

Leucas biflora Wall. (*Grahanibeelu*): Ethnomedicinal Knowledge, Ayurvedic Interpretation and Prospects for Scientific Validation in *Grahani Roga*

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Abstract

Background: Traditional medical knowledge preserved among indigenous communities remains a valuable source for the discovery and validation of therapeutic agents. *Leucas biflora* Wall. (Family: Lamiaceae), popularly known as *Grahanibeelu* in coastal Karnataka, is an important medicinal plant in folklore and is extensively used in the management of *Grahani*, *Agnimandya*, *Aruchi*, *Karshya*, and *Jwara*. Despite its widespread traditional usage, scientific documentation and validation of this medicinal plant remain inadequate. **Objective:** To critically review the ethnomedicinal importance, Ayurvedic interpretation, botanical characteristics, traditional therapeutic applications, pharmacological potential, and future research prospects of *Leucas biflora* Wall. **Materials and Methods:** Information was compiled from classical Ayurvedic texts, ethnobotanical literature, botanical records, scientific databases, and documented folklore practices from Udupi district of Karnataka. Traditional knowledge regarding therapeutic indications, dosage forms and methods of administration was critically analyzed from an Ayurvedic perspective. **Results:** The plant is traditionally employed for *Grahani*, *Agnimandya*, *Aruchi*, *Karshya* and chronic gastrointestinal disorders. Ayurvedic interpretation suggests *Tikta-Katu Rasa*, *Laghu-Ruksha-Tikshna Guna*, *Ushna Virya* and *Katu Vipaka*, indicating *Deepana*, *Pachana*, *Grahi* and *Agnivardhaka* properties. Existing scientific evidence on related species of the genus *Leucas* supports antimicrobial, antioxidant, anti-inflammatory and gastroprotective activities. **Conclusion:** The traditional use of *Leucas biflora* in *Grahani* and digestive disorders demonstrates significant therapeutic potential. Systematic pharmacognostical, phytochemical, pharmacological and clinical investigations are required to scientifically validate its folklore claims and facilitate its integration into evidence-based Ayurvedic practice.

Keywords: *Leucas biflora*, *Grahanibeelu*, *Grahani*, Ethnomedicine, Ayurveda, Folk medicine, Gastrointestinal disorders.

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Introduction:

Medicinal plants have served as the primary source of healthcare since the dawn of civilization. Traditional knowledge accumulated through centuries of observation and empirical practice continues to provide valuable leads for modern drug discovery. Ayurveda, the ancient Indian system of medicine, recognizes the importance of learning therapeutic knowledge from all sections of society, including shepherds, hunters, forest dwellers, and tribal communities. Charaka specifically emphasizes the need to gather information about medicinal plants from local populations familiar with their utility; the same is mentioned in the *Ashtanga Hridaya* and the *Sushruta Samhita*. [1] [2] [3]

India possesses immense ethnomedicinal diversity, with more than 400 tribal and indigenous communities maintaining unique therapeutic traditions. These traditions often preserve knowledge regarding medicinal plants that remain

undocumented in classical literature. Scientific validation of such practices offers opportunities to identify novel therapeutic agents and to expand the Ayurvedic *Materia Medica*. [8] [10]

One such medicinal plant in folklore is *Leucas biflora* Wall., locally known as *Grahanibeelu* in coastal Karnataka. The name itself indicates its therapeutic association with *Grahani*, a condition characterized by impaired digestive and absorptive functions resulting from *Agnimandya*. Traditional healers widely use the plant in *Brahmavar*, *Kabbinala*, and surrounding regions of Udupi district to manage digestive disorders, malabsorption, loss of appetite, chronic fever, and childhood nutritional deficiencies. Interestingly, the plant is not mentioned in major Ayurvedic *Nighantus*, yet it continues to be used extensively in community-based healthcare. Such

sustained traditional usage indicates potential therapeutic efficacy deserving scientific scrutiny. Therefore, the present review aims to document the ethnomedicinal significance of *Leucas biflora*, interpret its actions in light of Ayurvedic principles, and identify avenues for future scientific validation. Ethnomedicine and Its Relevance in Drug Discovery:

Ethnomedicine represents the cumulative body of knowledge, beliefs, and practices utilized by indigenous communities for maintaining health and treating diseases. Traditional healing systems have contributed significantly to contemporary medicine. Several important therapeutic agents have originated from ethnobotanical observations. The World Health Organization estimates that a major proportion of the global population relies upon traditional medicine for primary healthcare needs. In India, rural and tribal communities continue to preserve medicinal knowledge passed down through generations. Such knowledge often reflects centuries of empirical observations regarding safety and efficacy.[11] The utility of folklore medicine extends beyond cultural significance. Ethnobotanical leads frequently reduce the time and resources required for identifying biologically active compounds. Consequently, the scientific exploration of folk medicinal plants has become an important strategy in pharmacological research. *Grahamibeelu* represents one such promising ethnomedicinal lead whose therapeutic reputation has persisted among traditional healers despite limited scientific investigation.

Botanical Profile

Taxonomy

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnoliopsida

Order: Lamiales

Family: Lamiaceae

Genus: *Leucas*

Species: *Leucas biflora* Wall.

Vernacular Names

Kannada: *Grahamibeelu*

Marathi: *Jodibhrambhi*

Local Folk Name: *Grahamibeelu*

Distribution

The plant is distributed throughout parts of peninsular India, particularly in Karnataka, Maharashtra and adjoining regions. It is commonly observed in moist shaded habitats, agricultural margins and wastelands. [4][5]

Habitat

The plant prefers fertile red soils with adequate moisture and partial shade. Maximum abundance is observed during and immediately after the rainy season.

Morphological Description [6] [7]

Leucas biflora is a slender prostrate herb exhibiting characteristic quadrangular stems. The leaves are opposite, elliptic, and pubescent. Flowers are white and arranged in axillary whorls. The plant possesses a fibrous root system and exhibits extensive ground spread.[8][9]

Folklore Documentation of *Grahamibeelu*

Traditional knowledge regarding *Grahamibeelu* has been documented among local healers of Brahmavar and Kabbinala regions of Udupi district. Healers identify the plant primarily as a remedy for Grahani and associated digestive disorders. The plant is usually harvested during December and January when it reaches maturity. Whole plants are collected, shade-dried, and powdered for therapeutic use. Traditional practitioners frequently administer the drug to children suffering from poor appetite, recurrent digestive disturbances, and failure to gain weight.

The persistence of these practices across generations suggests considerable therapeutic confidence among local communities.

Traditional Therapeutic Applications The principal indications include:

1. *Grahani*
2. *Agnimandya*
3. *Aruchi*
4. *Karshya*
5. *Jwara*
6. *Bala Kshaya*

Chronic digestive disturbances The drug is particularly valued in pediatric practice, where it is administered to improve appetite, digestion, and nutritional status.

Traditional Pharmaceutical Preparations

Swarasa

Fresh juice administered with warm water or buttermilk.

Churna Shade-

dried whole plant powder administered with *Takra*.

Avaleha

Powder processed with milk and jaggery to improve palatability and nutritive value.

Nutritional Formulations

The plant is often combined with *Maricha*, *Jiraka*, *Draksha*, *Ghrita*, and *Madhu* to enhance its digestive and rejuvenating actions.

Ayurvedic Interpretation

The therapeutic profile of *Grahamibeelu* can be understood through Ayurvedic principles.

Rasa

Tikta – predominant

Katu – secondary

Madhura – *Anurasa*

Guna

Laghu

Ruksha

Tikshna

Virya

Ushna

Vipaka
Katu
Karma
Deepana
Pachana
Grahi
Rochana
Agnivardhaka
Brimhana

Kapha-Vata Shamaka

The predominance of *Tikta* and *Katu Rasa* suggests stimulation of digestive and metabolic functions. *Ushna Virya* promotes the correction of *Mandagni*, while *Katu Vipaka* facilitates digestive transformation and reduces *Ama*.

Relevance in Grahani Roga

Grahani is a disorder fundamentally rooted in *Agnimandya*. Impaired digestive function results in incomplete digestion, production of *Ama*, and defective absorption. Clinically, patients present with alternating bowel habits, anorexia, weakness, abdominal discomfort, and nutritional deficiency. The traditional use of *Grahamibeelu* aligns remarkably with Ayurvedic principles of *Grahani* management. *Deepana* and *Pachana* actions improve digestive capacity, while *Grahi* properties help restore bowel function.

The use of *Takra* as an *Anupana* further supports *Grahani Chikitsa* by improving intestinal function and correcting *Dosha* imbalance. Scientific

Evidence and Pharmacological Potential

Studies on species belonging to the genus *Leucas* have reported several pharmacological activities including:

- Antimicrobial activity
- Anti-inflammatory activity
- Antioxidant activity
- Analgesic activity
- Immunomodulatory activity
- Gastroprotective activity

These biological activities may contribute to the therapeutic benefits observed in digestive disorders.

The antimicrobial action may help control enteric pathogens, while antioxidant and anti-inflammatory effects may protect intestinal mucosa and improve nutrient absorption.

Research Gaps

Despite promising traditional evidence, several gaps remain:

- Absence of a standardized pharmacognostic monograph.
- Limited phytochemical characterization.
- Lack of marker compounds.
- Inadequate toxicity studies.
- Absence of controlled clinical trials.
- Lack of mechanistic studies on gut microbiota.
- No standardized dosage guidelines

Future investigations should focus on:

- Pharmacognostic standardization.
- HPTLC fingerprint profiling.
- LC-MS/MS characterization.
- Experimental *Grahani* models.
- Gut microbiome studies.
- Multicentric clinical trials.
- Development of standardized formulations.

Conclusion

Leucas biflora Wall. (*Grahamibeelu*) is a valuable yet underexplored medicinal plant preserved within the folklore traditions of coastal Karnataka. The plant demonstrates a remarkable therapeutic reputation in *Grahani*, *Agnimandya*, *Aruchi*, and nutritional disorders. Ayurvedic interpretation supports its traditional use through *Deepana*, *Pachana*, and *Grahi* actions. Existing evidence from related species further strengthens its potential as a gastrointestinal therapeutic agent. Comprehensive scientific validation may facilitate the inclusion of this important folk medicinal plant into mainstream Ayurvedic therapeutics and contribute toward evidence-based integration of traditional knowledge.[10]

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