the dates back

over 5000 years. Ayurveda records over 8000 herbal remedies. India officially recognises over 2500 plants as having medicinal value and it has been estimated that over 6000 plants are used in traditional folk and herbal medicines [2].

Odisha, an eastern state of India is rich in floristic diversity as well as ancient folk literature, which may be trapped for information, since all systems of medicine have their roots in one way or the other in folk medicine and house hold remedies. As the rural Indian tribal villagers are deprived of modern health care system, they are highly dependent on traditional therapeutic methods of medicinal plants to meet their health care needs. The paper presents the use of folk medicinal plants against various

ailments of human beings of different tribes of Boudh districts of Odisha.

## 2. Study Area:

The district of Boudh is one of the centrally located district of Odisha, bounded in the north by river Mahanadi and Angul district, east by Nayagarh and Angul, south by Kandhamal and Nayagarh, west by river Tel and Sonepur district. It lies between 20° 22' - 20° 50' Northern latitudes and 83° 34' - 84° 49' Eastern longitudes. The district is situated in the valley of rivers like Tel and Mahanadi. The total population of the district is 3,73,372 (Census, 2001), out of which scheduled caste population is 81,710 and scheduled tribe population is 46,557. The total area of the district is 3098 sq km., being located in the Eastern Ghats, it possesses rich and diversified floristic composition with 1277.17 Sq. Km. forest cover which is 40.51% of geographical area. The average annual rainfall ranges between 160-200 mm, minimum and maximum temperature is 8 °C and 44 °C and soil type is red sandy to red loamy in nature. The whole area can be divided into the northern plains and southern elevated plateau harbouring tropical dry-deciduous, moist-mixed deciduous and semi-evergreen type of forests. Sal (*Shorea robusta* Gaertn.) is the dominant tree species with its usual associates [3-4].

The forest rich area is inhabited chiefly by the tribals. The tribals have their unique forest dependent life style and traditional concept on diseases and medicines. They are living under varying geo-ecological setting of hills and forest areas and far away from modern convenience of life. They are food gatherers, hunters, forest-land cultivators and minor forest produce collectors. Out of 6 million tribals, about 62 notified scheduled tribes for the state of Odisha, Boudh district is represented by 25 ethnic tribal communities. A careful scrutiny reveal that

the bulk of tribal population belongs to Kondh, Gond, Saura, Mirdhas, Mundas, Kharia, Kora, Kolha etc. with Kui as their lingua franca [6].

A detailed perusal of the ethnobotanical records, reveal that a number of outstanding botanists led several ethnobotanical studies in different parts of Odisha. From the literature it reveals that Boudh district with rich flora has remained ethno medicinally unexplored. Therefore present study has been undertaken to record less-known ethno medicines from different tribal communities of the district [7-13].

## 3. Materials and Methods:

Ethnobotanical surveys were conducted in different reserve forest namely Padmotola, Arakhpadar, Hatidhara, Aragarh, Mundesar, Podhal, Jamkhol as a part of research (Assessment of ethnic bioresources of Boudh district), among which 25 tribal dominated villages (randomly selected) of 10 Gram panchayats of Boudh district in different seasons from 2012 to 2013. Selected local inhabitants and the tribal medicine men (Gaon Disari) were interviewed to gather first-hand information on ethnomedicinal uses of plants.

These tribal village-heads & Gaon Disari were taken to the forests as guide-cum-informant for collection of voucher specimens. Standard methods necessary for taxonomic study have been followed for field collections. The plants were correctly identified with the help of Flora books. Matching of voucher specimens were done with the authentic herbarium at RRL-B and RPRC, Bhubaneswar. The herbarium specimens are preserved in the herbarium of the Department of Botany, Government (Autonomous) college, Angul, Odisha [14-17].

#### 4. Results

The present paper documents the ethnomedicinal uses of 35 plant species belonging to 27 families from forest area of Boudh district in Odisha to treat 26 different ailments and diseases affecting tribals of this area. Most of the species are in local distribution and few species are in cultivation in gardens. Different parts of medicinal plants are used in preparation of medicinal pastes or concoctions, the leaves and stems were the most frequently used parts followed by whole plant, fruits, roots

and latex or exudes. Most of the species are used to treat only one disease, only few diseases treated with more than one species. The plant species are arranged in alphabetical order according to scientific names for convenience. For each plant species given in the following table, details of scientific names, family, local names, locality with accession number and uses provided with the parts harvested for treatment and the manner of processing and administration.

**Table 1:** Ethnomedicinal Perspectives of Botanicals used by Tribals of Boudh District, Odisha.

Botanical names\ Family	Local names \Locality\ Voucher no.	Mode of administration\ Diseases
<i>Achyranthes aspera</i> L.	Ln. Apamaranga	About 20 gm of leaf juice is
Amaranthaceae	Loc. Atalsara-005	administered orally to the
		pregnant woman for easy
		delivery.
<i>Acorus calamus</i> L.	Ln. Bacha	About half teaspoonful of
Araceae	Loc. Semiguda-	powder prepared from dried
	602	rhizome is taken twice daily
		to cure Asthma.
<i>Aerva lanata</i> (L.) Juss.	Ln. Paunsia	10 gm. of dried plant powder
Amaranthaceae	Loc. Sankori-030	taken along with barley water
		thrice a day for about 45 days
		to dissolve Kidney stones &
		reduces urethral burning
		sensation.
<i>Aloe vera</i> (L.)Burm. f.	Ln. Ghikuanri	Mucilage is applied on the
Liliaceae	Loc. Jabar-025	eye-lids before bed for 7 days
		against Cataract.
<i>Bambusa arundinacea</i> (Retz.) Willd.	Ln. Kanta Baunsa	Leaves ground with seeds of
Poaceae	Loc. Bhabpur-	Sesamum &Trigonella and
	059	the paste mixed with honey is

		taken for 3 days to Abort pregnancy of 3 months.
<i>Bauhinia purpurea</i> L.	Ln. Barada	Dried seed paste mixed with
Caesalpinaceae	Loc. Hatigarh-051	coconut oil applied before bath eradicates the Lice.
<i>Butea monosperma</i> (Lam.) Taub.	Ln. Palasa	10-15 gm. of stem bark is
Fabaceae	Loc. Chhatrang-055	made into juice mixed with pinch of pepper powder and cow milk administered once in a month to dissolve Kidney stone.
<i>Calotropis gigantea</i> R. Br.	Ln. Arakh	2-3 leaves mildly heated with
Asclepiadaceae	Loc. Kumari-052	castor oil ( <i>Ricinus communis</i> ) and bandaged over the testicles every-day against Hydrocele.
<i>Catharanthus roseus</i> (L.) G. Don.	Ln.Sadabihari	Leaf paste is applied on
Apocynaceae	Loc. Kusang-111	tumors and decoction given orally in 30 ml. twice a day for 1 month against Cancer.
<i>Coccinea grandis</i> (L.) Voigt	Ln. Kunduri	Handful of leaves ground and
Cucurbitaceae	Loc. Nuapada-099	mixed with 10 ml.of country liquor given twice in a week against Heart ailments.
<i>Curculigo orchoides</i> Gaertn.	Ln. Talmuli	5 gm of powdered root tubers
Hypoxidaceae	Loc. Padmotola-126	mixed with cow milk is administered twice a week against Seminal disorders and Leucorrhoea.
<i>Diospyros melanoxylon</i> Roxb.	Ln. Kendu	Stem bark extract given to
Ebenaceae	Loc. Talpadar-	pregnant women in two

	327	spoonfuls with a glass of rice
		cooked water once in
		morning for 2 months from
		6 <sup>th</sup> & 7 <sup>th</sup> month of pregnancy
		against Anaemia.
<i>Eclipta prostrata</i> (L.)L. Mant.	Ln. Bhringaraj	Whole plant ground with
Asteraceae	Loc. Marding-183	black pepper, made into small
		pills. 2 pills twice a day for 3
		days is administered to
		infants against Jaundice
		& Fever.
<i>Evolvulus alsinoides</i> (L.)L. Sp.	Ln. Bichhamalia	Dried plant powder
Convolvulaceae	Loc. Gochhasahi-	administered in 2 spoonful
	233	twice a day for 2 months
		against Mental disorder.
<i>Ficus racemosa</i> L.	Ln. Dimiri	5-10 gm. of stem made into
Moraceae	Loc. Kutibari-191	paste added with pinch of soil
		from termite mounds and
		made into tablets, given daily
		once for 1 month against
		Cancer.
<i>Geniosporum tenuiflorum</i> (L.)Merr.	Ln. Bano Tulasi	Leaf paste is applied on bitten
Lamiaceae	Loc. Hinjol-640	area in Rat bite to get relief.
<i>Gloriosa superba</i> L.	Ln. Ognisikha	Tuber extract 1teaspoonful
Liliaceae	Loc. Sankhajuria-	taken twice a day for 5 days
	064	is administered upto 3 months
		pregnancy for abortion.
<i>Hedyotis corymbosa</i> (L.) Lam.	Ln. Gharpodia	Whole plant decoction given
Rubiaceae	Loc. Barapadar-	with a glass of butter-milk in
	483	3 spoonfuls twice a day for 5
		days against Jaundice.

<i>Hemidesmus indicus</i> (L.)R.Br.	Ln. Onontomul	Root extract mixed with
Periplocaceae	Loc. Sipori-508	honey is administered in
		2 spoonfuls thrice a day for 2-
		3 weeks for Blood
		purification.
<i>Holoptelea integrifolia</i> (Roxb.)Planch.	Ln. Dharanj	Stem bark decoction
Ulmaceae	Loc. Mundipadar-	administered in 20 ml. twice
	230	a day for 7 days against
		Rheumatism.
<i>Justicia adhatoda</i> L.	Ln. Basango	3-4 leaves made into juice,
Acanthaceae	Loc. Sagada-251	added with water & pinch of
		pepper powder, 2 spoonful
		given internally once in a day
		for a month against
		Bronchitis.
<i>Justicia gendarussa</i> Burm. f.	Ln. Kukurdanti	Decoction of leaves, tender
Acanthaceae	Loc. Kuchuru-	shoots and flower tops are
	521	given in chronic Rheumatism.
<i>Lantana camara</i> L.	Ln. Naguari	Leaf decoction given in 2-3
Verbenaceae	Loc. Dhalapur-	spoonful twice a day for 4
	498	days against Malaria.
<i>Manilkara zapota</i> (L.)P. Royen	Ln. Sapota	Stem bark ground with black
Sapotaceae	Loc. Ghantapada-	pepper & made into powder,
	545	mixed with sugar candy &
		cow milk and administered 2
		spoonful twice a day for 3
		months against Piles.
<i>Mucuna pruriens</i> (L.) DC.	Ln. Baidonko	10-15 seeds were soaked
Sapotaceae	Loc. Mundapada-	overnight and the water is
	296	given in empty stomach twice
		a week against Bone
		fractures.

<i>Nymphaea pubescens</i> Willd.	Ln. Nalikain	Rhizome ground with seeds
Nymphaeaceae	Loc. Gedrisahi-	of <i>Piper nigrum</i> and paste
	308	applied externally on neck
		against Goitre.
<i>Oxystelma esculenta</i> (L.f.) R.Br.	Ln. Dudhialata	Leaves boiled in Brassica oil
Asclepiadaceae	Loc. Baghiapada-	and applied on affected part
	505	against Scabies.
<i>Pedaliium murex</i> L.	Ln. Gokshura	Leaves and fruits ground
Pedaliaceae	Loc. Gundulia-	together into paste and is
	499	applied on testicles for a
		week in Hydrocele.
<i>Plumbago zeylanica</i> L.	Ln. Chitaparu	Root paste made into pills
Plumbaginaceae	Loc. Tutrung-341	and 2 pills taken twice a day
		for 5 days before to Abort
		pregnancy upto 3 months.
<i>Plumeria rubra</i> L.	Ln. Kathachampa	5-10 gm. of fresh root made
Apocynaceae	Loc. Domda-336	into paste is mixed with ghee
		administered once a day
		against Stomach ache.
<i>Semecarpus anacardium</i> L. f.	Ln. Bhalia	Exudations from the ripened
Anacardiaceae	Loc. Sampur-363	seeds is directly applied on
		affected parts against Neck &
		joint pains.
<i>Strychnos potatorum</i> L. f.	Ln. Nirmala	Seeds rubbed with water
Strychnaceae	Loc. Kanthisar-	and rock salt are applied in
	493	eye against Conjunctivitis.
<i>Syzygium cumini</i> (L.) Skeels	Ln. Jamu	Handful of stem bark is made
Myrtaceae	Loc. Kumari-529	into juice added with a pinch
		of pepper powder, along with
		cow milk, administered twice
		in a month to dissolve stone
		in Kidney.

<i>Tamarindus indica</i> L.	Ln. Kaiyan	Ruptured seed is applied on
Caesalpiniaceae	Loc. Hinjol-395	Snake bite.
<i>Tylophora indica</i> (Burm. f.) Merr.	Ln. Intrudia	100 gm. leaves & roots made
Asclepiadaceae	Loc. Gadimunda-	into paste, 1-2 spoonful taken
	411	orally with milk twice a day
		for 30 days against Asthma.

## 5. Discussions

The use of plants for the existence of human being is as old a practice as the human race itself. The accumulation of knowledge of plant use however co-evolved with human civilization through the experimental use of plants, generation after generation. The results of the present study revealed that wild plants and their parts are widely used for different diseases. Tribal people have remarkable detailed knowledge of species identity and characteristics. Out of 62 tribes notified as scheduled for the state of Odisha, as many 25 are found in the district. A careful scrutiny reveals that the bulk of population belongs to Kondh. Some major ailments and diseases such as cancer, heart diseases, kidney-stones, skin diseases, abortion inducing drugs, respiratory diseases etc were being effectively treated using traditional knowledge and locally available plant resources. *Ficus racemosa* and *Catharanthus roseus* are used to treat cancer, *Coccinea grandis* is used to treat heart complaints, *Butea monosperma* and *Syzygium cumini* are used to treat kidney-stones, *Geniosporum tenuiflorum* and *Tamarindus indica* are used against poisonous bite.

In this study 35 plant species belonging to 27 families have been recorded. Many plant species belonging to families of Acanthaceae, Asclepiadaceae and Apocynaceae are frequently used. Healers in the area diagnose disease based on symptoms but sometimes they may also associate it to spirit. Therefore, preparation

of medicines and treatment of diseases are sometimes accompanied by rituals. Tribal practitioner use plant products raw or taken as decoction\ infusion and paste. The most important aspect of the tribals in this region is that fresh plant material is used for the preparation of medicine. From this study it is clear that Boudh tribal possess innate ability to discern the character of plants and exploit the plant resources to meet their health care needs.

## 6. Conclusion

Due to the growing importance of ethnobotanical studies, it is necessary to collect the informations about the knowledge of traditional medicines, preserved in tribal and rural communities of various parts of Boudh before it is permanently lost. The anthropogenic unsustainable activities such as deforestation, habitat destruction, urbanization etc. may pose a serious threat to species. Hence, priority should be given to the following three measures.

1. Investigation related to taxonomy, chemical screening and documentation of the useful species and their habitats;
2. Initiation of conservation action works with appropriate measures involving local participation;
3. Implementation of awareness activities with integrated approach for sustainable development.

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