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## Ethnomedicinal significance of some indigenous plant species of lakhimpur district, Assam and their conservation strategy

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### Abstract

Ethnomedicine embodies the rich and diverse traditional knowledge systems developed by indigenous communities worldwide. This study investigates the ethnomedicinal practices of the Lakhimpur district in Assam, India, with a focus on documenting indigenous uses of medicinal plants for healthcare. Between 2021 and 2024, extensive fieldwork and ethnobotanical surveys were conducted, recording 60 plant species used by ethnic communities like the Mising, Bodo, Karbi, Deori, Kosari, Rabha, Dimasa, Aibhasi etc. for treating ailments ranging from digestive disorders to neurological and metabolic conditions. Through structured interviews with traditional healers (*Kabiraj*), community elders, and market surveys, the study provides a comprehensive inventory of plants, their therapeutic applications, and methods of preparation. The findings underscore the indispensable role of traditional medicinal plants in sustaining community health and emphasise the urgent need for conservation strategies to safeguard this invaluable knowledge amidst rapid cultural and environmental changes.

**Keywords:** Ethnomedicine, medicinal plants, Assam, indigenous knowledge, conservation, traditional healers, healthcare.

### Introduction

The Herbal healers of the Lakhimpur district have used many plant species with the ethno medicinal value found in forest areas, marshes, kitchen gardens, paddy fields etc, for the treatment of different diseases. Some plants like *Acorus calamus*. L (Bach), *Ricinus communis*.L (Ara), *Tinospora cordifolia*. (Willd.) Hook. f. & Th (saguni lota) etc since a long time ago. (Neog and Borgohain 2014) <sup>[10]</sup>. The Herbal healer has adequate knowledge of medicinal plants and their uses in healing different diseases among the Mishing community (Bhuyan 2015) <sup>[22]</sup>. The Traditional health care system is an integral part of society that is based on tradition and belief and it means for maintaining health of people by preventing and curing disease (Medhi, 1995) <sup>[6]</sup>. WHO has estimated that more than 80% of people in developing countries rely on traditional medicine for their primary healthcare needs? (Azaizeh *et al.* 2003) <sup>[5]</sup> and 85% of the traditional medicines involved the use of plant extracts. (Kumar and Dhan 1988) <sup>[4]</sup>. Medicinal plants occupy an important position in the socio-cultural and therapeutic area of India (Kurup *et al.*1979) <sup>[3]</sup> In India more than 2500 plants with medicinal value are officially recorded and it is estimated that over 6000 plant species are used in traditional folk and herbal medicines (Huxley1984). Recently several workers studied ethnomedicinal plants and their use in curing diseases (Khongsai *et al.* 2011, Chakravorty *et al.* 2012) <sup>[2, 23]</sup>.

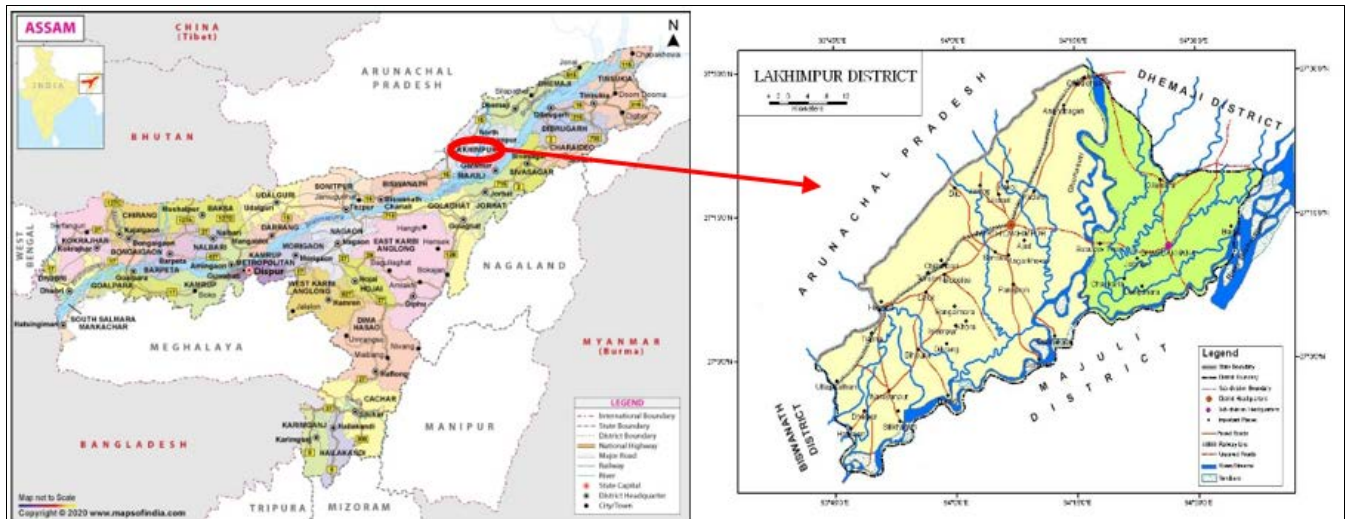
### Methods

The study was conducted from 2021 to 2024 across villages and tea gardens of Lakhimpur Subdivision, Assam. Data collection followed the methodologies outlined by Jain (1987-1989) <sup>[7]</sup>, combining interviews, direct observations, and market surveys.

### Data Sources

Traditional healers (*Kabiraj*) and community elders were interviewed to document plant uses, preparation methods, and local nomenclature.

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**Fig 1:** Maps of Assam and Lakhimpur district

Market surveys were conducted to observe the trade and application of medicinal plants.

### Plant Identification

Specimens were identified during field visits or cross-referenced with established botanical literature, including *Assam's Flora* by Choudhury (2005) and *Medicinal Plants of Assam* by U.K. Sharma (2004). Herbarium specimens were deposited in the Botany Department of L.T.K. College, along with photographic documentation.

### Documentation

Details such as scientific names, local names, families, habits, parts used, and medicinal applications were meticulously recorded.

### Findings

The study documented a diverse range of ethnomedicinal plants, emphasizing their importance in traditional healthcare. A representative subset is presented in the table below:

**Table 1:** Traditional medicinal plants used for various ailments.

Scientific Name	Local name (Assamese)	Family	habit	Parts used	Used in
<i>Hydrocotyl sibihopioides</i> Lamk.	Xaru manimuni	Apiaceae	herb	Whole plant	Diarrhoea and dysentery
<i>Centella asiatica</i> . L	Bar manimuni	Apiaceae	Herb	Whole plant	Appetite, dysentery, memory stimulant
<i>Houttoynia cordata</i> Thumb.	Mosondari	Sauraraceae	herb	Leaves	Diarrhoea, dysentery
<i>Costus speciosus</i> ( Koen. Ex. Retz.) J.E. Smith	Jam lakhuti	Costaceae	shrub	root	Jaundice, Pneumonia Stomach pain of womendyrusia
<i>Vitex negundo</i> .L	Posotia	Verbenaceae	shrub	Leaves	Used in cough and throat sore, back and body pain,.
<i>Mentha spictata</i> Linn	Podina	Lamiaceae	herb	Stem and Leaves	High blood pressure
<i>Sarcochlamys pulcherrima</i> ( Roxb) Gaud.	Mesaki	Utricaceae	Shrub or small tree	Leaves	High blood pressure
<i>Pogostemon benghalense</i> (B) O. Ktz.	shukloti	Lamiaceae	shrub	Leaves, tender stem	For uterus contraction after child birth
<i>Phyllanthus fraternus</i> Webst.	Bon amlokhi	Euphorbiaceae	Small herb	Leaves, fruit	Jaundice, reduce cholesterol
<i>Paederia scandense</i> (Lour). Merr.	bhedailata	Rubiaceae	climber	Leaves	Tuberculosis, menstrual complaints, stomach pain, Dysentery, Diarrhoea, gastric.
<i>Piper longum</i> .L	Pipoli	piperaceae	climber	Leaves	Anti-rabies in dog bite, cold, cough, idigestion
<i>Boerhaavia diffusa</i> . L	punarnaba	Nictaginaceae	Herb	Tender stem and leaves	Used in anemia, liver disease, wound, kidney disease
<i>Murraya koenigii</i> (L) Spreng	Narasingha	Rutaceae	Shrub	Leaves	increase appetite,
<i>Bryophyllum pinnatum</i> Lam. Oken	Dupar tenga	Crassulaceae	Herb/ small plant	Leaves juice	Used for kidney stones, burns, Ulcers, diarrhoea, piles and to lower cholesterol.
<i>Andrographis paniculata</i> Linn.	Chirata	Acanthaceae	shrub	Leaves	Leaves juice <i>against worm</i>
<i>Bacopa monnieri</i> .Linn	Brahmi	Scrophulariaceae	herb	Stem and Leaves	Improve long-term memory, in the treatment of dementia
<i>Citrus aurentifolia</i>	Golnemu	Rutaceae	shrub	Fruit	Fever, dysentery
<i>Leucas aspera</i> Spreng.	Durun	Lamiaceae	herb	Leaves	Jaundice, sinusitis ,appetite
<i>Oxalis corniculata</i> . L.	Tengesi tenga	Oxalidaceae	Sub aerial herb	Stem and Leaves	Used in high blood pressure, diabetic, dysentery
<i>Zingiber officinale</i> Roscoe.	Ada	Zingiberaceae	Rhizome		Cough, cold, motion sickness, fever, indigestion, arthritis, bronchitis and

					stomach pain, gas
<i>Catharanthus roseus</i> .L G. Don.	Nayantora	Apocyanaceae	shrub	Whole plant	cancer, diabetes, leukemia, and wasp-sting.
<i>Commelina benghalensis</i> L.	Konasimalu	Commelinaceae	herb	Whole plan	Used in tuberculosis, infection of the eyes.
<i>Asperagus rasemosus</i> Wild.	Satmul	Liliaceae	shrub	root and stem	Anemia, Leucorrhoea, stomach ache
<i>Abrus precatories</i> . L	Latumoni	Fabaceae		Fruit	Tonsilitis
<i>Acorus calamus</i> . L	Boch	Araceae	herb	rhizome	Treatment of diarrhoea, tuberculosis, cough and cold
<i>Eclipta prostrata</i> (L) L.	Keharaj	Asteraceae	Herb	Whole plant	Lever enlargement, gastric and hepatic trouble, hair tonic and jaundice
<i>Terminalia billirica</i> (Gaertn) Roxb. ex. Fle. m.	bhumura	Combretaceae	Tree	Fruit	Blood purification, gastric ulcer.
<i>Tinospora cordifolia</i> (Willd) Hook. f & Th	sogunilata	Menispermaceae	climber	stem	Fractures, gonorrhoea, chronic dysentery, cuts and wounds, malaria and waist pain.
<i>Caesalpinia bonduc</i> . L Roxb.	Letaguti	Casalpinaceae	climber	Seed karnel	Cough, fever
<i>Calotropis procera</i> Dryand ex. W Ait.	Akon	Asclapiadaceae	Shrubs	Leaves & white latex of Leaves	arthritis
<i>Cissus quadrangularis</i> L.	Har jora lota	Vitaceae	climber	Climber stem	Bone fracture
<i>Croton tiglium</i> L.	konibih	Euphorbiaceae	Small tree	root	miscarase
<i>Clerodendrum colibrookianum</i> Walp.	nephafu	verbenaceae	shrub	Leaves and tender stem	High blood pressure
<i>Aloe barbadensis</i> Miller	Chal kunwari		Small plant	Succulent stem	Burn, fever, white discharge, hair tonic, in piles
<i>Spilanthes paniculata</i> Wall. ex. DC	shuhani	Asteraceae	herb	Leaves, inflorescence	
<i>Ananas comosus</i> . L Merr.	Anaras	Bromeliaceae		Fruit, white tender Leaves base	Diarrhoea, blood dysentery, pin worm,
<i>Azadiracta indica</i> . A. Juss.	Maha neem	Meliaceae	Tree	Leaves	Diabetic, loss of appetite, stomach ache, skin disease, against worm
<i>Aristolacia indica</i> . Linn	Ishormul	Aristolaciaceae	Evergreen climber	Leaves, bark,root and fruit	Dysentery, cough, female infertility, malaria, diabetic, helminthicide, eczema, antidote against snake bite.
<i>Croton joufra</i> . Roxb.	Mahudi	Euphorbiaceae		Leaves	Pneumonia
<i>Cynodon dactylon</i> . L Pers.	Dubari bon	Poaceae	grass	Leaves and stems	Dyuresia,
<i>Cajanus cajan</i> .L. Millsp	Rahar mah	Leguminosae	shrub	Leaves	Jaundice and gastrict
<i>Nyctanthes arbortrsitis</i> . Linn	Shewali phool	Oleaceae	Tree	Leaves, Flower	Fever, malaria
<i>Plumbago jeilenica</i> . L	Boga agesita	Plumbaginaceae	shrub		Leucoderma, cough, swelling in prostate gland, increase digestion, gastric, birt control, wound in duodenum, reduce cholesterol.
<i>Plumbago rosea</i> . Linn	Ronga agesita	Plumbaginaceae	shrub	root	Diarrhoea, indigestion, piles, skin disease, loss in appetite, helminthicide, cough, birth control.
<i>Aegle mermelos</i> . L.Correa.	Bel	Rutaceae	Tree	Fruit	Used in constipation, in piles
<i>Euphorbia hirta</i> . Linn	gakhiroti	Euphorbiaceae	herb	Whole plant	Asthmatic trouble
<i>Sachharum officinarum</i> Linn	kunhiyar	Poaceae	shrub	stem	jaundice
<i>Ocimum sanctum</i>	Tulasi	Lamiaceae	shrub	Leaves	Cold and cough
<i>Emblica officinalis</i> . Gaertn.	Amlakhi	Phylanthaceae	tree	Leaves	Diarrhoea, vomiting, hair growth, Jaundice, liver tonic
<i>Crotolaria tiglum</i> . L	Konibish	Euphorbiaceae	shrub	seed	Head ache, Stomach disorder, cough, bronchitis, fever, leucoderma
<i>Curcuma longa</i> . Linn	Halodhi	Zingiberaceae	herb	rhyzome	Gastrict, tonsilitis,
<i>Phlogocanthus thyrsiformis</i> (Hardw.) Mabblerley	Titaphul or ranga basak	Acanthaceae	Shrub	Flowers and leaves	Fever, Stomach ache, cough, bronchitis
<i>Rhynchostylis retusa</i> . L.Bl.	Kopou phul	Orchidaceae	epiphytic	Leaves	Juice of leaves used as emollient in otorrhoea
<i>Riccinus communis</i> . L	Era	Euphorbiaceae	Shrubs	Leaves roots	Snake bite, post natal pain
<i>Syzygium cumini</i> . L. Skeels	Kola jamu	Myrtaceae	Tree	Fruit,bark, seed and leaves	Diarrhoea, stomach ache, diebetes
<i>Oldanlandia corymbosa</i> Linn.	Bonjaluk	Rubiaceae	herb	Whole plant	Dysentery, fever, pain, gastrict, jaundice
<i>Musa paradisiaca</i> . Linn	Kol gos	Musaceae	herbs	Whole plant	Cold and cough, constipation, kidney problem
<i>Acacia fornesian</i> (Willd).L	Tarua kadam	Fabaceae	shrub	Leaves	Cold and cough, tonsilititis
<i>Piper nigram</i> . L	Jaluk	piperaceae	climber	seed	Fever, diarrhoea
<i>Clerodendrum infortunatum</i> . L	Dhapat tita	verbenaceae	shrub	leaves	Malaria

A total of 60 species were recorded, representing various families such as Lamiaceae, Euphorbiaceae, and Piperaceae. Key findings include:

**Common Ailments Treated:** Diarrhea, dysentery, jaundice, high blood pressure, and kidney disease.

**Versatility of Plants:** Some plants, like *Bryophyllum pinnatum*, exhibited multi-purpose applications, including kidney stone treatment and burn healing.

**Traditional Preparation Methods:** Infusions, decoctions, and raw plant parts were commonly employed.

**Discussion:** The findings of this study align with broader ethnobotanical research, reaffirming the therapeutic potential of plant-based remedies in traditional healthcare systems. The documentation of 60 plant species highlights the immense biodiversity of Lakhimpur district and its critical role in sustaining ethnomedicinal practices.

**Significance in Modern Healthcare:** Medicinal plants identified in this study, such as *Bacopa monnieri* (for cognitive enhancement) and *Costus speciosus* (for liver and respiratory health), are increasingly gaining recognition in modern pharmacology. This underscores the potential of traditional knowledge as a foundation for developing novel drugs and therapies.

**Challenges and Conservation Needs:** Despite their significance, ethnomedicinal practices face several challenges, including:

- Loss of Habitat: Deforestation and urbanization threaten the availability of medicinal plants.
- Decline in Traditional Knowledge: Younger generations show diminished interest in traditional healing practices.
- Overexploitation: Unsustainable harvesting practices jeopardize plant populations.

### Conclusion

The ethnomedicinal practices of the Lakhimpur district reflect a profound integration of cultural heritage and natural resources. This study documented 60 plant species, revealing their diverse applications in traditional healthcare. These plants not only address common ailments but also provide insights into sustainable and eco-friendly healthcare solutions. To ensure the survival of this knowledge system, the following steps are recommended:

- Community-Led Conservation: Empowering local communities to document and protect their ethnobotanical heritage.
- Scientific Validation: Collaborations between traditional healers and researchers to validate the efficacy of plant-based remedies.
- Policy Support: Government initiatives to integrate traditional medicine into primary healthcare and promote sustainable harvesting practices.

Ethnomedicine bridges the gap between tradition and modernity, offering an invaluable resource for global healthcare. Preserving this heritage is not only an ecological imperative but also a tribute to the wisdom of indigenous communities.

### Acknowledgement

We extend our sincere gratitude to the local communities of Lakhimpur district for generously sharing their invaluable knowledge of ethnomedicinal practices. Their willingness to

contribute traditional wisdom has been instrumental in documenting the rich biodiversity and its therapeutic applications. We also acknowledge the support of traditional healers, whose expertise provided critical insights into the preparation and use of medicinal plants.

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