

Ethnobotanical Survey Of Medicinal Plants Used By Local Tribal Community Of Madhya Pradesh, India Region

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Abstract

This research seeks to document and assess the traditional medical practices and utilization of ethnomedicinal plants by the local tribal communities of Bharias, Baigas, and Gonds in Madhya Pradesh, specifically in the villages surrounding Patalkot, Silpidi, and Patangarh, which are among the least explored regions of the state. The research recorded 67 plant species across 59 genera and 35 families. Sixty-seven medicinal plants are utilized to address thirty-one diseases, with the predominant application being for cough treatment (7 plants). The Fabaceae family comprises the greatest number of species, totaling 10. Leaves from 23 species are utilized for medical applications. This data is beneficial for pharmacologists, foresters, environmentalists, researchers, and others interested in herbal medicine.

Keywords: Bharias, Baigas, Gond tribe; Ethnomedicinal plants; Tribal healers; Herbal medicine

1. INTRODUCTION

Since antiquity, humans have utilized beneficial compounds derived from medicinal plant species to treat and remedy numerous ailments. Although traditional medicines remain the predominant healthcare system in numerous underdeveloped communities, such as tribal populations, due to their efficacy, absence of modern medical options, and cultural inclinations, medicinal plants present a feasible alternative to primary healthcare in developing nations. Historically, both tribal and rural populations have employed medicinal herbs sourced from the wild. This information is transmitted from one generation to another¹. The dissemination of such information is affected by exposure to contemporary culture, accelerated land degradation, availability of modern amenities, and urban development processes that alter community locations. Currently, the World Health Organization (WHO) estimates that 80% of the populations in Asian and African countries utilize herbal medicine for various health care purposes. Despite the empirical basis of conventional medical practices, it is estimated that over 200 million individuals in India depend on various aspects of the traditional medical system to fulfill their healthcare requirements due to restricted access to organized primary healthcare service centers. India is home to 67.37 million tribal individuals from 537 distinct groups. They reside in varied regions and possess extensive expertise in the utilization and conservation of food and medicinal flora². A substantial body of research demonstrates that tribal people residing in remote areas are essential to the sustainable management of natural resources. Moreover, these cultures exhibit a profound reliance on plant-based resources for essential requirements like sustenance, energy, medicinal purposes, and livestock grazing³. The utilization of plants in ethnomedicine has been shown to contain a diverse range of substances that can be utilized to treat both chronic and infectious diseases. These plants have been found to contain secondary metabolites and essential oils that have significant therapeutic importance. The use of medicinal plants in various ailments has been widely acknowledged for its safety, cost-effectiveness, efficacy, and easy availability. Additionally, the knowledge of indigenous people is highly valued for sustainable biodiversity utilization and the development of novel drug programs⁴.

This project aims to chronicle and assess the traditional medical practices and utilization of ethnomedicinal plants by Bharias, Baigas, and Gonds in Madhya Pradesh, India. Comparable ethnobotanical studies aimed at recording vanishing traditional knowledge have been documented in many regions of India⁵. Consequently, it is imperative for the conservation of biological resources and their sustainable utilization that indigenous knowledge be documented via ethnobotanical study.

2. MATERIAL AND METHODS

The research was conducted in the villages adjacent to Patalkot, Silpidi, and Patangarh in Madhya Pradesh, India (8.6538° N, 77.3105° E) from December 2024 to March 2025, during which data was collected from tribal traditional medicine practitioners via semi-structured interviews, observations, and guided field excursions. Members of the tribal community were asked for the names of the most renowned traditional healers (Vaidyas) in the research region. Interviews were done with thirty traditional healers

in the Karayar Patalkot, Silpidi, and Patangarh tribal settlements⁶. To verify the information's accuracy, all data was collected through conversations with indigenous traditional healers who practiced medicine and resided among plants. Anthropologists denote this concept as semi-structured. Prior to conducting the interview, we secured each participant's informed consent and adhered to the ethical rules established by the International Society of Ethnobotany. Employing Participatory Rural Appraisal (PRA) methodologies, data regarding the utilization of medicinal plants (including species, utilized parts, applications, and preparation methods), together with the local nomenclature of the plant species, were meticulously collected. Tribal traditional medicine practitioners, who were invited to the field, demonstrated the plants to us. In instances when this was unfeasible, flora were collected from the vicinity and exhibited to confirm their nomenclature. Interviews have been recorded for documentation purposes⁷. Voucher samples were collected to identify each plant. Standard literature, including the Floras of Madhya Pradesh Presidency, was employed for identification purposes. All scientific names, plant families, and plant authority were verified using internet resources such as the International Plant Name Index (www.ipni.org) and the Royal Botanic Garden name database (www.theplantlist.org).

3. RESULTS AND DISCUSSIONS

The present study documented the utilization of 67 therapeutic herbs by the traditional Bharias, Baigas, and Gonds in Madhya Pradesh village, Patalkot, Silpidi, and Patangarh. A table was constructed that included details about each plant, including its common name, beneficial parts, and medicinal applications (Table 1).

Table 1 Medicinal Plants Used by Tribal Traditional Medicinal Practitioners of Patalkot, Silpidi, and Patangarh Village Madhya Pradesh

S. No	Botanical name	Family name	Local name	Habit	Parts used	Disease
1.	<i>Aegle marmelos</i> (L.) Correa	Rutaceae	Vilvam	Tree	Leaves	Wounds ⁸
2.	<i>Aerva lanata</i> (L.) Juss. ex Schult.	Amaranthaceae	Ciru-pulai	Herb	Whole plant	Cough ⁹
3.	<i>Allium cepa</i> (L.)	Amaryllidaceae	Vengayam	Herb	Bulb	Chicken box ¹⁰
4.	<i>Annona squamosa</i> L.	Annonaceae	Cintamaram	Tree	Leaves	Inflammation ¹¹
5.	<i>Alpinia officinarum</i> Hance	Zingiberaceae	Sitharathai	Herb	Root	Inflammation ¹²
6.	<i>Andrographis paniculata</i> (Burm. fil.) Nees	Acanthaceae	Nilavembu	Herb	Leaves	Diabetic ¹³
7.	<i>Aristolochia indica</i> L.	Aristolochiaceae	Perumarunthukodi	Climber	Leaves	Stomach pain ¹⁴
8.	<i>Bauhinia purpurea</i> L.	Fabaceae	Nilattiruvatti	Tree	Bark	Cough ¹⁵
9	<i>Bauhinia variegata</i> L.	Fabaceae	Mantharai	Tree	Stem	Ulcer ¹⁶
10.	<i>Biophytum sensitivum</i> (L.) DC.	Oxalidaceae	Mukkutti	Herb	Leaf	Inflammation ¹⁷
11.	<i>Boerhaavia diffusa</i> L.	Nyctaginaceae	Mukkurttaikkoti	Herb	Root	Hydrocele ¹⁸
12.	<i>Buchanania lanzan</i> Spreng.	Anacardiaceae	Charam	Tree	Stem	Wound healing ¹⁹
13.	<i>Casalpina bonduc</i> L.Roxb	Fabaceae	Kac-cakay	Climber	Leaves	Cough ²⁰

14.	<i>Cardiospermum helicacabum</i> L.	Sapindaceae	Mudakkathan	Climber	Root	Throat infection ²¹
15.	<i>Cardiospermum corindum</i> L.	Sapindaceae	Kattumudakkathan	Climber	Leaves	Abdominal pain ²²
16.	<i>Cinnamomum verum</i> J. S. Presl	Lauraceae	Lavanga pattai	Tree	Bark	Inflammation ²³
17.	<i>Cissus quadrangularis</i> L.	Vitaceae	Perandai	Shrub	Stem	Digestion ²⁴
18.	<i>Citrus limon</i> (L.) Burm. f.	Rutaceae	Elumichai	Tree	Fruit	Stomach pain ²⁵
19.	<i>Clitoria ternatea</i> L.	Fabaceae	Sangupushpam	Climber	Root	Headache ²⁶
20.	<i>Cleome viscosa</i> L.	Cleomaceae	Naikadugu	Herb	Seed	Rheumatism ²⁷
21.	<i>Coccinia grandis</i> (L.) Voigt	Cucurbitaceae	Kovai	Shrub	Stem	Digestion ²⁸
22.	<i>Commelina benghalensis</i> L.	Commelinaceae	Aduthinnathalai	Herb	Stem	Wounds ²⁹
23.	<i>Cuscuta reflexa</i> Roxb.	Convolvulaceae	Akasavalli	Herb	Leaves	Liver diseases ³⁰
24.	<i>Eclipta prostrata</i> (L.) L.	Asteraceae	Karisalamkani	Herb	Leaves	Hair growth ³¹
25.	<i>Elephantopus scaber</i> Auct. non L.	Asteraceae	Aanachuvadi	Herb	Leaves	Rheumatism ³²
26.	<i>Erythrina stricta</i> Roxb.	Fabaceae	Mullumuruku	Tree	Seed	Intestinal ³³
27.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Amman Pacharisi	Herb	Whole plant	Stomach pain ³⁴
28.	<i>Ficus racemosa</i> L.	Moraceae	Atti	Tree	Whole plant	Teeth pain ³⁵
29.	<i>Hemidesmus indicus</i> (L.) R. Br.	Apocynaceae	Nannari	Twiner	Whole plant	Body cool ³⁶
30.	<i>Hygrophila schulli</i> (Hamilt.) M.R. Almeida & S.M. Almeida	Acanthaceae	Neermulli	Herb	Whole plant	Cough ³³
31.	<i>Leucas aspera</i> (Willd.) Link	Lamiaceae	Thumbai	Herb	Leaves	Dermatitis ³¹
32.	<i>Limonia acidissima</i> L.	Rutaceae	Vilamaram	Tree	Fruit	Breathing problem
33.	<i>Mirabilis jalapa</i> L.	Nyctaginaceae	Andhi Mandarai	Herb	Root	Spasmolytic
34.	<i>Mucuna pruriens</i> (L.)DC.	Fabaceae	Poonakaali	Shrub	Seed	Impotency
35.	<i>Nelumbo nucifera</i> Gaertn.	Nelumbonaceae	Tamarai	Herb	Flower	Heart diseases
36.	<i>Tecoma stans</i> (L.) Juss. ex Kunth	Bignoniaceae	Manjarali	Shrub	Root	Leprosy
37.	<i>Ocimum tenuiflorum</i> L.	Lamiaceae	Nalla Thulasi	Herb	Leaves	Cough

38.	Ocimum basilicum L.	Lamiaceae	Tirunittrupatchai	Herb	Leaves	Cold
39.	Phyllanthus amarus Schumach. & Thonn.	Phyllanthaceae	Kizhaanelli	Herb	Root	Jaundice
40.	Plantago ovata Forsskal	Plantaginaceae	Isabgol	Herb	Seed	Prevent abortion
41.	Pongamia pinnata (L.) Pierre	Fabaceae	Ponga Maram	Tree	Bark	Digestion
42.	Pterocarpus marsupium Roxb.	Fabaceae	Vengai	Tree	Whole plant	Constipation
43.	Piper nigrum L.	Piperaceae	Milaku	Climber	Seed	Cough
44.	Piper battle L.	Piperaceae	Vettrilai	Climber	Leaves	Indigestion
45.	Randia dumetorum (Retz.) Poir.	Rubiaceae	Marakalam.	Shrub	Fruit	Itching
46.	Rauvolfia serpentina (L.) Benth. ex Kurz	Apocynaceae	Sarbagandha	Shrub	Leaves	Constipation
47.	Rubia cordifolia L.	Rubiaceae	Manjistha	Climber	Leaves	Constipation
48.	Ruta graveolens L.	Rubiaceae	Aruvatham pachai	Herb	Leaves	Rheumatism
49.	Sapindus trifolatus L.	Sapindaceae	Boondi Kottai	Tree	Fruit	Piles
50.	Santalum album L.	Santalaceae	Chandanam	Tree	Bark	Skin disease
51.	Semecarpus anacardium L. f.	Anacardiaceae	Serankottai	Herb	Fruit	Arthritis
52.	Solanum nigrum L.	Solanaceae	Manathallaki	Herb	Whole plant	Cough
53.	Solanum virginianum L.	Solanaceae	Kandankathri	Herb	Fruit	Toothache
54.	Sphaeranthus indicus L.	Asteraceae	Vishnu karandhai	Herb	Leaves	Asthma
55.	Syzygium cumini (L.) Skeels	Myrtaceae	Naval	Tree	Bark	Body heat
56.	Tamarindus indica L.	Fabaceae	Pulli	Tree	Leaves	Piles
57.	Tephrosia purpurea (L.) Pers.	Fabaceae	Kattukolingi	Shrub	Leaves	Asthma
58.	Terminalia arjuna (Roxb.) Wight & Arn.	Combretaceae	Vella maruthu	Tree	Fruit	Head ache
59.	Terminalia chebula Retz.	Combretaceae	Kadukkaai	Tree	Seed	Diabetes
60.	Terminalia crenulata (Heyne) Roth	Combretaceae	Karumaruthu	Tree	Fruit	Asthma

61.	<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Combretaceae	Tanri	Tree	Fruit	Diarrhea
62.	<i>Tinospora cordifolia</i> (Willd.) Miers	Menispermaceae	Seenthil kodi	Climber	Leaves	Wound
63.	<i>Tridax procumbens</i> L.	Asteraceae	Thalavetti poo	Herb	Leaves	Healing wound
64.	<i>Tribulus terrestris</i> L.	Zycophyllaceae	Nerinji	Herb	Root	Kidney stone
65.	<i>Vitex negundo</i> L.	Lamiaceae	Nocchi	Tree	Leaves	Cold
66.	<i>Withania somnifera</i> (L.) Dunal	Solanaceae	Amukkuram	Shrub	Tuber	Rheumatism
67.	<i>Wrightia tinctoria</i> (Roxb.) R.Br	Apocynaceae	Vepalai	Tree	Leaves	Psoriasis

The present investigation documented 67 plant species across 59 genera and 35 families (Table 2). Salai Senthilkumar et al. documented 175 medicinal plants employed by the Malayali tribe in the Yelagiri hills of Tamil Nadu, India, encompassing 147 species and 56 families. Moreover, Jaganathan et al. documented 85 medicinal plants from 39 families utilized by the Irular tribe in Pillur Valley, Coimbatore, Tamil Nadu, India.

Table 2 Familywise distribution of documented medicinal plants

S. No	Family Name	No of the Genus	No of the Species
1	Acanthaceae	2	2
2	Amaranthaceae	1	1
3	Amaryllidaceae	1	1
4	Anacardiaceae	2	2
5	Annonaceae	1	1
6	Apocynaceae	3	3
7	Aristolochiaceae	1	1
8	Asteraceae	4	4
9	Bignoniaceae	1	1
10	Cleomaceae	1	1
11	Combretaceae	1	4
12	Commelinaceae	1	1
13	Convolvulaceae	1	1
14	Cucurbitaceae	1	1
15	Euphorbiaceae	1	1
16	Fabaceae	9	10
17	Lamiaceae	3	4
18	Lauraceae	1	1
19	Menispermaceae	1	1
20	Moraceae	1	1
21	Myrtaceae	1	1
22	Nyctaginaceae	2	2
23	Nelumbonaceae	1	1
24	Oxalidaceae	1	1
25	Phyllanthaceae	1	1
26	Piperaceae	1	2
27	Plantaginaceae	1	1
28	Rubiaceae	3	3

29	Rutaceae	3	3
30	Santalaceae	1	1
31	Sapindaceae	2	3
32	Solanaceae	2	3
33	Vitaceae	1	1
34	Zingiberaceae	1	1
35	Zycophyllaceae	1	1
33	Total	59	67

In the current study region, thirty-one diseases have been addressed using sixty-seven discovered medicinal plants, with cough being the most prevalent condition treated by seven of these plants. Tribals utilized ninety medicinal plants to address seventeen distinct health concerns, with wound treatment being the most prevalent application (10 plants). Among the sixty-seven recognized species, Fabaceae comprises the largest number with ten species (Table 2). Samar et al. identified 32 plant species from 26 genera and 18 families in a related study, with Fabaceae as the predominant family, employed by the Bheel tribe in Guna district, Madhya Pradesh, India, for the treatment of various diseases. This study examined the conventional medical practices of the Gond tribe in the tribal community. The members of this tribe utilize diverse portions of multiple plant species for therapeutic applications. Medicinal purposes utilize leaves from 23 species, fruits from 9 species, roots from 8 species, complete plants from 7 species, seeds from 6 species, barks and stems from 5 species each, flowers from 2 species, and bulbs and tubers from 1 species each (Figure 1). The preference for leaves as the primary plant component for therapeutic applications aligns with other ethnobotanical studies. The leaves of a plant are relatively simple to gather and do not significantly jeopardize the plant's existence. They also encompass chlorophyll and other vital chemicals utilized in photosynthesis and metabolism. Conversely, harvesting subterranean plant components, including roots, tubers, and rhizomes, might be essential for ecological and survival purposes. The abundant green leaves are readily accessible for the majority of the year, facilitating their usage in medicinal preparations. Both fresh and desiccated plant components are utilized for their therapeutic attributes, guaranteeing accessibility irrespective of availability³⁶.

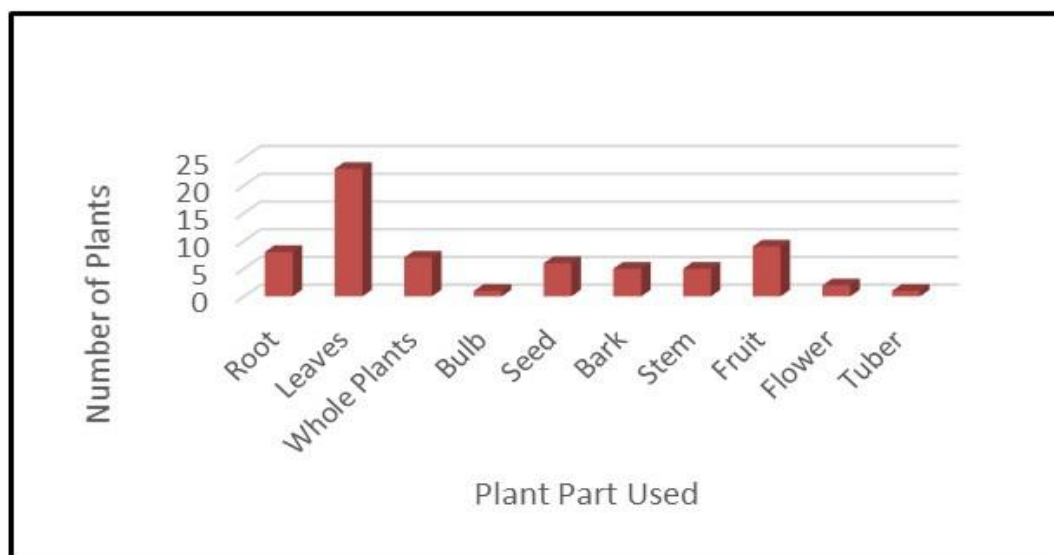


Figure 1 Plant part used for the preparation of medicine

Figure 2 illustrates the life forms of the specified species. Approximately 40% of recorded plant species are herbaceous. These findings align with those of Bosco and Arumugam, who identified 14 species of herbs, 10 species of trees, 8 species of shrubs, 2 species of twining plants, and a single species of climber. Furthermore, as illustrated in Figure 2, trees constitute 34% of the study, succeeded by climbers at 15% and shrubs at 11%. Herbs are commonly utilized by the Baiga tribe's traditional healers in the Patangarh tribal hamlet due to their superior efficacy in treating diseases and their accessibility compared to other life forms.

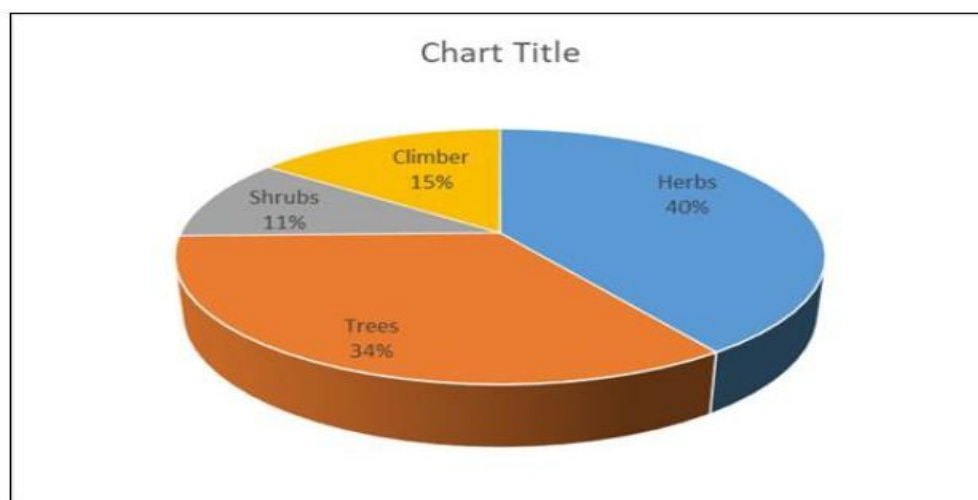


Figure 2 Habit-wise distribution of medicinal plants recorded in the study area

4.CONCLUSION

The study emphasizes the significance of recording the traditional knowledge of the Bharias, Baigas, and Gonds, tribes of Madhya Pradesh in villages around Patalkot, Silpidi, and Patangarh of MP, India. This record is advantageous for pharmacologists, foresters, environmentalists, researchers, and others interested in herbal medicine. The research report offers essential information to pharmacologists and biochemists for the evaluation of specific species and their phytochemicals. The primary objective is to accelerate drug discovery.

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