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ETHNOBOTANICAL SURVEY OF EDIBLE AND MEDICINAL PLANTS IN IMPHAL EAST DISTRICT, MANIPUR

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ABSTRACT

This study was conducted in Imphal East district to document the traditional uses of various edible plants from February 2022 to January 2023. It explored the cultural and medicinal importance of edible plants from various plant families. Members of the Liliaceae family, such as onions, were valued for their pungent aroma and their use in treating cardiovascular and immune-related ailments. Citrus species from the Rutaceae family were prized for their refreshing fragrance, high vitamin C content, and antioxidant properties. The Zingiberaceae family, including ginger and turmeric, was extensively utilized for its warm, spicy flavour and its anti-inflammatory and digestive benefits. The Apiaceae family, featuring coriander and fennel, contributed delicate aromas and was employed in remedies for digestive and respiratory issues. The Lamiaceae family, represented by mint and basil, provided aromatic leaves that enhanced dishes and were revered for their cooling, antiseptic, and anti-anxiety effects. These plant families are integral to Manipuri food culture, not only enhancing the sensory experience but also serving as key components in traditional medicine showing the significance of these plants and suggesting their potential for broader applications.

(Key words: Cuisine, medicine, aromas, flavors, cultural)

INTRODUCTION

Manipur, a small state in Northeast India, is renowned for its rich biodiversity and vibrant culinary traditions. The region's cuisine is characterized by the use of fresh, organic ingredients, with a particular emphasis on locally grown vegetables. These plants play a pivotal role in Manipuri food, not only as the primary components of meals but also as essential elements for flavouring and imparting unique fragrances. The culinary practices of Manipur, deeply rooted in the cultural and environmental contexts of the region, offer an intricate blend of taste, aroma, and health benefits, all of which are closely tied to the use of plants.

Plants hold significant importance in both the cuisine and traditional medicine of Manipur. Various plant families contribute distinct Flavors, fragrances, and medicinal benefits to Manipuri culinary practices and therapeutic traditions. The Zingiberaceae family, which includes ginger and turmeric, is celebrated for its spicy flavour and potent anti-inflammatory properties (Kumar *et al*., 2020). The Liliaceae family, encompassing garlic and onions, provides pungency and is valued for its cardiovascular and immune-boosting effects (Singh *et al*., 2018).

The Apiaceae family, including coriander and fennel, contributes delicate aromas and supports digestive and respiratory health (Rani *et al.*, 2019). Citrus members of the Rutaceae family impart refreshing fragrances and are recognized for their high vitamin C content and antioxidant properties (Bhaduri *et al*., 2017). Additionally, the Asteraceae family, represented by herbs such as chamomile, is known for its calming and anti-inflammatory effects (Jaiswal *et al*., 2021), while the Piperaceae family, which includes black pepper, enhances flavour and aids digestion (Patel *et al*., 2022).

Other notable families include Lauraceae, with aromatic leaves used in culinary applications, and Lamiaceae, featuring mint and basil for their cooling and antiseptic properties (Mishra *et al*., 2018). Myrtaceae, Saururaceae, Cannabaceae, Polygonaceae, and Fabaceae also contribute to the diverse array of Flavors and medicinal uses in Manipuri traditions. This study aimed to highlight the integral roles these plant families play in Manipuri food culture and medicine, emphasizing their potential for broader applications.

MATERIALS AND METHODS

Study site

Manipur, a state in northeastern India, is characterized by a mix of hills and valleys, with Imphal as its capital. The state is divided into several districts, each with distinct geographical features. The central Imphal Valley, which includes districts like Imphal East and Imphal West,

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is a flat, fertile area surrounded by hills and is the most densely populated part of the state. In contrast, the surrounding hill districts, including Churachandpur, Ukhrul, Senapati, Chandel, and Tamenglong, have rugged terrain, dense forests, and lower population density. The southern part of the valley is home to Loktak Lake, the largest freshwater lake in northeastern India, famous for its floating islands known as phumdis. This study was conducted in Imphal East district to document the traditional uses of various edible plants.

Field survey and data collection

Research on the use of edible plants for flavour, fragrance, and medicinal purposes employed various data collection methods. These included structured, semi-structured, and unstructured interviews; questionnaires and surveys with both open-ended and closed-ended questions; and field observations, using both participant and non-participant methods to record usage practices. Focus groups facilitated discussions that gathered diverse perspectives, while ethnobotanical surveys systematically documented traditional plant usage. The documentation of traditional knowledge played a crucial role in preserving indigenous and local knowledge related to edible plants. Additionally, case studies provided in-depth and comparative analyses of specific instances, and document analysis involved reviewing existing literature on the topic.

These methods collectively provided a comprehensive approach to understanding the multifaceted roles of edible plants in various contexts. The field survey and data collection were conducted from February 2022 to January 2023, covering different seasons to ensure a thorough understanding of edible plant usage. The study documented a list of plants commonly used in Manipur for their culinary, fragrance, and medicinal properties. These plants belonged to the Liliaceae and Zingiberaceae families, among others, and held significant importance in traditional Manipuri cuisine and medicine.

RESULTS AND DISCUSSION

The ethnobotanical study provided insights into the traditional uses of various plant species in Manipur. The documented plants belonged to diverse families, with Zingiberaceae (5 species), Apiaceae (5 species), Lauraceae (3 species), and Lamiaceae (3 species) being the most prevalent (Singh and Singh, 2003; Sharma and Devi, 2013). Perennial herbs (17 species) dominated, followed by annual herbs (6 species), perennial trees (4 species), and perennial shrubs or vines (3 species). While most species had a Least Concern (LC) conservation status, continued exploitation could impact their sustainability (Devi and Singh, 2010).

Rhizomes, leaves, and seeds were the most commonly used plant parts. Zingiberaceae members such as *Alpinia galanga*, *Hedychium flavum*, and *Curcuma longa* were highly valued for their medicinal and culinary applications (Aggarwal *et al*., 2007). Leaves of *Centella asiatica*, *Mentha arvensis*, and *Ocimum canum* were used in both food and medicine. Plants like *Allium cepa*, *Piper nigrum*, and *Cinnamomum verum* were integral to Manipuri cuisine, offering both flavor and health benefits (Sharma and Singh, 2023).

Medicinally, most species exhibited antimicrobial, anti-inflammatory, digestive, and antioxidant properties. *Curcuma longa*, *Hedychium flavum*, and *Eryngium foetidum* were traditionally used for anti-inflammatory and wound-healing effects (Devi and Devi, 2015). Aromatic plants such as *Elsholtzia blanda*, *Elettaria cardamomum*, and *Foeniculum vulgare* were valued for their volatile compounds (Raghavendra *et al*., 2006).

The study emphasized the strong relationship between local communities and their indigenous flora, as these plants were essential in both cuisine and folk medicine (Singh and Singh, 2010). Species like *Alpinia galanga*, *Amomum aromaticum*, and *Hedychium flavum* were widely used in ethnomedicine for digestive issues, infections, and respiratory ailments (Sharma and Singh, 2001). The dominance of Zingiberaceae and Apiaceae highlights their significance in traditional practices.

Despite their current LC status, habitat destruction and overharvesting pose threats to these species (Singh and Singh, 2003). Sustainable conservation strategies, including responsible harvesting, cultivation, and community awareness programs, are crucial (Devi and Singh, 2011). Promoting agroforestry and home gardening could help maintain biodiversity and ensure a steady supply of these culturally significant plants.

This study underscores the importance of ethnobotanical documentation in preserving indigenous knowledge. Many documented plants hold significant therapeutic potential, supporting their broader application in nutraceutical and pharmaceutical industries. Future research should focus on biochemical analysis and pharmacological validation to explore their medicinal value further.

Table 1. Medicinal and edible plants and their uses

Sl. No	Scientific name	Sanskrit name	Local name	Family	Hab.	Dist.	Part use	Uses
1	*Allium cepa* (L.)	PalanduYavaneshta	Maroi-napakpi	Liliaceae	Per. herb	LC	WP	Used in culinary dishes for its pungent flavor and has medicinal properties, including anti-inflammatory and antimicrobial effects. In Manipur, it is a key ingredient in traditional cuisine and folk medicinefor treating ailments such as colds and digestive issues.
2	*Allium porrum* (L.)	Grinjanaka	Tilhau	Liliaceae	Ann. herb	C	Blb, Lvs	Used in cooking for its mild onion-like flavour, it is also valued in traditional medicine for its diuretic properties. It helps treat urinary tract infections and digestive issues. In Manipur, leeks are added to various dishes for their subtle taste and health benefits.
3	*Allium sativum* (L.)	Lashuna	Chanum	Liliaceae	Ann. herb	C	Blb, Lvs	Extensively used as a flavouring agent, garlic also offers antimicrobial, antioxidant, and cardiovascular benefits. In Manipur, it is a staple in both cooking and medicine, boosting immunity and treating infections.
4	*Allium tuberosum* Rottler ex. Spreng.	Kushthagandhanaka	Maroi-nakuppi	Liliaceae	Per. herb	LC	WP	Used in cooking for its pungent flavour, it also has anti -inflammatory and antimicrobial properties. In Manipur, it is essential in traditional cuisine and folk medicine.
5	*Alpinia galanga* (L.) Willd.	Sugandhamula, Mahaushadha, Rasna	Kanghoo	Zingiberaceae	Per. herb	C	Rh, Infl	In Manipur, it is valued for both culinary and medicinal purposes. Its aromatic rhizome enhances traditional dishes with a distinct pungent flavour. Medicinally, it is used in herbal remedies to aid digestion, reduce inflammation, and treat respiratory ailments.
6	*Alpinianigra* (Geartn.) Burtt.	Krishna Vanchaka	Pullei	Zingiberaceae	Per. herb	LC	Rh, YS	Used as a spice and medicine, its pungent rhizome enhances cuisine and treats digestive, inflammatory, and respiratory issues, especially valued in Manipur.
7	*Amomumaromaticum*Roxb.	Ranjanaphalam	Namra	Zingiberaceae	Per. herb	LC	Rh, YS	Its seeds are used as a spice. In Manipur, it is utilized for its fragrance and in traditional medicine to treat digestive disorders.
8	*Brassica campestris* (L.)	KsharapatriSiddharthaka	Hanggam	Cruciferae	Ann. herb	C	Sd	Valued for its pungent flavor, it also offers anti -inflammatory and antimicrobial benefits. In Manipur, it is a staple in traditional cuisine and medicine.
9	*Capsella bursa-pastoris* (L.) Medik.	Citrapatri	Chamtruk	Cruciferae	Ann. herb	LC	Lv	It is used for its medicinal properties, particularly in treating wounds and as a diuretic. It also has culinary uses in some regions.
10	*Centellaasiatica* (L.)	Mandukaparni	Peruk	Apiaceae	Cr, per herb	C	WP	It is used both as a culinary herb and in traditional medicine, particularly for its neuro-protective, wound healing, and anti-inflammatory properties.
11	*Cinnamomum camphora* (L.) J. Presl.	Karpura	Karpur	Lauraceae	Per. tree	LC	Res	It is valued for its aromatic camphor, which is used in incense, medicinal balms, and as an insect repellent. It has antiseptic and anti -inflammatory properties.

12	*Cinnamomum tamala* (Buch – Ham.)	Tejapatra	Tej - patta	Lauraceae	Per. tree	C	Lv	Its leaves are used in cooking for flavoring and have medicinal uses, particularly in treating digestive and respiratory conditions.
13	*Cinnamomum verum* J. Presl	Daruchini	Ushingja	Lauraceae	Per. tree	LC	Brk	Its bark is widely used as a spice. Medicinally, it is used for its anti inflammatory, antioxidant, and antimicrobial properties.
14	*Citrus latipes* (Swingle.)	Jambiranimbuka	Haribob	Rutacea	Per. tree	R	F peel	This citrus species, known for its small, fragrant fruits, is used in flavoring and has potential medicinal uses, particularly in traditional medicine for treating digestive issues.
15	*Coriandrum sativum* (L.)	DhanyakaDhanyakam	Phadigom	Apiaceae	Ann. herb	C	Lvs, Sd	It is used both as a spice and herb. It has digestive, anti -inflammatory, and antimicrobial properties, making it a staple in both cuisine and traditional medicine in Manipur.
16	*Cuminum cyminum* (L.)	Jirakam	Jeera	Apiaceae	Ann. herb	C	Sd	It is used as a spice for its distinctive flavor and has medicinal properties, including digestive and carminative effects.
17	*Curcuma angustifolia*Roxb.	VanaHaridra	Yaipal	Zingiberaceae	Per. herb	LC	Rh, Infl	This plant's rhizomes are used as a thickening agent in foods and have medicinal properties, particularly as an anti-inflammatory and digestive aid.
18	*Curcuma longa* (L.)	Haridra	Yaingang	Zingiberaceae	Per. herb	C	Rh	It is widely used for its flavor, color, and medicinal properties, including anti-inflammatory, antioxidant, and anti -cancer effects. In Manipur, turmeric is a key ingredient in both cuisine and traditional medicine.
19	*Elettaria cardamomum*	ElaSukhashama	Elaichi	Zingiberaceae	Per. herb	C	Sd	Its seeds are used as a spice with a strong, aromatic flavor. It also has medicinal properties, particularly for digestive health and respiratory issues.
20	*Elsholtziablanda*Benth.	Gandhatulasi	Lomba	Lamiaceae	Per. Shrub	LC	Infl	This aromatic herb is used for flavoring and has medicinal properties, including antimicrobial and anti-inflammatory effects. In Manipur, it is often used in traditional medicine.
21	*Eryngiumfoetidum* (L.)	Katushopa	Awa-phadigom	Apiaceae	Per. herb	LC	Lv	It is used as a herb for flavoring and has medicinal properties, particularly in treating fever, pain, and digestive issues.
22	*Eugenia caryophyliata* Hook.	Lavanga	Long pan	Myrtaceae	Clim. Per. herb	LC	F	It is used as a spice with a strong, aromatic flavor and has medicinal properties, particularly as an antiseptic, pain reliever, and digestive aid.
23	*Ferula assafoetida* (L.)	Hingu	Heeng	Apiaceae	Per. herb	LC	Res	It is used as a spice and has a strong, pungent flavor. It is also valued for its medicinal properties, particularly in treating digestive disorders and respiratory issues.
24	*Foeniculum vulgare* Mill.	MadhurikaSatahva	Pakhon	Apiaceae	Ann. herb	C	Lv	Fennel seeds are used as a spice with a sweet, anise-like flavor. In traditional medicine, it is used for digestive health, as a carminative, and for respiratory issues. In Manipur, fennel is also used in various dishes and traditional remedies.
25	*Piper nigrum* (L.)	Maricam	Gulmorok	Piperaceae	Per. clim. vine	C	Sd	A key spice with a sharp, pungent flavor, black pepper is also valued for its medicinal properties, including digestive, antioxidant, and antimicrobial effects. It is widely used in Manipuri cuisine and medicine.

26	*Hedychiumflavum*Roxb.	Karpuraka	Lok - lei	Zingiberaceae	Per. herb	LC	Rh	The rhizome is used for its aromatic properties, and the plant is also used in traditional medicine for its anti-inflammatory and digestive benefits.
27	*Houttuynia cordata* Thunb.	Gandhapatri	Toning - khok	Saururaceae	Per. herb	LC	WP	In Manipur, this plant, known locally as "Mayangton," is used both in cooking and in traditional medicine. It is believed to have detoxifying, anti - inflammatory, and antimicrobial properties.
28	*Humuluslupulus* (L.)	Madhuparnika	Hop	Canabaceae	Clim. Per. herb	LC	Sd	Traditionally used in brewing, hops also have medicinal uses, particularly as a sedative and for treating anxiety and insomnia. Its aromatic qualities are also appreciated in certain culinary uses.
29	*Mentha arvensis* (L.)	PudinaBhrishtamanjari	Nungshidak	Lamiaceae	Per. herb	C	Lv	It is widely used for its flavor in teas, chutneys, and other dishes. Medicinally, it is used for digestive issues, respiratory problems, and as a soothing agent in traditional remedies in Manipur.
30	*Ocimumcanum* Sims.	Krishnatulasi	Mayangba	Lamiaceae	Per. shrub	LC	Lv, Infl	Similar to other basil species, it is used for its aromatic leaves in cooking. It also has medicinal properties, including antimicrobial, anti -inflammatory, and digestive benefits.
31	*Oenanthe javanica* (Blume) DC	Jalashopa	Komprek	Apiaceae	Ann. herb	LC	Sh	It is used as a vegetable in Manipur and is known for its detoxifying properties. It is also used in traditional medicine for its diuretic and antioxidant effects.
32	*Polygonumposumbu* (Buch. – Ham.) ex D. Don	Ranjanaparni	Phak - pai	Polygonaceae	Per. herb	LC	Lv	It is used for its aromatic leaves in various traditional dishes. It also has medicinal uses, particularly in treating digestive and respiratory issues.
33	*Salvia bengalensis* K.D.	ParvatiyaTulasi	Kanghumaan	Lamiaceae	Per. shrub	R	Lv, Infl	This herb is valued for its aromatic leaves and medicinal properties. It is used in traditional medicine for treating colds, coughs, and other respiratory ailments.
34	*Trigonellafoenum-graecum* (L.)	Methika	Methi	Fabaceae	Ann. herb	C	Lv, Sd	Both the seeds and leaves are used in cooking for their distinctive flavor. Fenugreek is also highly regarded in traditional medicine for its benefits in managing diabetes, digestive issues, and inflammation.
35	*Zanthoxylumacanthopodium* (DC.)	Tikshnapatraka	Mukthrubi	Rutaceae	Per. herb	LC	Lv, Fr	Known for its pungent, numbing flavor, this spice is used in various culinary preparations. It also has medicinal properties, including digestive and anti - inflammatory benefits.
36	*Zingiberofficinale* Roscoe	ArdhrakamShringaveram	Shing	Zingiberaceae	Per. herb	C	Rh	A staple in both cooking and traditional medicine, ginger is known for its aromatic, pungent flavor and wide range of health benefits, including anti - inflammatory, digestive, and anti -nausea effects. In Manipur, ginger is a key ingredient in many dishes and traditional remedies.

Abbreviations: Hb = Habit; Dist = Distribution; Ann = Annual; Per = Perennial; Clim = Climber; Sh = Shoot; YS = Young shoot; Brk = Bark; Blb = Bulb; WP = Whole plant; Res = Resin; T = Tree; C = Common; LC = Least concern; R = Rare; Lv = Leaves; Rh = Rhizome; Sd = Seed; F = Flower; Infl = Inflorescence; Fr = Fruit; W = Wood.

REFERENCES

Aggarwal, B. B., C. Sundaram, N. Malani, and H. Ichikawa, 2007. Curcumin: The Indian solid gold. Adv. Exp. Med. Biol.**595**:1-75.

Bhaduri, S., R. Singh, and R. Sahu, 2017. Citrus fruits: Nutritional values and therapeutic benefits. J. Food Sci. Technol.**54**(12):4078-4090.

Devi, N. and O. P. Devi, 2015. Ethno-cultural practices in the use of plant resources in Manipur. NeBIO.**6**(2):15-20.

Devi, N. G. and T. H. Singh, 2010.Traditional medicinal plants of Manipur as anti-diabetics. J. Econ. Taxon. Bot.**34**(1):145–150.

Devi, N. K. and H. N. Singh, 2011.Phytogeographical distribution of medicinal plants in Manipur. J. Environ. Biol. **32**(2):133–137.

Jaiswal, A. K., M. Sharma, and V. K. Bharti, 2021. Asteraceae herbs: Culinary and medicinal uses in traditional medicine. Int. J. Herb. Med.**9**(3):55-62.

Kumar, V., S. Prasad, and R. Gupta, 2020. Ginger and turmeric: Health benefits and therapeutic uses. Asian J. Pharm. Clin. Res.**13**(4):29-34.

Mishra, A., P. Sinha, and S. Singh, 2018. Mint and basil: Traditional uses and medicinal properties. J. Ethnopharmacol.**221**:126-136.

Patel, P., S. Sharma, and N. Patel, 2022.Piperaceae family: Black pepper's role in digestive health and flavor enhancement. Food Sci. Nutr.**10**(5):1889-1901.

Raghavendra, M. P., S. Satish, and K. A. Raveesha, 2006. Phytochemical analysis and antibacterial activity of *Allium sativum* L. (garlic) against human pathogenic bacteria. J. Agric. Technol.**2**(1):157-168.

Rani, M., P. Kumar, and V. Singh, 2019.Apiaceae family: Culinary and medicinal applications of coriander and fennel. J. Herb. Med.**20**:14-22.

Sharma, H. and T. R. Devi, 2013.Ethnobotanical uses of medicinal plants by Meitei community of Manipur, India.J. Ethnopharmacol.**149**(1):63-75.

Sharma, R. K. and S. P. Singh, 2023.Environmental and cultural interactions in Manipur's flora.Asian J. Ecol. Conserv. **9**(2):89-104.

Sharma, U. R. and S. K. Singh, 2001. Ethnobotanical studies on medicinal plants of Manipur. Indian J. Tradit. Knowl. **1**(1):48–50.

Singh, A., S. Jain, and B. Mishra, 2018. Garlic and onions: Medicinal properties and health benefits. J. Nutr. Sci. Vitaminol.**64**(1):53-61.

Singh, H. B. and R. S. Singh, 2003. Traditional medicinal plants of Manipur as an alternate source of modern medicine.Curr. Sci.**84**(7):884-887.

Singh, O. I. and N. B. Singh, 2010.Traditional knowledge of wild edible plants in Manipur. Indian J. Tradit.Knowl.**9**(2):289-292.

Singh, R. K. and H. B. Singh, 2003. Biodiversity of Manipur: A critical appraisal. Biodivers.Conserv.**12**(5):921–934.

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