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# BIODIVERSITY AND CONSERVATION OF LOCAL FLORA IN IMPHAL WEST, MANIPUR

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## ABSTRACT

**Survey was conducted from June 2023 to May 2024 in the Imphal West district with the aim to explore the plant diversity, medicinal value, and conservation status of local species. A total of 80 plant species were identified and classified based on growth habits, medicinal uses, plant parts employed, and conservation status. Herbs were the most prevalent, comprising 45% of the species, followed by shrubs (30%) and trees (25%). Notably, 65% of the species were recognized for their medicinal properties, highlighting the region's rich ethnobotanical significance. Leaves were the most commonly used plant part for medicinal purposes (50%), with roots being the second most frequent (25%). The conservation status of the plants revealed that 70% were not considered threatened, while 20% were threatened, and 10% were endangered, emphasizing the need for urgent conservation efforts, particularly for medicinal plants susceptible to overexploitation. The Zingiberaceae family emerged as the most significant, representing 30% of the species, followed by Lamiaceae (15%), Asteraceae (12%), and Fabaceae (10%). The study underscores the importance of plant biodiversity in the region, both for its ecological benefits and potential medicinal applications. The findings call for the establishment of conservation areas, sustainable harvesting practices, and the integration of traditional knowledge into conservation strategies. Further research into the pharmacological properties of these plants and the discovery of new species with medicinal potential is crucial for enhancing the sustainable use of the region's plant resources.**

**(Key words : Ethnobotany, medicinal plants, conservation status, Zingiberaceae, plant biodiversity)**

## INTRODUCTION

The natural world has been a source of invaluable resources for humankind for centuries, with plants serving as the foundation for numerous aspects of human life. In particular, plants have been integral to traditional medicine systems across the globe, providing remedies for a wide range of ailments. The relationship between plants and humans is especially prominent in the field of ethnobotany, which focuses on the study of the uses of plants by indigenous and local communities (Singh and Singh, 2010). This knowledge encompasses not only medicinal properties but also cultural, ecological, and economic aspects of plant usage. The diversity of plant species, each with unique chemical, medicinal, and ecological attributes, plays a critical role in the health and well-being of local populations (Wangkheirakpam and Chhetry, 2018). However, as populations grow, pressures on plant resources, such as habitat destruction and overharvesting, threaten to erode the availability of these invaluable species (Keisham and Sharma, 2012).

The northeastern part of India, particularly Manipur, is known for its rich biodiversity and is home to numerous plant species, many of which are used for medicinal, cultural, and dietary purposes (Phurailatpam and Khumbongmayum, 2020). Among these species, members of the Zingiberaceae family, including *Alpinia galanga*, *Hedychium flavum*, and *Amomum aromaticum*, stand out for their ethnobotanical significance. These species have been used by local communities for centuries, providing medicinal compounds that are integral to traditional health practices (Singh and Roy, 2017). They are also significant for their role in the local economy, especially in the form of spices, essential oils, and other value-added products (Mehta *et al*., 2022). Despite their importance, there is a growing concern regarding the sustainability of their use due to over-exploitation and environmental threats (Devi and Singh, 2015). The increasing demand for these plants in both local and global markets further exacerbates the need for their sustainable management and conservation (Rai *et al*., 2021).

This research aimed to explore the plant diversity and medicinal significance of species in the Imphal West

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district of Manipur, focusing on the potential bioactive compounds they contain. The study seeked to assess the ethnobotanical uses of these plants by identifying the plant parts commonly utilized, and to examine their conservation status. With an emphasis on understanding the potential for these plants in bio-prospecting and biotechnological applications, the research hopes to provide valuable insights into their ecological roles and the risks they face due to environmental and human-induced pressures (Naorem and Devi, 2018). Ethnobotanical studies are crucial for bridging the gap between indigenous knowledge and modern scientific research. In Manipur, where traditional medicine still plays a dominant role, understanding the local use of plants and their active compounds can contribute to the development of sustainable medicinal resources (Wangkheirakpam and Khumbongmayum, 2020). The diversity of plant species in this region, coupled with the wealth of traditional knowledge about their uses, provides an excellent opportunity to explore their medicinal and ecological potential. However, the overharvesting of medicinal plants for commercial purposes and the loss of biodiversity threaten to disrupt the delicate balance between utilization and conservation (Singh and Singh, 2010).

This study also recognizes the need to address the gaps in current scientific understanding of the molecular and pharmacological properties of these plants. In particular, the potential for the development of value-added products, such as herbal medicines and functional foods, is significant but under-explored (Patel and Srinivasan, 2015). Through a combination of field surveys, laboratory analysis, and literature review, the study aimed to identify key plant species that can be further researched for their pharmacological activities, including antioxidant, antimicrobial, and anti-inflammatory properties (Singh and Singh, 2014). Furthermore, this research investigates the conservation status of the identified species. The increasing pressures of deforestation, land conversion, and unsustainable harvesting practices threaten to diminish the rich plant resources of the region (Pandey *et al*., 2024). The study also aimed to assess the extent of these threats and provide recommendations for the sustainable use and conservation of medicinal plants, ensuring that local communities can continue to benefit from them while preserving biodiversity (Chanu and Singh, 2017).

By combining the exploration of traditional knowledge with modern scientific methods, this research aimed to contribute to a deeper understanding of the complex relationships between plants, people, and the environment. The findings of this study will not only inform conservation efforts but also enhance the potential for the sustainable use of plant resources, supporting both ecological health and the economic well-being of local communities in Manipur. Ultimately, this research underscores the importance of preserving plant diversity as a means of ensuring both environmental sustainability and human health.

# MATERIALS AND METHODS

**Study site**

The study was conducted in Imphal West district, one of the most populated regions in Manipur, known for its diverse communities and rich plant biodiversity. The district's ecological diversity provided an ideal environment for assessing plant species, their medicinal applications, and conservation status.

**Field survey and data collection**

A comprehensive field survey was carried out from June 2023 to May 2024 in Imphal West district, using various ethnobotanical data collection methods, including formal and informal interviews, structured and semi-structured questionnaires, and open-ended and close-ended questions. Local traditional healers (Maiba-Maibis),practitioners, knowledgeable holders, and elderly individuals were consulted to document indigenous knowledge regarding plant use. The survey focused on identifying and classifying plant species based on growth habits (herbs, shrubs, trees), medicinal properties, plant parts used, and conservation status. The conservation status of each species was assessed through field observations, community knowledge, and reference literature. Data were analysed to determine the most commonly utilized plant parts, dominant plant families, and potential threats to medicinal species. The study emphasizes the significance of traditional knowledge in biodiversity conservation and reinforces the need for sustainable harvesting practices and conservation strategies.

# RESULTS AND DISCUSSION

A total of 80 plant species were identified during the study, classified according to their growth habits, medicinal value, plant parts used, and conservation status. Of the total species, herbs were the most predominant, making up 45% of the species surveyed, followed by shrubs at 30%, and trees, which constituted 25%. These growth forms reflect the diverse range of species found in the study area. In terms of medicinal value, the majority of the species, accounting for 65%, were found to possess some form of medicinal properties, indicating the rich ethnobotanical significance of the flora in the study area. The remaining 35% were classified as non-medicinal, suggesting that while a large portion of the flora holds therapeutic potential, there is also a significant number of plants that are not used for medicinal purposes. This highlights the diverse utility of plants in the region, not only for their medicinal uses but possibly for other purposes such as ecological balance, cultural, or economic significance. The plant parts used in medicinal preparations varied widely across the species. Leaves emerged as the most commonly used part, with 50% of the species employing the leaves for medicinal purposes. This is consistent with previous studies that highlight leaves

as a key part of plant-based remedies due to their accessibility and high concentration of bioactive compounds. The roots were the second most commonly used plant part, accounting for 25% of the species. Roots often serve as a rich source of bioactive compounds, such as alkaloids, flavonoids, and essential oils, which could explain their frequent use. Flowers, while still important, were used in medicinal preparations from only 15% of the species, followed by seeds (5%), fruits (3%), and bark (2%). These results suggest a preference to be given for vegetative parts like leaves and roots in local medicinal practices.

Conservation status of the plants revealed that the majority, 70%, were not considered threatened, reflecting a stable presence of these species in the area. However, 20% of the species were categorized as threatened, which indicates the potential risk of overexploitation or habitat loss. Furthermore, 10% of the species were classified as endangered, emphasizing the need for conservation efforts to safeguard these plants, especially those with medicinal uses, which could face additional pressures due to increasing demand. Regarding family composition, the Zingiberaceae family was the most significant, representing 30% of the species identified. This family includes plants known for their rich medicinal properties and economic importance, such as ginger and turmeric. Other prominent families included Lamiaceae (15%), Asteraceae (12%), and Fabaceae (10%), with the remaining species distributed among various families such as Apocynaceae, Solanaceae, and Rutaceae. The diversity of families within the study area reflects the ecological richness and variety of plant species in the region, which contribute to both the biodiversity and ethnobotanical knowledge of the local communities.

The study of the 80 plant species from the region revealed several important insights into plant diversity, medicinal use, and conservation status, contributing significantly to the ethnobotanical knowledge of the area (Singh and Singh, 2010). The prevalence of herbs (45%) in the study area is in line with the findings from similar studies in other regions, where herbs are often dominant in temperate and subtropical ecosystems (Wangkheirakpam and Chhetry, 2018). Herbs typically thrive in diverse ecosystems, providing various ecological services such as supporting pollinators and preventing soil erosion. Shrubs and trees, although less frequent, contribute significantly to the structural complexity of the ecosystem, offering a variety of habitats for wildlife and important resources for local communities (Phurailatpam and Khumbongmayum, 2020). The diversity of growth forms found in this study suggests that the region offers a favourable environment for a wide range of plant species, attributed to its climatic conditions, soil type, and topography (Rai *et al.*, 2021).

The high number of medicinal plants (65%) among the 80 species indicates a profound reliance on plant-based remedies by the local communities (Devi and Singh, 2015). Medicinal plants play a central role in traditional healthcare systems, especially in areas where access to modern medicine is limited (Wangkheirakpam and Khumbongmayum, 2020). This aligns with the ethnobotanical knowledge of many indigenous communities, where plant-based therapies are often passed down through generations. Many of these plants contain bioactive compounds such as alkaloids, flavonoids, and terpenoids, which warrant further pharmacological studies (Singh and Roy, 2017). Leaves (50%) were the most commonly used plant parts, consistent with studies worldwide where leaves are preferred due to their availability and ease of harvesting (Naorem and Devi, 2018). Additionally, leaves are rich in bioactive compounds, making them effective in treating a wide range of ailments (Patel and Srinivasan, 2015). The significant use of roots (25%) suggests that many local remedies rely on substances that accumulate in underground parts of plants, such as alkaloids, essential oils, and other secondary metabolites beneficial to human health (Devi and Singh, 2014).

While the majority of plant species are not considered threatened (70%), a notable proportion (30%) are either endangered or threatened, which raises concerns regarding their conservation (Pandey *et al*., 2024). Habitat loss, overharvesting, and climate change are key factors contributing to the decline in plant populations (Keisham and Sharma, 2012). The fact that 10% of the species were categorized as endangered highlights the urgent need for conservation strategies, particularly for high-value medicinal species (Chanu and Singh, 2017). Over-exploitation of these species due to their therapeutic properties can lead to population decline if not managed sustainably. Efforts must focus on protecting plant habitats, implementing sustainable harvesting practices, and increasing awareness within local communities about the importance of conservation (Singh and Singh, 2010). Engaging indigenous communities in conservation initiatives is crucial to preserving both biodiversity and traditional knowledge (Devi and Singh, 2015).

The prominence of the Zingiberaceae family (30%) in the study is noteworthy, as plants from this family, such as *Hedychium flavum*, *Alpinia galanga*, and *Amomum aromaticum*, are well-known for their medicinal and economic significance (Singh and Roy, 2017). These plants are not only used in traditional medicine but also hold cultural importance in the region, where they are commonly employed as spices and in rituals (Mehta *et al*., 2022). The relatively high representation of the Lamiaceae (15%) and Asteraceae (12%) families reflects the presence of species utilized for medicinal and non-medicinal purposes, such as culinary herbs and ornamental plants (Thounaojam and Sharma, 2020). The Fabaceae family (10%) is another significant contributor, known for its role in nitrogen fixation and soil improvement, which is critical for maintaining the ecological balance of the area (Yadav *et al*., 2018). The diversity of plant families in the study area indicates a high degree of ecological complexity and potential for discovering novel bioactive compounds with pharmacological and agricultural applications (Sharma and

**Table 1. Medicinal and edible plants and their uses**

| Sl. No | Scientific name | Sanskrit name | Local name | Family | Hab. | M / NM | Part use | Uses |
|---|---|---|---|---|---|---|---|---|
| 1 | *Acacia concinna* (Willd.) DC. | Shikakai | Chigonglei | Fabaceae | C | M | Pds, Lvs | Used for hair care, dandruff treatment, and as a natural cleanser. |
| 2 | *Acorus calamus* | Vacha | Ok-hidak | Acoraceae | H (P) | M | Rh | Used for digestive disorders, respiratory issues, and as a memory enhancer. |
| 3 | *Adenostemma lavenia* (L.) Kuntze | Vanajira | Lalukok | Asteraceae | H (A) | NM | Lvs, Rt | Used for skin diseases, wound healing, and fever. |
| 4 | *Adiantum philippense* (L.) | Hamsapad | Khongjak | Pteridaceae | F (P) | NM | Fro, Rh | Used for respiratory ailments, burns, and skin infections. |
| 5 | *Ageratum conyzoides* (L.) | Visamusti | Khongjainapi Pale blue | Asteraceae | H (A) | NM | WP | Used for wound healing, fever, and anti-inflammatory purposes. |
| 6 | *Ageratum houstonianum* Mill. | Visamustih | Khongjainapi Deep blue | Asteraceae | H (A) | NM | Lvs, Fls | Used as an insect repellent and for skin infections. |
| 7 | *Ajuga bracteosa* Wall. ex Benth. | Nilkanthi | Lungemem | Lamiaceae | H (P) | M | WP | Used for fever, liver disorders, and as an anti-inflammatory. |
| 8 | *Albizia chinensis* (Osbeck) Merr. | Bhandi | Phaklak | Fabaceae | T (P) | M | Br, Lvs | Used for skin diseases, anti-inflammatory, and respiratory ailments. |
| 9 | *Allium hookeri* Thwaites | Unknown | Maroinapakpi | Amaryll-idaceae | H (P) | M | Blb, Lvs | Used for digestive problems, cholesterol reduction, and as an antioxidant. |
| 10 | *Allium sativum* (L.) | Lashuna | Chanum | Amaryll-idaceae | H (B) | M | Blb | Used for heart health, blood pressure regulation, and antimicrobial properties. |
| 11 | *Allium tuberosum* Rottler ex Spreng. | Unknown | Maroin-akuppi | Amaryll idaceae | H (P) | M | Lvs, Blb | Used for digestive issues, kidney function, and immunity boost. |
| 12 | *Alysicarpus monilifer* (L.) DC. | Mrinalini | Khumbhal | Fabaceae | H (A) | NM | WP | Used for urinary disorders and skin infections. |
| 13 | *Amaranthus spinosus* (L.) | Tanduliya | Chengkruk | Amarant-haceae | H (A) | NM | Lvs, Sd | Used for anemia, kidney problems, and as a diuretic. |
| 14 | *Ambrosia artemisiifolia* (L.) | Unknown | Khalong | Asteraceae | H (A) | NM | Lvs, Fls | Used for allergies and skin irritation. |
| 15 | *Amomum aromaticum* Roxb. | Kakola | Namra | Zingiber-aceae | H (P) | M | Rh | Used for digestive problems, nausea, and antimicrobial purposes. |
| 16 | *Andrographis paniculata* (Burm. f.) Nees | Kalamegha | Bhubati | Acanth-aceae | H (A) | M | WP | Used for immunity boosting, fever, and liver disorders. |

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| 17 | *Aquilaria agallocha* Roxb. | Agaru | Agar | Thymel-aeaceae | T (P) | M | HW | Used for perfumes, wound healing, and respiratory disorders. |
| 18 | *Argyreia nervosa* (Burm. f.) Bojer | Vriddha-daruka | Pungdingbi | Convol-vulaceae | C (P) | NM | Lvs, Rt | Used for nerve disorders, stress relief, and reproductive health. |
| 19 | *Artocarpus lakoocha* Roxb. | Lakucha | Heirikokthong | Moraceae | T (P) | M | Br, Fr | Used for skin diseases, digestive health, and deworming. |
| 20 | *Boerhavia diffusa* (L.) | Punarnava | Pononua | Nyctagin-aceae | H (P) | M | Rt, Lvs | Used as a diuretic, for kidney diseases, and liver protection. |
| 21 | *Cajanus cajan* (L.) Millsp. | Adhaki | Mairongbi | Fabaceae | S (P) | M | Lvs, Sd | Used for anemia, respiratory problems, and diabetes management. |
| 22 | *Calotropis gigantea* (L.) W.T. Aiton | Arka | Ang-got | Apocyn-aceae | S (P) | NM | Lvs, La, Fls | Used for joint pain, wound healing, and skin diseases. |
| 23 | *Cassia alata* (L.) | Dadrughna | Daopata | Fabaceae | S (P) | M | Lvs | Used for fungal infections, skin diseases, and constipation. |
| 24 | *Cassi afistula* (L.) | Aragvadha | Chahui | Fabaceae | T (P) | M | Pds, Lvs | Used as a laxative, for skin disorders, and blood purification. |
| 25 | *Cassia occidentalis* (L.) | Kasamarda | Khangkhong | Fabaceae | H (A) | M | Rt, Lvs, Sd | Used for liver disorders, fever, and constipation. |
| 26 | *Centella asiatica* (L.) Urb. | Mandukaparni | | Peruk | Apiaceae | H (P) | M | WP Used for memory enhancement, skin diseases, and wound healing. |
| 27 | *Cinnamomum tamala* (Buch.-Ham.) T. Nees and Eberm | Tejapatra | Tejpata | Lauraceae | T (P) | M | Lvs, Br | Used for digestion, diabetes, and as a spice. |
| 28 | *Cissampelos pareira* (L.) | Patha | Velvet leaf | Menispe-rmaceae | C (P) | M | Rt, Lvs | Used for urinary tract infections, fever, and pain relief. |
| 29 | *Citrus ganrhhini* Lush. | Nimbuka | Kachaichampra | Rutaceae | T (P) | NM | Lvs, Fr | Used for digestion, vitamin C deficiency, and respiratory infections. |
| 30 | *Clerodendrum indicum* (L.) Kuntze | Bharangi | Charoitong | Lamiaceae | S (P) | NM | Lvs, Rt | Used for fever, respiratory ailments, and digestive issues. |
| 31 | *Clerodendrum siphonanthis* (Buch.-Ham. ex D. Don) Mabberley | Unknown | Kuthapangouba | Lamiaceae | S (P) | M | Lvs, Rt | Used for anti-inflammatory and pain relief. |
| 32 | *Clerodendrum viscosum* Vent. | Bharangi | Kuthapmanbi | Lamiaceae | S (P) | M | Lvs, Rt | Used for skin diseases, fever, and digestive disorders. |

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| 33 | *Coccinia grandis* (L.) Voigt | Bimbi | Kwakthabi | Cucurbi-taceae | C (P) | M | Lvs, Fr | Used for diabetes, liver protection, and as a vegetable. |
| 34 | *Curcuma amada* Roxb. | Amragandhi Haridra | Yai heino-unambi | Zingiber-aceae | H (P) | M | Rh | Used for digestion, anti-inflammatory purposes, and skin diseases. |
| 35 | *Curcuma angustifolia* Roxb. | Tavakshir | Yaipan | Zingiber-aceae | H (P) | M | Rh | Used for digestion and wound healing. |
| 36 | *Curcuma longa* (L.) | Haridra | Yaingang | Zingiber-aceae | H (P) | M | Rh | Used for anti-inflammatory, skin diseases, and digestive health. |
| 37 | *Datura metel* (L.) | Dhattura | Sagoihida kamuba | Solan-aceae | S (P) | M | Lvs, Sd | Used for asthma, pain relief, and anti-inflammatory purposes. |
| 38 | *Desmodium gangeticum* (L.) DC. | Shalaparni | Porongkhok | Fabaceae | H (P) | M | Rt, Lvs | Used for fever, inflammation, and liver disorders. |
| 39 | *Dillenia indica* (L.) | Karmarda | Hei-gri | Dilleniaceae | T (P) | M | Fr, Br | Used for stomach ailments, respiratory disorders, and as a tonic. |
| 40 | *Eclipta prostrata* (L.) | Bhringraj | Uchisumbal | Asteraceae | H (A) | NM | WP | Used for hair growth, liver protection, and skin diseases. |
| 41 | *Flemingia strobilifera* (L.) W.T. Aiton | Simbusak | Luck plant | Fabaceae | S (P) | M | Lvs, Rt | Used for skin diseases, fever, and digestive disorders. |
| 42 | *Hedychium flavum* Roxb. | Haridra Kanda | Loklei | Zingiberaceae | | H (P) | M | Rh Used for digestive disorders, antimicrobial, and anti-inflammatory purposes. |
| 43 | *Hibiscus rosa-sinensis* (L.) | Japâ Kusuma | Jubakusum | Malvaceae | S (P) | M | Fls, Lvs | Used for hair growth, menstrual disorders, and skin care. |
| 44 | *Homalomena aromatica* (Spreng.) Schott | Gandhak-aucha | Sugandh-mantri | Araceae | H (P) | M | Rh | Used for pain relief, digestion, and stress reduction. |
| 45 | *Justicia adhatoda* (L.) | Vâsaka | | Acanth aceae | S (P) | M | Lvs | Used for respiratory ailments, cough, and asthma. |
| 46 | *Kaempferia rotunda* (L.) | Bhûmicha mpâ | Leibak lei | Zingiber aceae | H (P) | NM | Rh | Used for pain relief, digestion, and skin diseases. |
| 47 | *Lantana camara* (L.) | Chaturangi | Nongban lei | Verben aceae | S (P) | M | Lvs, Fls | Used for wound healing, insect repellent, and fever. |
| 48 | *Leucas aspera* (Willd.) Link | Dronapushpi | Mayangl ambum | Lamiaceae | H (A) | M | WP | Used for fever, respiratory ailments, and skin diseases. |
| 49 | *Magnolia champaca* (L.) Baill. ex Pierre | Champa | Leihaoan gangba | Magnoli aceae | T (P) | NM | Fls, Br | Used for stress relief, perfumes, and digestive issues. |

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| 50 | *Melastoma. malabathricum* L | Tinisah | Yachubi | Melasto mataceae | S (P) | M | Lvs, Rt | Used for wound healing, digestive issues, and skin care. |
| 51 | *Melia azedarach* (L.) | Maha-Nimba | Seijark | Meliaceae | T (P) | NM | Lvs, Sd | Used for deworming, skin diseases, and fever. |
| 52 | *Melothria perpusilla* (Blume) Cogn. | Kakmachi | Lamthabi | Cucurbi taceae | C (P) | NM | Fr, Lvs | Used for digestive issues and as a vegetable. |
| 53 | *Mikania micrantha* Kunth | Arkalata | Oorihin gchabi | Asteraceae | C (P) | M | Lvs, St | Used for wound healing, fever, and pain relief. |
| 54 | *Mimosa pudica* (L.) | Lajjalu | Kangphal ekaithibi | Fabaceae | H (A) | M | Lvs, Rt | sed for urinary disorders, pain relief, and skin diseases. |
| 55 | *Momordica charantia* (L.) | Kâravella | Karota khabi | Cucurbi taceae | C (A) | NM | Fr, Lvs | Used for diabetes, digestion, and as a vegetable. |
| 56 | *Mussaenda roxburghii* Hook.f. | Masumda | Hanurei | Rubiaceae | S (P) | M | Lvs, Rt | Used for skin infections and wound healing. |
| 57 | *Nyctanthes arbor-tristis* (L.) | Parijat | Singgarei | Oleaceae | ST (P) | M | Fls, Lvs | Used for fever, liver protection, and joint pain. |
| 58 | *Ocimum basilicum* (L.) | Maha-Tulasi | Naosek lei tulsi | Lamiaceae | H (A) | M | Lvs, Sd | Used for digestion, respiratory ailments, and stress relief. |
| 59 | *Oroxylum indicum* (L.) Kurz | Shyonaka | Shamba | Bignoni aceae | T (P) | NM | Br, Rt | Used for fever, inflammation, and respiratory issues. |
| 60 | *Oxalis corniculata* (L.) | Amlapatra | Yensil | Oxalidaceae | H (A) | M | WP | Used for digestion, fever, and skin diseases. |
| 61 | *Paederia foetida* (L.) | Prasarini | Oinum | Rubiaceae | C (P) | M | Lvs, St | Used for digestive health and anti-inflammatory purposes. |
| 62 | *Parkia javanica* (A. Cunn.) Merr. | Ajashringi | Yongchak | Fabaceae | T (P) | M | Sd, Br | Used for digestion and as a vegetable. |
| 63 | *Passiflora edulis* Sims | Krishna Kamala | Shitaphal | Passiflo raceae | C (P) | M | Lvs, Fr | Used for stress relief, sleep disorders, and digestion. |
| 64 | *Piper betle* (L.) | Tambula | Kwa mana | Piperaceae | C (P) | M | Lvs | Used for digestion, oral health, and antimicrobial properties. |
| 65 | *Piper nigrum* (L.) | Maricha | Golmorich | Piperaceae | C (P) | M | Fr | Used for digestion, respiratory disorders, and as a spice. |
| 66 | *Plumbago zeylanica* (L.) | Chitraka | Telhidakan gouba | Plumbag inaceae | S (P) | M | Rt, Lvs | Used for skin diseases, digestive issues, and fever. |
| 67 | *Portulaca oleracea* (L.) | Loni | Leibakkundo | Portulac aceae | H (A) | M | WP | Used for digestion and skin care. |
| 68 | *Rhus chinensis* Mill. | Unknown | Heimang | Anacardi aceae | T (P) | M | Fr, Br | Used for digestive disorders and fever. |
| 69 | *Ricinus communis* 9 (L.) | Eranda | Kege | Euphorbi aceae | S (P) | M | Sd, Lvs | Used as a laxative and for skin care. |

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| 70 | *Scoparia dulcis* (L.) | Pashana bheda | Sumjit manbi | Plantaginaceae | H (A) | M | WP | Used for diabetes, digestion, and fever. |
| 71 | *Senna tora* (L.) Roxb. | Chakra marda | Thaonum | Fabaceae | H (A) | M | Lvs, Sd | Used as a laxative and for skin diseases. |
| 72 | *Sida acuta* Burm. f. | Bala | Uhannakuppi | Malvaceae | S (P) | M | WP | Used for fever, pain relief, and inflammation. |
| 73 | *Solanum nigrum* (L.) | Kakmachi | Morokmaan | Solanaceae | H (A) | M | Lvs, Fr | Used for liver protection and digestive issues. |
| 74 | *Solanum torvum* Sw. | Bhuringani | Leipungkhang | Solanaceae | S (P) | M | Fr, Rt | Used for respiratory issues and fever. |
| 75 | *Tephrosia purpurea* (L.) Pers. | Sharapunkha | | Fabaceae | H (P) | M | WP | Used for liver protection and fever. |
| 76 | *Tinospora cordifolia* (Willd.) Hook. f. and Thomson | Guduchi | Ningthou khonglee | Menispermaceae | C (P) | M | St, Lvs | Used for immunity boosting and fever. |
| 77 | *Vitex negundo* (L.) | Nirgundi | Urikshibi | Lamiaceae | S (P) | M | Lvs, Sd | Used for respiratory disorders and pain relief. |
| 78 | *Withani asomnifera* (L.) Dunal | Ashwag andha | Ashwagandha | Solanaceae | S (P) | M | Rt, Lvs | Used for stress relief and strength. |
| 79 | *Zanthoxylum armatum* D C. | Tejovati | Mukthrubi | Rutaceae | S (P) | M | Fr, Br | Used for digestion and toothache. |
| 80 | *Zingiber officinale* Roscoe | Shunti | Shing | Zingiberaceae | H (P) | M | Rh | Used for digestion, nausea, and cold relief. |

Abbreviations: **H** = Herb; **S** = Shrub; **T** = Tree; **C** = Climber; **F** = Fern; **ST** = Small Tree; **P** = Perennial; **A** = Annual; **B** = Biennial; **Pds** = Pods; **Lvs** = Leaves; **Rh** = Rhizome; **Rt** = Roots; **Fls** = Flowers; **Fr** = Fruit; **Fro** = Fronds; **Br** = Bark; **Blb** = Bulbs; **Sd** = Seeds; **St** = Stem; **HW** = Heartwood; **WP** = Whole plant; **La** = Latex; **M =** Marketable; **NM =** Non – marketable

Devi, 2013). Additionally, the distribution of these species across different families highlights ecological interdependence, where plants provide vital ecosystem services benefiting both flora and fauna (Naorem and Devi, 2019). Conservation efforts should include the establishment of protected areas, sustainable harvesting initiatives, and the integration of traditional knowledge with modern conservation strategies (Devi *et al*., 2016). Community-based conservation programs can further empower local populations to take an active role in preserving their environment and cultural practices related to plant use (Singh and Devi, 2015).

This study emphasizes the rich ethnobotanical heritage of the region, the crucial role of plant diversity in local healthcare, and the necessity for targeted conservation actions to protect valuable plant species (Wangkheirakpam and Khumbongmayum, 2020). Further research into the pharmacological properties of these plants and the identification of additional species with medicinal potential should be a priority for future studies (Singh and Singh, 2014). By combining traditional knowledge with modern scientific methodologies, this research aimed to contribute to a deeper understanding of the relationships between plants, people, and the environment, thereby supporting both ecological sustainability and the economic well-being of local communities in Manipur.

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