



## STUDY ON THE ETHNOMEDICINAL PLANTS OF PARASNATH HILLS OF JHARKHAND

<b>Kalpna Prasad</b>	Department of Life Science, Binod Bihari Mahto Koyalamchal University, Dhanbad, Jharkhand.
<b>Neha Upadhyay</b>	Department of Life Science, Binod Bihari Mahto Koyalamchal University, Dhanbad, Jharkhand.
<b>Nabin Kumar Mahto</b>	Department of Life Science, Binod Bihari Mahto Koyalamchal University, Dhanbad, Jharkhand.
<b>Jaya Jayantika</b>	Department of Life Science, Binod Bihari Mahto Koyalamchal University, Dhanbad, Jharkhand.
<b>Bharti Priya</b>	Department of Life Science, Binod Bihari Mahto Koyalamchal University, Dhanbad, Jharkhand.
<b>Sushmita Gope</b>	Department of Life Science, Binod Bihari Mahto Koyalamchal University, Dhanbad, Jharkhand.
<b>Sachin Kumar</b>	Department of Life Science, Binod Bihari Mahto Koyalamchal University, Dhanbad, Jharkhand.
<b>Ayan Acharjee</b>	Department of Life Science, Binod Bihari Mahto Koyalamchal University, Dhanbad, Jharkhand.
<b>Shruti Kumari</b>	Department of Life Science, Binod Bihari Mahto Koyalamchal University, Dhanbad, Jharkhand.

### ABSTRACT

This paper deals with the ethno-medicinal survey of Parasnath hills, located in Giridih district of Jharkhand (India). The centuries old Jain Shrine of Parasnath hill was once known for the widespread presence of rich biodiversity, is gradually losing its glory and its ethnomedicinal plants are on the verge of extinction. The present work enlisted 25 ethnomedicinal plants belonging different families, in the survey site of Parasnath hill, their medicinal use on the basis of traditional knowledge of vaidyas and elderly people, local communities which were interviewed. The survey was done in the month of June 2023.

**KEYWORDS :** Ethnomedicinal plants, Parasnath hills, traditional knowledge, indigenous plants.

### INTRODUCTION

Jharkhand is also known as treasure of medicinal plants. People of Jharkhand (literally means bush land) and symbolically are associated with forests. Various ethnic groups like Munda, Oraon, Santhal, Paharia and others live in symbiotic relations with forests. Parasnath is an ancient mountain peak and is also most important pilgrimage centre in Giridih district of Jharkhand. The hill is named after 23rd Jain Trithankara, Parshvanath who got salvation here. The Hill is also known as Marang Buru (meaning Great mountain of Supreme deity) by Santhals. Parasnath is rich in endemic flora and comprise species rich and floristically diverse area with flora and fauna.

The studied area is covered by forests a 6050.38 hectares, which is very interior & naxal affected local people still thrives on local vaidyas for the treatment of ailments. The widespread use of herbal remedies and health care preparations is described in the Vedas. Awareness of medicinal plants usage is a result of many years of struggle against illness due to which people learned to pursue drugs in Barks, Seeds, fruit bodies and other parts of plants.

Ethnobotany comes from the term ethnology which means the study of culture, hence it is the scientific study of plants and human relationship which give side a that plant are primary source of need. It deals with ethno-medicines which involves the study of Indigenous belief, concept, knowledge and practices among the ethnic group of tribal and rural people for preventing, curing and treating several diseases (Mahato *et al.*, 1996; Kumar and Mishra, 2011; Paradva *et al.*, 2016; Kumar, 2019; Oraon and Dhan, 2019; Pandey *et al.*, 2020;

Mishra and Pande, 2021). Many of the traditional knowledge has not been documented in the literature and has been passed from one generation to other (Sahu *et al.*, 2003; Prasad, 2015; Raul and Chatterjee, 2021; Tirkey and Amit, 2023). Hooker (1848) was the first Botanist to study the Flora of Parasnath Hills, Bihar. The medicinal plants of Prasnath and Giridih district was carried by Kumari and Kumar (2016), Ravidas and Mishra (2018) and Mishra *et al.* (2021). According to WHO medicinal plants are the plants within which one or more of its part contain various bioactive compound, which are also called as secondary metabolites, which are the reason for medicinal value, this can be glycoside tannins, steroids, alkaloids, terpenoids and essential oil; and are used for various therapeutic purpose and serve as a precursor for chemo- pharmaceutical semi-synthesis. In future it is there for very important to pursue steps that do not deviate from shifting the view of tribal people toward their indigenous belief in the treatment of disease to develop successful drugs and can be better option in developing plant-based drugs rather than chemical-based drugs.

### MATERIALS AND METHODS

#### Study Area

Parasnath is located towards the eastern end of the Chota Nagpur Plateau in Giridih in the northern part of the state. It lies approximately 159 Kilometers (99 miles) north east of Ranchi with altitude of 1,365 metres (4,478 ft) above sea level. It is located at coordinates: 23°57'48" N latitude and 86.0744 E longitudes and a total of 6489 hectares area covered by the Parasnath hill. The fringe villages include; Nimiyaghat, Isri, Madhuban, Jainnagar, etc.

It lies on NH-2 Delhi-Kolkata highway called as Grand Trunk road Shikharji rises to 4,429 feet (1338 metres) making it the highest mountain peak of Jharkhand is the Pilgrimage to Shikharji is a round trip of 30 kilometers through the Madhuban forest. Temperature ranges from 10°C in winter to 43°C in summer. There is variation in climate & significant change in elevation. Average annual rainfall is about 1300 m. The vegetation is of mixed deciduous type and is dense high elevation where as it is scattered in the areas where human movement more. Total sown /agricultural area is 36.39 hectares. About 37.82 hectares land is unirrigated and 1.62 hectares of land is irrigated. About 19% 63 hectares is non-agricultural. 24.13 hectares is used as permanent pastures and grazing lands. 58.51 hectares is culturable wasteland. About 61 hectares is covered by barren uncultivable land. Soil Red and yellow soil with minerals like mica, quartz, schist. Red domant, Red gravel light Black and Laterite soil are found.



Figure 1. Geographical Location of the study area

**Field Survey Technique**

The whole study area was divided into sectors and field visit was done. Ethnomedicinal data was gathered through open conversation, with local informants between the ages of 35 and 70 years. Questionnaire were prepared plant were collected, herbaria were prepared and their identification were done. Local People, vaidyas and elderly people were interviewed for medicinal properties of those plants. Standard texts were consulted for their medicinal uses.

**Table 1. Respondent Of The Ethno-medicinal Survey At Parasnath**

Sl. No	Name	Age	Occupation
1	Choraman Mahto	60 yrs	Provides drinking water to the visitors
2	Keshav Kumar Tiwari	55 yrs.	Local Vaidya
3	Ashok Kumar	40 yrs.	Rides visitors to the temple
4	Bhaskar Jyoti Sarkar	56 yrs.	Horticulturist

5	Neeta Devi	43 yrs.	Owner of Saddhu hotel, Parasnath
6	Dinesh Kumar	48 yrs.	Shopkeeper
7	Sonari Devi	57 yrs.	Beggar, Picks Sal fruits.
8	Satish Kumar Mahato	35 yrs.	Rides visitors to the temple



Figure 2. Questionnaire survey and Interviews with the respondents

**RESULT AND DISCUSSION**

The data on ethnomedicinal Survey of plants of Parasnath area of Jharkhand is presented in Table, contains 25 identified species of plants belonging to Angiosperms, used as traditional medicinal plants for the cure of various diseases. In total, 25 plant species belonging to 17 families were reported. The family Fabaceae had the highest proportion of medicinal plants used (23%), followed by Apocynaceae (12%), Combretaceae and Rutaceae (8% each). Each of all other families had less than six plant species associated with the treatment of the diseases documented in Table 2.

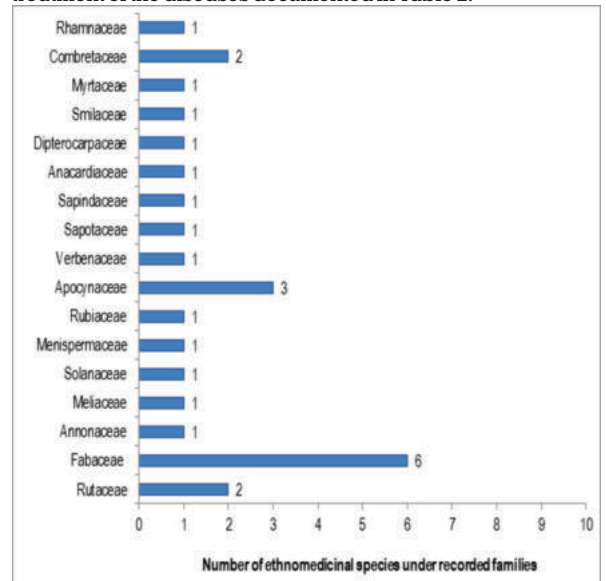


Figure 3. Ethnomedicinal species distributed in different families of plants

A total of 25 plants were identified and studied in this work (Table 2). Plants of different growth forms were identified in this survey, in which there is the dominance of trees. This concludes that the forest cover is more in Parasnath hill with more number of trees. This study reveals that there are Tree (72%), Shrub (20%), herb (4%) and Climber (4%) (Figure 4).

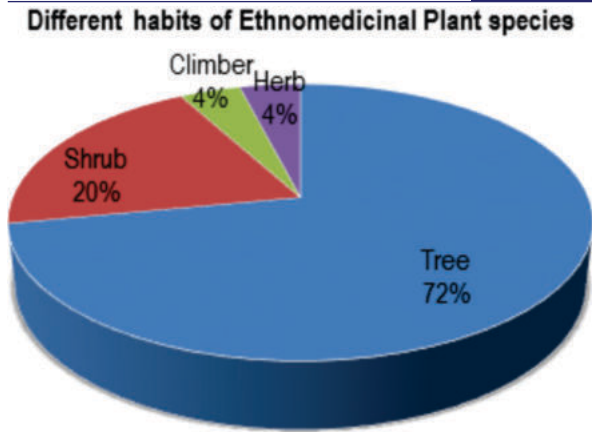


Figure 4. Plants habits of recorded ethnomedicinal species

At least 65.9% of all medicinal plants recorded were collected from the wild, while only 26.7% were collected from cultivated land. The most frequently utilized medicinal plant parts were leaves (41.3%), followed by roots (29.0%), bark (21.7%), seeds (5.3%), and fruits (2.6%) as shown in Figure 5. Roots were mostly used in the treatment of stomachache, diarrhea and inflammatory diseases, while leaves were mostly used in the treatment of malaria, skin diseases and for the cure of diseases among children. The most frequently utilized plant parts were leaves, is a more sustainable practice as opposed to where roots and/or the bark are used (Table 3).

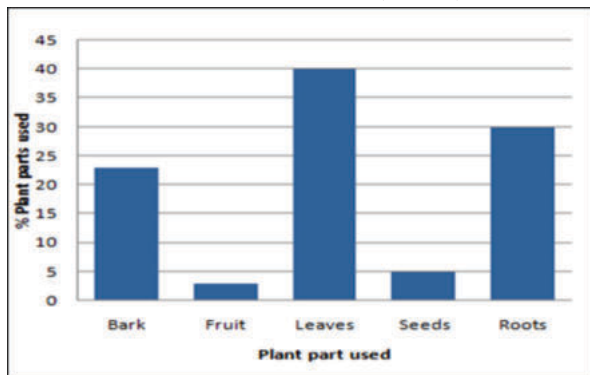


Figure 5. Plant parts uses by various purpose of ethnomedicine by the local communities

Some methods of harvesting medicinal plants like root excavation and bark stripping can be devastating and a threat to the plant survival. The high utilization of roots has also been reported as putting many plant species at a risk of extinction because of the damages inflicted on the min the course of uprooting them. Leaves are used for preparation of traditional herbal remedies. This practice helps to reduce the rate of threat on plant species and enhance the sustainable management of plants. Leaves of plants contain inulins, tannins and other alkaloids, which may be responsible for their various medicinal properties, hence explaining their wide use.

Table 2. Checklist Of Plants Recorded At Parasnath In June 2023

S. No.	Botanical Name	Common Name	Family	Habit
1.	<i>Aegle marmelos</i> (Linn.)Correa	Bel	Rutaceae	Tree
2.	<i>Albizia lebbbeck</i> (Linn.)	Siris	Fabaceae	Tree
3.	<i>Annona squamosa</i> (Linn.)	Sugar custard	Annonaceae	Tree
4.	<i>Azadirachta indica</i> (A. Juss.)	Neem	Meliaceae	Tree

5.	<i>Bauhinia variegata</i> (Linn.) Benth	Kachnaar	Fabaceae	Tree
6.	<i>Butea monosperma</i> (Lam.) Taub.	Palas	Fabaceae	Tree
7.	<i>Cestrum diurnum</i> (Linn.)	Jasmine	Solanaceae	Shrub
8.	<i>Cissampelos pareira</i> (Linn.)	Laghu patta	Menispermaceae	Climber
9.	<i>Gardenia latifolia</i> (J.Ellis.)	Papra	Rubiaceae	Shrub
10.	<i>Hemidesmus indicus</i> (Linn.)	Anantmoool	Apocynaceae	Herb
11.	<i>Hollarhena antidysenterica</i> (Wall.)	Indrajao	Apocynaceae	Tree
12.	<i>Lantana camara</i> (Linn.)	Lantana	Verbenaceae	Shrub
13.	<i>Madhuca longifolia</i> (Koen.) Mac Br.	Mahua	Sapotaceae	Tree
14.	<i>Milletia pinnata</i> (Linn.)Panigrabi	Karanja	Fabaceae	Tree
15.	<i>Muraya koenigii</i> (Linn.) Spreng.	Meetha neem	Rutaceae	Tree
16.	<i>Pterocarpus marsupium</i> (Roxb.)	Vijaysar, Bijasal	Fabaceae	Tree
17.	<i>Schleichera oleosa</i> (Lour.) Oken	Kusum	Sapindaceae	Tree
18.	<i>Semecarpus anacardium</i> (Linn.)	Bhilawa	Anacardiaceae	Tree
19.	<i>Shorea robusta</i> (Roth.)	Sal	Dipterocarpaceae	Tree
20.	<i>Smilax ovalifolia</i> (Roxb.exD.Don)	Kumarika, Bhitura	Smilacaceae	Shrub
21.	<i>Syzygium cumini</i> (Linn.)Skeels	Jamun	Myrtaceae	Tree
22.	<i>Terminalia arjuna</i> (Roxb.) Wight & Arn.	Arjunatree	Combretaceae	Tree
23.	<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Bahera	Combretaceae	Tree
24.	<i>Thevetia peruviana</i> (Pers.) K. Schum	Kaner	Apocynaceae	Tree
25.	<i>Ziziphus jujube</i> (Lam.)	Ber	Rhamnaceae	Tree

Table 3. Medicinal Uses Of Plants As Per Respondentsethnomedicinal Plants Recorded In Parasnath Area (June 2023)

S. No	Disease	Plant Species Used
1	Digestion related issues	<i>Aegle marmelos</i> , <i>Cestrum diurnum</i> , <i>Cissampelos pariera</i> , <i>Gardenia latifolia</i> , <i>Gleditsia triacanthos</i> , <i>Milletia pinnata</i> , <i>Semecarpus anacardium</i> , <i>Terminalia bellirica</i> , <i>Ziziphus mauritiana</i>
2	Skin diseases	<i>Azadirachta indica</i> , <i>Bauhinia variegata</i> , <i>Cissampelos pariera</i> , <i>Gardenia latifolia</i> , <i>Hemidesmus indicus</i> , <i>Lantana camara</i> , <i>Milletia pinnata</i> , <i>Pterocarpus marsupium</i> , <i>Semecarpus anacardium</i> , <i>Thevetia peruviana</i>
3	Diabetes	<i>Aegle marmelos</i> , <i>Annonas quamosa</i> , <i>Azadirachta indica</i> , <i>Bauhinia variegata</i> , <i>Madhuca longifolia</i> , <i>Pterocarpus marsupium</i> , <i>Syzygium cumini</i>
4	Urinary Problems	<i>Bauhinia variegata</i> , <i>Cissampelos pariera</i> , <i>Hemidesmus indicus</i> , <i>Pterocarpus marsupium</i> , <i>Shorea robusta</i> , <i>Terminalia arjuna</i>
5	Jaundice	<i>Bauhinia variegata</i>



6	Fever	<i>Aegle marmelos</i> , <i>Azadirachta indica</i> , <i>Bauhinia variegata</i> , <i>Cestrum diurnum</i> , <i>Cissampelos pariera</i> , <i>Gardenia latifolia</i> , <i>Hemidesmus indicus</i> , <i>Hollarhena antidysenterica</i> , <i>Lantana camara</i> , <i>Pterocarpus marsupium</i> , <i>Swietenia macrophylla</i> , <i>Terminalia bellirica</i> , <i>Thevetia peruviana</i> , <i>Ziziphus mauritiana</i>
7	Cough and cold	<i>Gleditsia triacanthos</i> , <i>Lantana camara</i> , <i>Madhuca longifolia</i> , <i>Semecarpus indicus</i> , <i>Shorea robusta</i> , <i>Thevetia peruviana</i> .
8	Ulcers	<i>Bauhinia variegata</i> , <i>Lantana camara</i> , <i>Madhuca longifolia</i> , <i>Shorea robusta</i> , <i>Syzygium cumini</i> , <i>Terminalia arjuna</i>
9	Diarrhoea	<i>Aegle marmelos</i> , <i>Bauhinia variegata</i> , <i>Butea monosperma</i> , <i>Cissampelos pariera</i> , <i>Gardenia latifolia</i> , <i>Pterocarpus marsupium</i> , <i>Swietenia macrophylla</i> , <i>Syzygium cumini</i> , <i>Terminalia bellirica</i> , <i>Ziziphus mauritiana</i>
10	Dysentery	<i>Aegle marmelos</i> , <i>Bauhinia variegata</i> , <i>Cissampelos pariera</i> , <i>Hollarhena antidysenterica</i> , <i>Lantanacamara</i> , <i>Murraya koenigii</i> , <i>Pterocarpus marsupium</i> , <i>Shorea robusta</i> , <i>Swietenia macrophylla</i> , <i>Syzygium cumini</i>
11	Female reproductive health	<i>Bauhinia variegata</i> , <i>Cissampelos pariera</i> , <i>Hemidesmus indicus</i> , <i>Madhuca longifolia</i> , <i>Millettia pinnata</i> , <i>Semecarpus anacardium</i> , <i>Terminalia arjuna</i>
12	Thyroid related issues	<i>Bauhinia variegata</i> , <i>Shorea robusta</i>
13	Menstrual problems	<i>Bauhinia variegata</i> , <i>Thevetia peruviana</i>
14	Tonsillitis	<i>Bauhinia variegata</i>
17	Blood purifier	<i>Bauhinia variegata</i> , <i>Cissampelos pariera</i> , <i>Hemidesmus indicus</i> , <i>Syzygium cumini</i> , <i>Terminalia arjuna</i> , <i>Ziziphus mauritiana</i>
18	Ringworm	<i>Butea monosperma</i> , <i>Thevetia peruviana</i>
19	Blood pressure	<i>Butea monosperma</i>
20	Pain	<i>Cestrum diurnum</i> , <i>Shorea robusta</i> , <i>Thevetia peruviana</i>
21	Psoriasis	<i>Cestrum diurnum</i> , <i>Millettia pinnata</i>
22	Wound healer	<i>Cissampelos pariera</i> , <i>Gardenia latifolia</i> , <i>Lantana camara</i> , <i>Shorea robusta</i> , <i>Swietenia macrophylla</i> , <i>Terminalia arjuna</i> , <i>Thevetia peruviana</i> , <i>Ziziphus mauritiana</i>
23	Snakebite	<i>Cissampelos pariera</i> , <i>Hemidesmus indicus</i> , <i>Murraya koenigii</i> , <i>Thevetia peruviana</i>
24	Leprosy	<i>Cissampelos pariera</i> , <i>Lantana camara</i> , <i>Terminalia bellirica</i>
25	Kidney Stone	<i>Gardenia latifolia</i>
26	Rheumatism	<i>Gardenia latifolia</i> , <i>Hemidesmus indicus</i> , <i>Lantana camara</i>
27	Dog bites	<i>Cissampelos pariera</i>
28	Anti Cancer properties	<i>Gleditsis triacanthos</i> , <i>Ziziphus mauritiana</i>
29	Syphilis	<i>Hemidesmus indicus</i> , <i>Thevetia peruviana</i>
30	Leucorrhoea	<i>Hemidesmus indicus</i> , <i>Shorea robusta</i>
31	Gonorrhoea	<i>Hemidesmus indicus</i> , <i>Shorea robusta</i>
32	Anaemia	<i>Hemidesmus indicus</i> , <i>Shorea robusta</i> , <i>Swietenia macrophylla</i> , <i>Ziziphus mauritiana</i>
33	Depression	<i>Hemidesmus indicus</i>

34	Scabies	<i>Lantana camara</i>
35	Tumors	<i>Lantana camara</i>
36	Tetanus	<i>Lantana camara</i>
37	Bleeding gums/ Strengthen gums	<i>Madhuca longifolia</i> , <i>Millettia pinnata</i> , <i>Murraya koenigii</i> , <i>Terminalia arjuna</i>
38	Constipation	<i>Gardenia latifolia</i> , <i>Madhuca longifolia</i> , <i>Semecarpus anacardium</i> , <i>Shorea robusta</i> , <i>Thevetia peruviana</i>
39	Piles	<i>Millettia pinnata</i> , <i>Shorea robusta</i> , <i>Terminalia bellirica</i>
40	Whooping cough	<i>Millettia pinnata</i>
41	Vomiting	<i>Murraya koenigii</i>
42	Male reproductive system	<i>Semecarpus anacardium</i>
43	Asthma	<i>Semecarpus anacardium</i> , <i>Shorea robusta</i> , <i>Syzygium cumini</i> , <i>Ziziphus mauritiana</i>
44	Cardiac stimulant	<i>Semecarpus anacardium</i> , <i>Terminalia arjuna</i>
45	Malaria	<i>Azadirachta indica</i> , <i>Swietenia macrophylla</i>
46	Blood cholesterol	<i>Terminalia arjuna</i>
47	Fractured bones	<i>Terminalia arjuna</i>
48	Hair health	<i>Azadirachta indica</i> , <i>Ziziphus mauritiana</i>

Plants recorded in Parasnath Area of Jharkhand (June 2023)

**CONCLUSION**

The present survey revealed that the Parasnath hill is rich in medicinal plants and are used by indigenous people of this area, to treat various ailments. Although modern health-card are available but indigenous people still relies on traditional medicine which indicates the significance of ethnomedicinal plant. Generally herbal healers or vaidyas of this area use these plants for the purpose of treatment of different ailments. They either use parts of the plant with some oil or make its dried powder and mix them with some oil for the convenience of use. Now-a-days a few vaidyas are practicing in this region. There is no such written records with local people they only learn the medicine system from generation to generation by words of mouth or by practice. Present generation, hardly has any knowledge of plants and have their proper utilization, they don't even value these useful remedies.

Seeing this alarming situation it needs further extensive and inclusive investigation to suggest method of conservation as well as preservation of not only the medicinal plant but also the forest and environment as a whole. Earlier fragmented work on enumeration of vegetation of Parasnath has been carried out. In the present work comprehensive study on assessment of 25 different ethnomedicinal plant species of this region is done.

This study will be useful as are ference for traditional medicine healthcare and Pharmacology Conservation, economic opportunities for further future generation. Pharmacological industries are plant based. Several synthetic drugs are manufactured by using chemical substances are isolated from plants. There are appropriate source of information about useful medicinal plant species, and can be targeted for management and domestication. In recent era the role of medicinal plant species in traditional health practice has diverted the attention of researchers towards ethnomedicinal plants; therefore, proper steps towards conservation of the traditional knowledge, natural and traditional practices are required to maintain the sustainability of knowledge of

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