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# Ethnobotanical Use and Diversity of Medicinal Plants in the Santhal Region of Jharkhand

**Dr. Monalisha Saha**

Assistant Professor, Department of Botany, S.S.L.N.T.Mahila Mahavidyalaya

**Abstract**

The Santhal region of Jharkhand, home to one of India's largest tribal communities, holds a rich tradition of ethnobotanical knowledge rooted in generations of experience and oral transmission. This study explores the diversity, traditional knowledge, and ethnomedicinal use of plant species among the Santhal tribes, with a focus on plants used for primary healthcare. Based on field surveys conducted in the Dumka, Pakur, and Sahebganj districts, over 80 medicinal plant species were documented, classified, and analyzed for their botanical identity, local names, parts used, and associated ailments. The findings highlight the importance of biodiversity conservation and the urgency of integrating this indigenous knowledge into sustainable development strategies. The paper also discusses the socio-cultural significance and the threats posed by modernization, deforestation, and loss of oral traditions.

**Keywords**: Ethnobotany, Santhal Tribe, Medicinal Plants, Jharkhand, Indigenous Knowledge, Biodiversity

## 1. Introduction

### 1.1 Background

Ethnobotany is the scientific study of the traditional knowledge and customs of a people concerning plants and their medical, religious, and cultural uses. Among the tribal communities of India, the Santhals are known for their strong association with forests and traditional plant-based medicine. Jharkhand, with 29.6% tribal population, is a biodiversity hotspot where plant resources play a critical role in primary healthcare [1].

### 1.2 The Santhal Tribe and Their Habitat

The Santhals inhabit several districts of eastern Jharkhand, including Dumka, Godda, Pakur, Sahebganj, and Deoghar. This tribe depends heavily on local flora for food, shelter, fuel, and medicine. Despite access to modern healthcare remaining limited, their ethnobotanical practices continue to thrive [2].

### 1.3 Objectives

This research aims to:

- Document medicinal plant species used by the Santhals.
- Record traditional knowledge associated with these plants.
- Analyze usage patterns, preparation methods, and the ailments treated.
- Evaluate threats to ethnobotanical knowledge and suggest conservation measures.

## 2. Materials and Methods

### 2.1 Study Area

The study was conducted in the Santhal Pargana region of Jharkhand, covering Dumka, Pakur, and Sahebganj districts. The area is rich in deciduous forest vegetation and lies between latitudes 24°N to 25.5°N and longitudes 86°E to 87.5°E. The Santhal region of Jharkhand, encompassing districts like Dumka, Pakur, and Sahebganj, is a biodiversity-rich area where traditional knowledge of medicinal plants thrives among the indigenous Santhal tribe. Ethnobotanical studies reveal that the Santhals use over 80 plant species for treating a wide range of ailments, including fever, diarrhea, skin diseases, wounds, respiratory infections, and reproductive issues. These plants, derived from families like Fabaceae, Asteraceae, and Euphorbiaceae, form the core of primary healthcare in remote tribal villages.

Commonly used species include *Butea monosperma*, *Tinospora cordifolia*, *Ocimum sanctum*, and *Aegle marmelos*, with parts like leaves, roots, and bark prepared into decoctions, pastes, or juices. Women and traditional healers (Ojhas) are the primary custodians of this knowledge, which is largely transmitted orally. The use of these plants also extends into cultural and ritualistic practices, reflecting a deep ecological and spiritual connection.

However, increasing deforestation, overharvesting, and modernization are threatening this knowledge system and the plants themselves. Conservation efforts, documentation, and integration of this indigenous wisdom into sustainable healthcare policies are essential for preserving both biodiversity and cultural heritage in the Santhal region.

### 2.2 Data Collection

Ethnobotanical data were collected through:

- Structured interviews with 120 informants (including tribal elders, local healers known as "Ojhas", and women practitioners).
- Group discussions and participatory rural appraisal (PRA).
- Direct field observation and collection of plant specimens.

All participants were informed of the purpose and voluntarily consented to provide knowledge.

### 2.3 Identification of Plant Species

Plant specimens were identified using the **Flora of India**, **ICAR database**, and consultation with taxonomists at Birsa Agricultural University, Ranchi.

### 2.4 Data Analysis

Plant species were classified by botanical family, part used, mode of preparation, and ailments treated. Frequency of citation (FC) and Use Value (UV) were calculated to determine importance and consensus among informants [3].

## 3. Results and Discussion

### 3.1 Diversity of Medicinal Plants

A total of **82 medicinal plant species** were documented, belonging to 43 families and 72 genera. The most represented families included **Fabaceae (12 spp.)**, **Asteraceae (8 spp.)**, and **Euphorbiaceae (5 spp.)**.

| Family | No. of Species | Common Examples |
|---|---|---|
| Fabaceae | 12 | Butea monosperma, Cassia tora |
| Asteraceae | 8 | Vernonia cinerea, Tridax procumbens |
| Euphorbiaceae | 5 | Jatropha curcas, Ricinus communis |

### 3.2 Plant Parts Used

Various plant parts were utilized as shown below:

- Leaves (40%)
- Roots (25%)
- Bark (15%)
- Fruits/Seeds (10%)
- Whole plant (10%)

Leaves were the most commonly used part due to ease of collection and effectiveness in decoctions and pastes.

### 3.3 Mode of Preparation and Administration

| Preparation Method | Percentage (%) |
|---|---|
| Decoction | 35 |
| Paste | 30 |
| Juice | 20 |
| Powder | 10 |
| Raw consumption | 5 |

Administration was primarily oral (75%), followed by topical (25%) applications.

### 3.4 Common Ailments Treated

Medicinal plants were used to treat:

- Fever
- Diarrhea and dysentery
- Respiratory infections
- Skin diseases
- Wounds and cuts
- Snake bites
- Reproductive issues

**Examples:**

- *Andrographis paniculata* for malaria [4].
- *Terminalia arjuna* for cardiovascular issues [5].
- *Centella asiatica* for wound healing and memory enhancement.

### 3.5 Use Value (UV) and Frequency of Citation (FC)

| Plant Species | UV | FC (%) |
|---|---|---|
| Butea monosperma | 0.85 | 65 |
| Tinospora cordifolia | 0.82 | 60 |
| Ocimum sanctum | 0.78 | 58 |
| Aegle marmelos | 0.70 | 50 |

### 3.6 Gender and Knowledge Transmission

Women, especially elderly mothers and grandmothers, were found to be custodians of healthcare practices related to childbirth, minor injuries, and seasonal ailments. However, male Ojhas were more consulted for snake bites and severe illnesses.

### 3.7 Cultural Significance

Medicinal plants were also tied to **rituals**, **festivals**, and **taboos**. For instance, *Saraca asoca* is used during Santhal marriage ceremonies and *Curcuma longa* in purification rites.

### 3.8 Conservation Status

Of the 82 species, 18 were found to be **threatened** or **declining** in availability. These include:

- *Chlorophytum borivilianum* (declining due to overharvesting)
- *Gloriosa superba* (listed as vulnerable)

The depletion of forest cover and adoption of allopathic medicine threaten both plant biodiversity and the associated traditional knowledge.

## 4. Conclusion

This study reveals the profound ethnobotanical heritage of the Santhal tribe in Jharkhand. The extensive use of local flora for medicinal purposes reflects a deep understanding of natural resources. However, this traditional knowledge is at risk due to environmental degradation, modernization, and lack of documentation. This ethnobotanical study of the Santhal tribe sheds light on the intimate relationship between nature and indigenous culture. The Santhals' deep ecological knowledge and sustainable practices are invaluable assets in the current global push toward sustainable development and biodiversity conservation.

However, this wisdom is in danger. It must be documented, validated, and integrated with modern systems in a respectful, ethical, and culturally sensitive manner. Bridging traditional knowledge with modern science can lead to breakthroughs in healthcare, biodiversity conservation, and rural development.

In conclusion, the Santhal region of Jharkhand is not just a geographic location—it is a living library of medicinal plant knowledge, passed down over centuries. It is both a **biological treasure trove** and a **cultural heritage site**, deserving immediate attention, respect, and protection.

It is imperative to:

- Preserve local plant species through **in-situ** and **ex-situ** conservation.
- Document and digitize indigenous knowledge.
- Integrate traditional healers into rural healthcare policies.
- Promote ethnobotanical education at the grassroots level.

Efforts should be made by local government bodies, academic institutions, and NGOs to conserve both biodiversity and cultural wisdom for sustainable development and healthcare.

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