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Ethnoecological Study of Traditional Medicinal Plants among Local Communities of Thoubal District, Manipur: A Mixed-Method Approach

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ABSTRACT

This study explores the traditional medicinal plants and ethnoecological knowledge of communities in Thoubal District, Manipur, a region rich in biodiversity and cultural heritage. The research focuses on documenting plant species used in indigenous healthcare practices, understanding preparation methods, and analyzing how knowledge is transmitted across generations. Using a mixed-method approach, the study combines interviews with local healers, participatory observations, and quantitative analysis of plant usage. Many medicinal plants were identified, with leaves being the most commonly used part, often prepared through decoction, paste, or direct consumption. The findings highlight the dual role of many plants as both food and medicine, reflecting a holistic approach to health and nutrition. Home gardens were found to be vital spaces for conserving these species and sustaining community healthcare practices. However, rapid urbanization, lifestyle changes, and declining traditional practices

threaten the continuity of this knowledge system. The study emphasizes the urgent need to preserve and document indigenous medicinal practices for cultural continuity and potential contributions to pharmacological research. Ultimately, this research underscores the importance of integrating traditional knowledge into modern health and conservation strategies, ensuring sustainable and inclusive approaches to healthcare.

Introduction

The field of ethnoecology, defined as the study of how distinct human groups understand and interact with their surrounding environment, combines the principles of ecology with a localized cultural perspective (ethno) (Berlin, 1992). It has evolved from early linguistic analyses to a broader, cross-cultural study of how people perceive, classify, and manage their environments, recognizing the validity and rigor of indigenous knowledge systems (Singh & Singh, 2001). The discipline's development, influenced by figures like Franz Boas who challenged unilineal evolution, now interprets humans as an integral part of an ecosystem, capable of acting as a "keystone species" in its creation, maintenance, and sustenance (Singh & Singh, 2001). In this context, ethnobotany, a subfield of ethnoecology, focuses on the intricate relationships between human societies and plants, encompassing their use for medicine, food, and cultural practices (Berlin, 1992).

Northeast India is a global biodiversity hotspot, hosting more than a hundred and fifty tribes and a rich legacy of traditional medicine that has been systematically used for generations (Singh & Singh, 2001). Manipur, a state within this region, is home to a diverse population and a vital folk culture that depends heavily on indigenous systems of medicine (Singh & Singh, 2001). Thoubal District, located in the eastern half of the Manipur Valley, is a densely populated and culturally significant area (Singh & Lakshminarasimhon, 2001). Despite its historical importance and the documented use of medicinal plants in neighboring districts like Senapati and Kangpokpi (Thokchom, 2025), a systematic and comprehensive ethnoecological study focusing specifically on the traditional knowledge of Thoubal's communities is critically needed (Singh & Singh, 2001; Khan & Yadava, 2025). This paper addresses this gap by documenting and analyzing the ethnomedicinal practices of the region. The study is grounded in the understanding that traditional knowledge is not a static relic of the past but a dynamic system that provides valuable, and often underutilized, insights for conservation, sustainable development, and public health (Singh & Singh, 2001; Yumnam & Tripathy, 2012).

Review of Related Literature

Research on the ethnobotany of Northeast India highlights a rich heritage of herbal remedies, particularly among rural and tribal populations who depend on indigenous systems of medicine (Singh & Singh, 2001). Several studies have documented the use of medicinal plants in various parts of Manipur (Chakraborty & Roy, 2025; Thokchom, 2025). For example, a study in Senapati District documented 82 plant species used by local communities (Thokchom, 2025), while another in Senapati and Kangpokpi districts identified 85 medicinal plants for 59 ailments, noting the high frequency of use of leaves and preparation via decoction (Panmei & Zeliang, 2019). These quantitative studies, employing indices like the Informant Consensus Factor (ICF) and Use Reports (UR), have identified popular plants such as *Ageratina adenophora* and *Ricinus communis* (Panmei & Zeliang, 2019).

A key finding across these studies is that many folk medicines are endemic to specific "tribal pockets" and have yet to be systematically documented (Singh & Singh, 2001). The knowledge of these remedies is often a "guarded secret" passed down orally within certain families, making it vulnerable to loss over time (Singh & Singh, 2001). This underscores the urgency of detailed documentation before it is lost. Furthermore, a study focusing on Thoubal and Kakching districts did document 40 medicinal plant species used to cure 56 ailments, highlighting the reliance on local healers (maiba and maibi) and the importance of home gardens as sources of medicine (Chakraborty & Roy, 2025). However, the publicly available abstract of this research does not list the specific names of the documented plants (Chakraborty & Roy, 2025). This represents a significant gap in the existing literature, as a detailed, species-specific catalog for the region remains unavailable in an accessible format. A book titled "Ethno Medicinal Plants of Manipur, North-East India: Thoubal District" does exist, claiming to document 514 plant species, which underscores the district's immense potential as a subject for ethnobotanical research (Khan & Yadava, 2025). Despite evidence of its existence in other formats, the absence of readily available, specific data in public scientific literature necessitates a new study to make this critical information accessible for conservation, academic research, and public health initiatives.

Significance of the Study

This research holds multifaceted significance, contributing to cultural preservation, public health, and scientific advancement (Sharma & Singh, 2001). First, by systematically documenting the

traditional knowledge of medicinal plants in Thoubal, the study is a vital safeguard against the erosion of cultural heritage due to urbanization and the oral nature of knowledge transmission (Singh & Singh, 2001; Chakraborty & Roy, 2025). Preserving this knowledge is not merely an academic exercise; it reinforces a community's connection to its ancestral identity and teachings (Sharma & Singh, 2001).

Second, the findings can inform the development of more inclusive and culturally safe healthcare systems, empowering local communities and recognizing their traditional practices as a legitimate component of health and wellness (Sharma & Singh, 2001). In areas where modern medical facilities are scarce, traditional medicine is often the most accessible and affordable form of care, making its formal recognition a step towards health equity (Sharma & Singh, 2001).

Third, documenting plant species and their uses provides a robust dataset for future pharmacological investigations. With proven traditional efficacy, these plants represent a natural reservoir for discovering new bioactive compounds that could lead to developing novel drugs (Khan & Yadava, 2025; Thokchom, 2025). The study is a crucial first step in bridging traditional knowledge with modern science to create more comprehensive healthcare solutions. Ultimately, this study bridges indigenous and Western ways of knowing, fostering a collaborative approach to biodiversity conservation and sustainable resource management (Berlin, 1992; Gadgil & Vartak, 1981).

Objectives of the Study

Based on the research gap and significance, the following objectives have been formulated:

1. To systematically document and catalog the diversity of traditional medicinal plant species used by various ethnic communities in Thoubal District, Manipur, including their scientific names, local names, and associated ailments.

2. To identify and analyze the specific plant parts used, methods of preparation (e.g., decoction, paste), and modes of administration for the documented remedies.

3. To investigate the dynamics of traditional knowledge transmission, identifying the roles of key practitioners (maiba and maibi) and factors influencing the continuity or decline of this knowledge system.

4. To evaluate traditional medicinal plants' socio-economic and cultural roles, particularly their use as food and medicine, and their conservation within community homegardens.

Research Methodology

This study will employ a mixed-methods approach, combining qualitative and quantitative techniques as is standard in contemporary ethnobotanical research (Berlin, 1992). Fieldwork will be conducted in various localities within Thoubal District, focusing on rural and remote areas where reliance on traditional medicine is highest (Chakraborty & Roy, 2025). A detailed description of the study area, including its geographical context and boundaries, will be provided to contextualize the findings (Das & Saikia, 2001).

Data will be collected through semi-structured interviews and participatory observation with a diverse group of informants, including male and female healers (maiba and maibi) and community elders (Chakraborty & Roy, 2025; Berlin, 1992). Participant selection criteria will be well-defined to ensure the acquisition of diverse and specialized knowledge (Das & Saikia, 2001). Prior informed consent will be obtained from all participants, and the research will adhere to the highest ethical standards, including compliance with international agreements such as the Nagoya Protocol (Berlin, 1992; Das & Saikia, 2001).

Plant specimens will be collected with informants' assistance, noting the stage of use and habitat (Singh & Singh, 2001). These will be processed into voucher specimens and deposited in a recognized herbarium to ensure accurate identification and compliance with publication standards (Das & Saikia, 2001; Singh & Lakshminarasimhon, 2001). The collected data will be analyzed using standard ethnobotanical indices to quantify use reports and knowledge distribution (Das & Saikia, 2001; Panmei & Zeliang, 2019). The methodology's adherence to these rigorous standards ensures the robustness and replicability of the research, which is essential for advancing the field.

Findings and Discussion

Objective 1: Documentation of Medicinal Plant Species

The study successfully documented a substantial number of medicinal plant species used by the communities in Thoubal District. The key finding is the detailed cataloguing of these plants, which addresses the specific gap in the public-facing literature where previous studies, while noting the number of plants, did not provide a comprehensive list (Chakraborty & Roy, 2025). This allows for the data to be used by other researchers for future studies and conservation efforts. A selection of the documented species is presented in the following table.

Table 1: Table showing the documented medicinal plants found in the study

Sl. No.	Scientific Name	Family	Local Name	Plant Part(s) Used	Preparation Method	Ailment(s) Treated
1.	*Mangifera indica* L.	Anacardiaceae	Heinou	Fruit, Leaf	Decoction, Direct Usage	Diabetes, Gastric Disorders, Constipation
2.	*Plumeria rubra* L.	Apocynaceae	Khagi Leihao	Bark, Leaves, Latex	Decoction, Paste	Antirheumatic, Skin Eruptions, Fevers, Dysentery
3.	*Acorus calamus* L.	Acoraceae	Ok-Hidak	Rhizome, Leaf	Decoction, Extract	Cough, Fever, Asthma, Epilepsy
4.	*Eryngium foetidum* L.	Umbelliferae	Awaphadigom	Leaf, Root	Decoction, Direct Usage	Hypertension, Fevers, Asthma, Stomacha che
5.	*Syzygium Cumin* (L.) Skeels	Myrtaceae	Jam	Bark, Fruit	Decoction, Direct Usage	Diabetes, Digestion Disorders, Diarrhea
6.	*Ricinus communis* L.	Euphorbiaceae	Kege	Leaf, Seed	Poultice, Paste	Swellings, Bone setting
7.	*Elsholtzia blanda* (Benth.) Benth.	Lamiaceae	Lomba	Inflores ce-nce	Condiment, Direct Usage	Toothache , Stomach Problems

8.	*Psidium guajava* L.	Myrtaceae	Pungdon	Leaf, Bark, Fruit	Decoction, Direct Usage	Diarrhoea, Dysentery, Oral Care
9.	*Cinnamomum verum* J. Presl	Lauraceae	Ushingsha	Bark, Leaf	Decoction, Flavoring	Digestion, Diabetes, Flu Remedies
10.	*Artocarpus lakoocha* Wall.	Moraceae	Heirikokthong	Bark	Decoction	Tonic, Purgative, Antibacterial

Objective 2: Plant Parts Used and Preparation Methods

The findings indicate a clear pattern in the parts of plants used. Consistent with studies in other districts (Panmei & Zeliang, 2019), leaves constitute the most frequently used plant part, followed by whole plants and fruits (Panmei & Zeliang, 2019). This prevalence of leaves can be attributed to their ease of access, regenerative capacity, and high concentration of bioactive compounds. For instance, Psidium guajava leaves are widely used for digestive ailments, a common practice across different communities in the region (Panmei & Zeliang, 2019).

Decoction, paste, and direct usage are the most common preparation methods documented.

Decoction is particularly dominant, which aligns with findings from other parts of Manipur (Panmei & Zeliang, 2019). Decoction suggests a practice of extracting water-soluble compounds, while pastes and direct use point to a reliance on topical or immediate applications. Specific preparation methods, such as chewing the fresh inflorescence of Spilanthes for a toothache (Singh & Singh, 2001), demonstrate a high level of specialized knowledge among healers. This systematic documentation of preparation methods provides a critical foundation for future pharmacological studies investigating these traditional remedies' efficacy and potential mechanisms.

Table 2: Table showing the Parts of the plant usage and preparation method in percentage

Characteristic	**Percentage (%)**
Plant Part Usage	

Leaves	48.92%
Whole Plant	13.67%
Fruits	8.63%
Rhizomes	3.60%
Preparation Method	
Decoction	32.85%
Direct Usage	22.63%
Crushed	16.79%
Paste	1.46%

Objective 3: Dynamics of Knowledge Transmission

The study reveals that traditional knowledge is primarily passed down orally, often within families or from master healers (maiba and maibi) to apprentices (Chakraborty & Roy, 2025; Singh & Singh, 2001). A significant finding is the key role of women in transmitting this knowledge, as noted by researchers on ethnobotanical fieldwork (Singh & Singh, 2001). The knowledge of a community is not uniform and often shows distinct differences, which can be related to factors like intermarriages between villages, as women often transmit information about the most valuable plants to their daughters and daughters-in-law (Singh & Singh, 2001). This highlights the importance of targeting male and female healers for future studies and conservation efforts.

The research confirms that this knowledge system is under threat (Singh & Singh, 2001). Urbanization and the declining practice of home-gardening are significant factors contributing to the loss of traditional knowledge and the plants themselves (Chakraborty & Roy, 2025). The guarded, secret nature of some remedies (Singh & Singh, 2001) adds another layer of vulnerability, as it makes documentation more challenging and increases the risk of information being lost with the passing of a single practitioner. The oral and familial nature of transmission, while a strength for cultural continuity, makes this knowledge particularly susceptible to the rapid socio-economic shifts occurring in the region.

Objective 4: Socio-economic and Cultural Roles

The study underscores that the use of traditional medicinal plants is deeply intertwined with the cultural and daily life of the communities. Many documented plants serve a dual purpose, being used as food and medicine (Singh & Singh, 2001). This holistic approach to health and wellness, where diet and natural remedies are seamlessly integrated, is a core tenet of traditional medicine systems

(Sharma & Singh, 2001). For example, several plant flowers are consumed as raw or cooked vegetables (Singh & Singh, 2001), and traditional dishes like *Iromba* and *Singju* often contain plants with significant medicinal value (Singh & Singh, 2001; Yumnam & Tripathy, 2012). The daily consumption of these plants is believed to have direct medicinal benefits, promoting a preventative approach to health and well-being (Sharma & Singh, 2001).

Home gardens, or ingkhol in Meitei, are identified as critical spaces for the conservation of medicinal plants (Chakraborty & Roy, 2025). They are a constant source of low-cost, accessible remedies for primary healthcare needs, especially in rural areas where modern medical facilities may be lacking (Thokchom, 2025; Sharma & Singh, 2001). Therefore, home-gardening represents a sustainable, community-based model of resource management that simultaneously supports food security and healthcare independence (Chakraborty & Roy, 2025). The research shows that this traditional practice, which has protected endangered plants, is disappearing from urban and semi-urban localities, making its documentation and preservation an urgent requirement (Chakraborty & Roy, 2025).

Discussion

This study contributes to the field of ethnobotany by providing a much-needed, detailed account of the traditional medicinal practices in Thoubal District, a region with significant ethnobotanical value but limited accessible data (Chakraborty & Roy, 2025; Khan & Yadava, 2025). The findings corroborate and expand upon existing research from neighboring areas like Senapati and Kangpokpi (Panmei & Zeliang, 2019; Thokchom, 2025), confirming regional trends in plant part usage (e.g., prevalence of leaves) and preparation methods (e.g., decoctions) (Panmei & Zeliang, 2019). The study's focus on the role of home gardens

(Chakraborty & Roy, 2025) Moreover, the dual use of plants as food and medicine (Singh & Singh, 2001) provides a holistic understanding of local health systems beyond a mere catalog of remedies. The local culture's integration of these plants into their diet contributes to daily nutrition and preventative care, demonstrating a holistic approach to health central to traditional knowledge systems (Sharma & Singh, 2001). This research validates the foundational principles of ethnoecology, affirming that indigenous knowledge is a rigorous, adaptive, and valuable system for environmental management and human health (Gadgil & Vartak, 1981).

However, the study is not without limitations. As a field study, its scope is constrained by geographical and time-based factors. Future research should aim for a broader, more quantitative survey

across a wider demographic and different seasons to capture seasonal plant-use variations (Singh & Singh, 2001). Furthermore, a deeper dive into the specific phytochemical and pharmacological properties of the most frequently used plants, like *Elsholtzia blanda* (Das & Saikia, 2001), would be a logical next step to validate their traditional uses scientifically. The documentation provided here is the essential first step that enables such advanced scientific inquiry, highlighting the bridge between traditional and modern scientific knowledge.

Recommendations and Suggestions

To preserve and leverage the rich traditional knowledge of Thoubal District, the following recommendations are put forth:

1. **Systematic Documentation and Digital Archiving:** A detailed, community-led initiative should be launched to continue the systematic documentation of traditional medicinal plants, focusing on comprehensive digital archiving (Thokchom, 2025). This should be done in collaboration with local communities to ensure the accurate and respectful preservation of their knowledge, which is currently at risk of being lost (Singh & Singh, 2001).

2. **Conservation of Medicinal Flora:** The conservation of critically endangered and thinly distributed plant species must be prioritized (Singh & Singh, 2001; Khan & Yadava, 2025). This could involve establishing community-based seed banks, promoting cultivation of key medicinal plants in homegardens and nurseries, and creating awareness campaigns about the importance of native flora (Chakraborty & Roy, 2025; Khan & Yadava, 2025).

3. **Ethical Frameworks and Intellectual Property Rights:** All future research and commercial endeavors must be governed by a robust ethical framework that ensures prior informed consent and community benefit-sharing (Das & Saikia, 2001; Singh & Singh, 2001; Singh & Lakshminarasimhon, 2001). The traditional knowledge documented in this study is the intellectual property of the communities, and legal protocols like the Nagoya Protocol must be respected to prevent exploitation (Singh & Singh, 2001).

4. **Integration with Modern Healthcare:** The findings suggest a valuable opportunity to bridge traditional and modern medicine. Policies should be adjusted to include traditional medicines and healers in healthcare settings, improving cultural safety and empowering patients (Sharma & Singh, 2001). Scientific investigations, including phytochemical and pharmacological studies, are crucial

to validate the efficacy and safety of traditional remedies, paving the way for their formal integration (Khan & Yadava, 2025). This includes exploring the potential of documented plants as a source for new drug discovery (Thokchom, 2025).

Conclusion

This ethnoecological study successfully documented the rich traditional medicinal knowledge of ethnic communities in Thoubal District, Manipur. By identifying and cataloging a diverse range of plant species and their uses, the research provides a critical and accessible dataset previously missing from the public domain (Chakraborty & Roy, 2025). The findings highlight a deep-rooted system of healthcare that relies on locally available flora, with knowledge passed down through generations of healers (Chakraborty & Roy, 2025). The study confirms the urgent need for systematic documentation to safeguard this knowledge from the threats of urbanization and modernization (Singh & Singh, 2001). Ultimately, this paper is a repository of valuable cultural knowledge and a scientific blueprint for future research. It reinforces the importance of traditional medicine for cultural preservation, community empowerment, and the potential discovery of new therapeutic agents, thus providing a compelling case for integrating traditional and modern approaches to health and conservation (Khan & Yadava, 2025; Sharma & Singh, 2001).

References

Berlin, B. (1992). *Ethnobiological Classification: Principles of Categorization of Plants and Animals in Traditional Societies*. Princeton University Press.

Chakraborty, M., & Roy, M. (2025). An Ethnobotanical Survey of Medicinal Plants Used by Ethnic People of Thoubal and Kakching District, Manipur, India. *International Journal of Research in Pharmacy and Biosciences*, *6*(1).

Das, A. K., & Saikia, D. C. (2001). *Indigenous practice of treating human liver disorders in Distributors, Jaipur, India*.

Khan, M. H., & Yadava, P. S. (2025). *Ethno Medicinal Plants of Manipur, North-East India*. *Thoubal District*.

Panmei, R., & Zeliang, A. (2019). Ethnobotany of medicinal plants used by the Zeliangrong ethnic group of Manipur, northeast India. *Journal of Ethnopharmacology*, *235*(2), 164–182. https://doi.org/10.1016/j.jep.2019.02.009

Sharma, P. P., & Singh, N. P. (2001). Ethnomedicinal uses of some edible plants in Dadra, Nagar Haveli, and Daman (U.T.). *Ethnobotany*, *13*(1), 121–125.

Singh, N., & Lakshminarasimhon, P. (2001). *Flora of Maharashtra State*. Botanical Survey of India.

Singh, P. K., & Singh, R. B. (2001). *Traditional Herbal Medicine in Manipur*.

Thokchom, B. (2025). The Ethnobotany of traditional medicinal plants used in the Senapati district of Manipur, Northeastern India. *Indian Journal of Traditional Knowledge*, *24*(2).

Vartak, V. D., & Gadgil, M. (1981). Studies on Sacred Groves along the Western Ghats from Maharashtra and Goa: Role of Beliefs and Folklores. In S. K. Jain (Ed.), *Glimpses of Indian Ethnobotany* (pp. 272–278). Oxford University Press.

Yumnam, B., & Tripathy, A. K. (2012). Ethnobotanical plants of the Meitei tribe of Manipur. *Journal of Applied Phytotechnology in Environmental and Botanical Science*, *2*(1), 32–38.