

Siali leaves [*Phanera vahlii* (Wight & Arn.) Benth.] in indigenous livelihood: an ethnobotanical perspective

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Abstract: *Phanera vahlii*, a robust woody liana of the family Fabaceae, holds significant ethnobotanical and socio-economic importance for indigenous and forest-dependent communities across India. A comprehensive literature review was conducted, utilizing relevant books, published research articles and online databases to gather information about the traditional uses, medicinal value and socio-economic significance of *P. vahlii* leaves. The present study explored the various ways in which siali leaves contribute to livelihoods and examined the growing market potential for eco-friendly, biodegradable tableware. It also highlights critical gaps in phytochemical research, sustainable harvesting practices, and conservation planning, underlining the urgent need to document and safeguard the indigenous knowledge associated with this ecologically and culturally invaluable species.

Keywords: Forest-dependent communities, minor forest produce, socio-economic significance, sustainable harvesting

Introduction

Phanera vahlii, commonly known as Siali, is one of the most economically important wild lianas of the Indian subcontinent (Devi *et al.*, 2022). Belonging to the family Fabaceae, it is a robust woody climber distributed across the sub-Himalayan tracts, Central India, Eastern Ghats and parts of Peninsular India (Kumar *et al.*, 2021). The large, bilobed leaves, among the largest dicot leaves in the world, can reach sizes of 30-60 cm across. For

centuries, these leaves have been essential to the everyday lives of tribal and forest-dependent communities (Kumar and Raju, 2022). The exceptionally large bilobed leaves serve as the foundation for a thriving cottage industry centred on traditional disposable leaf plates and cups as “dona”. This industry supports the livelihoods of numerous tribal communities, including the Santal, Munda, Gond, Oraon and Kondh across Odisha, Bihar, Jharkhand, Chhattisgarh, Madhya Pradesh and West Bengal (Kora, 2019; Sahu and Das, 2023). Siali leaves have essential roles beyond their economic utility, serving vital roles in traditional food systems, ritual practices, thatching, fodder, and folk medicine. This reflects the deep biocultural relationships between people and plants (Soren and Naik, 2020). One of the most economically significant uses is the crafting of disposable leaf plates and cups by stitching the leaves together with thin bamboo slivers or forest grass stems. Livelihood studies have documented that a single family can earn between Rs. 3000 and Rs. 10,000 per month during peak season for dona-pattal making (Mahato and Gaurav, 2025). Large leaves are also used as natural wrappers for cooking rice, fish and other foods in hot ash or steam, imparting a subtle flavour to the dishes (Kalina *et al.*, 2024). In some parts of Odisha and Jharkhand, these leaf plates are regarded as ritually pure and are obligatory in certain religious feasts, as well as in ceremonies such as Karma puja, Sarhul, Nuakhai, and other tribal festivals (Kora, 2019).



Figure 1: Ethnobotanical data collection from a tribal woman during a field visit



Figure 2: Sun-drying of collected Siali leaves

Methodology

The present study focuses on the ethnobotanical applications of Siali (*Phanera vahlii*) leaves, conducted through a literature review and extensive field visits (Figure 1). Information was gathered from a variety of sources, including books, peer-reviewed research articles and reputable online databases such as Scopus, Springer, Frontiers, MDPI, NCBI and ScienceDirect. The current study emphasizes the traditional uses, medicinal significance and socio-economic impact of *P. vahlii*, particularly in Odisha, Bihar and other tribal regions. The collected data were critically analysed and cross-verified across multiple sources to ensure both accuracy and reliability. Taxonomic information was confirmed using standard regional floras and accepted botanical references (Figure 2; Jena *et al.*, 2025; Kumar, 2025).

Results and discussion

The present study highlights the diverse ethnobotanical significance of *P. vahlii* leaves among indigenous communities across Central and Eastern India. Siali leaves are utilized for various purposes, including the creation of traditional leaf plates and cups, food wrapping (Figure 3), thatching, fodder and folk medicinal applications. This highlights their vital role in the livelihoods and cultural practices of tribals (Table 1; Kora, 2019; Sen and Behera, 2024). The “dona-pattal” cottage industry has emerged as the most economically significant application of Siali leaves, predominantly sustaining women-headed households across Odisha, Jharkhand, Bihar and Chhattisgarh. This industry also shows considerable market potential within the expanding eco-friendly tableware sector (Devi *et al.*, 2022; Mahato and Gaurav, 2025). Moreover, folk medicinal uses documented among various tribal communities, such as the treatment of skin diseases, inflammation and digestive disorders, underscore the pharmacological potential of the species, which remains to be scientifically validated.

Table 1: Different uses of Siali leaves among indigenous people in India

Plant part	Use	Locations	Source
Leaf	Plates	Odisha (Mayurbhanj, Nabarangpur and Phulbani) Andhra Pradesh, Chhattisgarh and Jharkhand	Sahu and Das, (2023)

Leaf	Bowls	Odisha (Mayurbhanj), Andhra Pradesh, Chhattisgarh and Jharkhand	Kora, (2019)
Leaf	Food wrapping	Odisha, Chhattisgarh, Jharkhand, Andhra Pradesh, Tamil Nadu, Karnataka and Uttarakhand	Sahoo <i>et al.</i> , (2018); Kalina <i>et al.</i> , (2024) (Figure 3)
Leaf	Grocery wrapping	Kandhamal (Daringbadi and Belghar), Sundargarh, Sambalpur, Chhattisgarh, Jharkhand, Andhra Pradesh and Telangana	Mahato and Gaurav, (2025)
Leaf	Grain storage	Odisha, Chhattisgarh and Jharkhand	Ghosh, (2021)
Leaf	Rain capes (Ghungi)	Odisha and Andhra Pradesh	Ferraz and Ali, (2025)
Leaf	Thatching	Odisha, Jharkhand, Chhattisgarh, Madhya Pradesh and Andhra Pradesh	Sendha and Mohanta, (2025)
Leaf	Income generation	Odisha, Jharkhand, Chhattisgarh, Jharkhand and Andhra Pradesh	Sahoo <i>et al.</i> , (2018)
Leaf	Trade	Odisha, Andhra Pradesh and Jharkhand	Ghosh, (2024)
Leaf	Wound healing	Odisha, Jharkhand, Chhattisgarh and Andhra Pradesh	Gardia <i>et al.</i> , (2022)
Leaf	Digestive aid	Odisha, Jharkhand, Chhattisgarh and Andhra Pradesh	Tiwari and Barti, (2022)
Leaf	Festivals	Odisha (Ranpur, Nayagarh, Jharkhand, Chhattisgarh and Andhra Pradesh	Ghosh, (2021)



Figure 3: Siali leaves are used for wrapping cooked food sold in the market

Uses of Siali leaves

Traditional food packaging and serving

Leaf plates (Khali): Large, durable and flexible leaves are stitched together using small bamboo or grass splints to create plates and bowls (Sahu and Das, 2023).

Food wrapping: These leaves are heat-resistant and do not react with food, making them ideal for wrapping items for steaming or roasting. They are also used for packing dry rations for long journeys (Sahoo *et al.*, 2018; Kalina *et al.*, 2024).

Shelter and storage

Grain storage: Large baskets lined with Siali leaves help keep harvested grains dry and protected from pests (Ghosh, 2021).

Rain capes (Ghungi): Tribal groups often create traditional umbrellas or rain-fenders by stitching leaves into a hood-like shape that covers the head and back during monsoon foraging (Ferraz and Ali, 2025).

Thatching: Leaves are layered to create waterproof roofing for temporary huts and forest shelters. When large leaves overlap, they provide effective waterproofing during the monsoon season (Sendha and Mohanta, 2025).

Economic livelihood

Income generation: For many tribal families, especially women, collecting and stitching Siali leaves serves as a primary source of seasonal income (Sahoo *et al.*, 2018).

Trade: These products are sold in local "haats" (markets) and are increasingly being exported to urban centers and international markets as "eco-friendly" dinnerware (Ghosh, 2024).

Ethnomedicinal applications

Wound healing: Crushed leaves or leaf juice are sometimes applied topically to treat minor cuts or skin irritations due to their perceived antiseptic properties. This paste is also used in some tribal traditions to alleviate inflammation, boils and headaches (Gardia *et al.*, 2022).

Digestive aids: In some cultures, decoctions made from the leaves are used to treat dysentery or stomach upset (Tiwari and Barti, 2022).

Piles and dysentery: A juice of the grounded mixture of rhizomes of *Pteris aspericaulis*, roots of *Rubus ellipticus* and bark of *Phanera vahlii* is taken twice a day with hot water for seven days to cure the piles and dysentery (SMPB, 2009).

Cultural and ritual importance

Rituals: Leaves are used in ritual offerings, marriage ceremonies, karma puja, etc.

Festivals: Leaf plates are often mandatory for community feasts during indigenous festivals, symbolizing a connection to the forest deity (Ghosh, 2021).

Fodder

Recorded as fodder species across the tribal belts of Madhya Pradesh, Odisha and Jharkhand. Leaves serve as important fodder for livestock, particularly goats and cattle, especially in dry seasons when fodder is scarce (Devi *et al.*, 2022).

Despite the significant ethnobotanical and livelihood importance of *P. vahlii*, there are still major knowledge gaps that need to be addressed. The folk medicinal uses of Siali have not undergone systematic phytochemical and pharmacological validation. Additionally, there has yet to be a comprehensive ethnobotanical survey across all tribal communities that utilize this species in India. Ecological studies on sustainable harvest levels are also lacking, making the resource base vulnerable to overexploitation (Sahoo *et al.*, 2018). Furthermore, there is considerable potential for value addition through activities such as leaf dyeing, lacquering and the standardization of products for commercial markets, yet these opportunities remain largely unexplored. Moreover, there is minimal research on the genetic diversity studies of *P. vahlii* populations throughout its distribution range. Addressing these gaps with interdisciplinary research that combines ethnobotany, ecology, phytochemistry and market development is crucial for the scientific documentation and sustainable utilization of this valuable species.

Conclusion

Siali exemplifies the intimate relationship between forest-dwelling communities of India and the plants around them. It serves as a resource for food systems, a valuable asset for livelihood, a cultural symbol and a medicinal plant. Preserving and documenting the indigenous knowledge associated with this species is essential, not only for academic ethnobotany but also for policy-making, conservation efforts and sustainable development in tribal India.

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