



Research paper

# Ethnomedicinal Significance of Selected Fabaceae Members Utilized by Traditional Healers in Panna, Madhya Pradesh

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ARTICLE INFO	ABSTRACT
<p><i>Article history</i></p> <p>Received 06 October 2024 Revised 12 October 2024 Accepted 13 October 2024 Published 21 October 2024</p>	<p>The Fabaceae family, commonly known as the legume or pea family, holds significant ethnomedicinal importance globally due to its diverse array of medicinal plants. Fabaceae species have been utilized for centuries in traditional medicine across cultures, showcasing their versatility in treating a wide range of ailments. The family's plants contain bioactive compounds contributing to their pharmacological properties. In Panna district, several species of Fabaceae have been traditionally utilized by local communities for their therapeutic benefits. These plants are often used in the treatment of various ailments such as fever, digestive disorders, skin infections, and respiratory ailments.</p>
<p><i>Keywords</i></p> <ul style="list-style-type: none"><li>• Fabaceae</li><li>• Ethnomedicine</li><li>• Traditional healers</li><li>• Bioactive compounds</li></ul>	<p>The ethnomedicinal knowledge related to Fabaceae in Panna district is deeply rooted in the cultural heritage of the indigenous populations. Traditional healers, known as vaidyas or bhagats, play a vital role in preserving and transmitting this knowledge through oral traditions and practices. Their expertise in identifying and using different parts of Fabaceae plants for medicinal purposes reflects centuries-old wisdom passed down through generations. Furthermore, the sustainable harvesting and utilization of Fabaceae plants for medicinal purposes contribute to the conservation of biodiversity in the region. This paper underscores the ethnomedicinal significance of Fabaceae in Panna district, emphasizing the need for collaborative efforts between traditional knowledge holders, researchers, and conservationists to document, validate, and integrate this valuable traditional knowledge into modern healthcare systems.</p>

## 1. Introduction

The Fabaceae family, commonly known as the legume or pea family, encompasses a diverse group of plants that have been used traditionally in ethnomedicine across various cultures (Kala, 2005). In Panna, Madhya Pradesh, India, members of the Fabaceae family hold significant ethnomedicinal importance and are utilized by

traditional healers for their therapeutic properties. This paper aims to explore the ethnomedicinal significance of Fabaceae members in Panna, Madhya Pradesh, highlighting their traditional uses, pharmacological properties, and cultural significance. The use of plants from the Fabaceae family in traditional medicine is well-documented globally (Jain & Tarafder, 1970). Various species within this family have been studied for their medicinal properties, including anti-inflammatory, antimicrobial, antioxidant, and anticancer activities. Additionally, the Fabaceae family is rich in phytochemicals such as flavonoids, alkaloids,



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and saponins, which contribute to their therapeutic potential (Maroyi, 2023).

In Panna, Madhya Pradesh, traditional healers, also known as Vaidyas, have a deep-rooted knowledge of medicinal plants, including those from the Fabaceae family (Gwalwanshi, et. al., 2014). They utilize these plants in the treatment of various ailments ranging from skin disorders and gastrointestinal issues to respiratory problems and inflammatory conditions.

This paper will review existing literature on the ethnomedical uses of Fabaceae members in Panna, Madhya Pradesh, drawing insights from traditional healing practices and scientific research (Joshi & Joshi, 2013). By examining the traditional knowledge surrounding these plants and their modern pharmacological validations, this study aims to contribute to the conservation of traditional medicinal practices and the discovery of new therapeutic agents.

Additionally, Fabaceae species are utilized for their anti-inflammatory and analgesic properties. Plants like licorice (*Glycyrrhiza glabra*) and liquorice root (*Glycyrrhiza uralensis*) are known for their anti-inflammatory effects, contributing to their use in treating conditions like arthritis and gastrointestinal disorders.

Furthermore, Fabaceae plants are employed for their antimicrobial properties, aiding in the treatment of various infectious diseases. Species like acacia (*Acacia nilotica*) and mimosa (*Mimosa pudica*) have shown antimicrobial activity against a range of pathogens, showcasing their potential in traditional medicine systems.

The ethnomedicinal importance of Fabaceae extends beyond individual plants to traditional formulations and remedies. Synergistic effects of different plant parts, combined with traditional knowledge and practices, contribute to the efficacy of Fabaceae-based medicines in diverse therapeutic areas.

## 2. Material and Methods

The focus of this study was on identifying ethnomedicinal plants utilized by traditional healers in specific villages within Panna district. Data collection for this study involved conducting semi-structured and structured interviews with informants knowledgeable about or using plants for medicinal purposes. The interviews were carried out with a

selected group of informants, representing approximately 10% of the total household heads (48 informants). The aim was to uncover and delve into traditional knowledge regarding the use of medicinal plants, including their efficacy, the specific plant parts used, methods of preparation, and processing techniques. It's notable that all household heads were male, reflecting the patriarchal norms, values, and local wisdom prevalent in the culture. The age range of the informants varied from 20 to over 50 years, with ten informants aged 20–35, fifteen aged 35–40, fifteen aged 40–45 and eight aged over 50 years. The interviews were conducted using a structured questionnaire, and informant selection followed the Snowball Sampling technique, identifying key individuals with significant influence in the community and then proceeding based on referrals from these initial respondents.

## 3. Result and Discussion

The Fabaceae family, holds significant ethnomedical importance among traditional healers in Panna, Madhya Pradesh. Several members of this family are utilized for their medicinal properties, contributing to the traditional pharmacopeia of the region. Here are some examples of Fabaceae family used in by local tribes in Panna district.

### 3.1 *Butea monosperma* (Lam). (Palash)

The leaf of this plant offers multiple health benefits. When chewed, its liquid from the petiole can help with gastrointestinal issues, the common cold, and cough. Additionally, when the leaves are powdered and consumed with water, they aid in managing diabetes. The extract from these leaves is effective for treating sore throats, eliminating intestinal worms, and regulating irregular menstrual bleeding. The paste made from the stem bark is used to treat injuries and reduce body swelling, while the juice can address goitre. For snake bites, the root paste serves as a remedy, and its juice acts as an antidote. Furthermore, consuming crushed seeds with milk can alleviate urinary complications and assist in treating urine stones.

### 3.2 *Dalbergia latifolia* Roxb. (Dhobin)

*Dalbergia latifolia* Roxb., also known as Indian rosewood or Sheesham, boasts a rich history of ethnomedicinal benefits. It's prized for its anti-inflammatory, antimicrobial, and analgesic properties,

aiding in reducing swelling, fighting infections, and relieving pain. Additionally, it serves as a digestive aid, aids in wound healing, and offers potential cardiovascular support. Ongoing research aims to validate these traditional uses and identify key bioactive compounds responsible for its therapeutic effects.

### 3.3 *Dalbergia sissoo* Roxb. (Shisam)

Various parts of the tree, including the bark, leaves, and seeds, are used in traditional medicine. The bark is known for its astringent and anti-inflammatory properties, used to treat diarrhea, dysentery, and skin conditions. The leaves are used for their cooling effect and are applied externally to soothe burns and rashes. The seeds are used in herbal preparations for their diuretic and expectorant properties.

### 3.4 *Acacia nilotica* Linn. (Babool)

Tender leaves are versatile medicinally, used for gargling, ulcers, wounds, and as a poultice for stimulating effects and astringency. They benefit brain, liver, and vision, and treat eye issues and digestive problems. The bark serves diverse purposes, from astringent decoctions to tooth powder. The gum, used as mucilage, manages conditions like diarrhea, dysentery, and diabetes mellitus.

### 3.5 *Bauhenia variegata* Linn. (Kachnar)

*Bauhinia variegata* L., commonly known as the orchid tree or kachnar, is valued for its diverse ethnomedicinal properties. Its anti-inflammatory nature makes it effective against conditions like arthritis and skin disorders. With antimicrobial properties, it fights various infections, while promoting wound healing when applied externally. Traditional uses extend to digestive health, respiratory support, and liver protection. It's also attributed with potential benefits for managing diabetes and promoting heart health.

### 3.6 *Abrus precatorius* Linn. (Ratti)

*Abrus precatorius*, known as the rosary pea or jequirity bean, is widely used in traditional medicine. It treats tetanus, prevents rabies, and aids wound healing. The leaves relieve fever, cough, and colds, while the roots help with liver issues and abdominal pains. It's also used for snake bites, has anti-malarial properties, and treats respiratory and liver conditions. Additionally, it's used cosmetically for

greying hair and as an anti-parasitic. However, caution is needed due to potential toxicity in some parts of the plant.

### 3.7 *Acacia catechu*, Willd. (Khair)

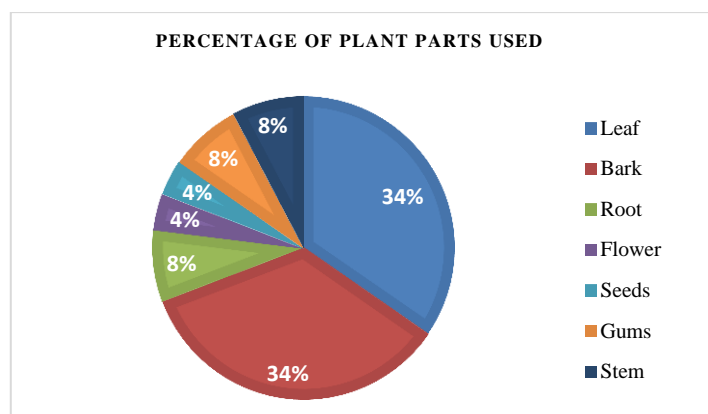
*Acacia catechu*, commonly known as catechu or Khair, holds significant ethnomedicinal importance due to its diverse therapeutic properties. Traditional medicine systems like Ayurveda and Traditional Chinese Medicine (TCM) have long utilized *Acacia catechu* for its anti-inflammatory, antioxidant, antimicrobial, and astringent properties. It has been employed to treat conditions such as arthritis, inflammatory skin disorders, diarrhea, bleeding gums, and fever. Some studies also suggest potential anti-diabetic and anti-cancer effects of *Acacia catechu*.

### 3.8 *Mimosa pudica* L.

*Mimosa pudica*, or the sensitive plant, is valued in traditional medicine for treating wounds, infections, and digestive issues. Its anti-inflammatory and antimicrobial properties aid in healing and fighting infections. Rich in antioxidants, it promotes overall health.

**Table 1** Plant parts used to treat various ailments

Plant Name	Plant Part Used					
	Leaf	Stem	Root	Seed	Flower	Bark
<i>Butea monosperma</i> (Lam).	✓	✓	✓		✓	✓
<i>Dalbergia latifolia</i> Roxb	✓					✓
<i>Dalbergia sissoo</i> Roxb.	✓	✓		✓	✓	✓
<i>Bauhenia variegata</i> Linn.	✓		✓			
<i>Abrus precatorius</i> Linn.	✓		✓	✓		
<i>Acacia Catechu</i> , Wild						✓
<i>Acacia nilotica</i>						✓
<i>Mimosa pudica</i> L.	✓	✓	✓			



**Table 2** Ethnomedicinal application of some Fabaceae members

S.N.	Plant Name	Local Name	Part Used	Ethnomedicinal Benefits
1.	<i>Butea monosperma</i> (Lam).	Palash, Tesu	Leaf, Bark, Root, Flower	Aiding digestion and managing diabetes, treating sore throats, reducing swelling, and alleviating urinary complications.
2.	<i>Dalbergia latifolia</i> Roxb	Dhobin	Leaf, Bark, Root	Anti-inflammatory, antimicrobial, and analgesic effects, aiding digestion, wound healing.
3.	<i>Dalbergia sissoo</i> Roxb.	Shisam	Leaf, Bark, Seeds	Astringent, anti-inflammatory, treats diarrhoea, dysentery, skin conditions, cooling, soothes burns, rashes, diuretic, expectorant.
4.	<i>Acacia nilotica</i> Linn.	Babool, keekar	Leaf, Bark, Gums	Tender leaves for gargling, ulcers, wounds; benefits brain, liver, vision, tooth powder; gum as mucilage for digestive issues.
5.	<i>Bauhinia variegata</i> Linn	Kachnar	Leaf	Anti-inflammatory, antimicrobial, promotes wound healing, supports digestive, respiratory, liver health, potential benefits for diabetes.
6.	<i>Abrus precatorious</i> Linn.	Ratti	Leaf, Root, Flower	Wound healing; leaves for fever, cough, colds; roots for liver, abdominal issues; snake bites, anti-malarial, respiratory, liver conditions.
7.	<i>Acacia catechu</i> , Willd	Khair	Stem, Bark, Leaf	Anti-inflammatory, antioxidant, antimicrobial, astringent. - Treats arthritis, skin disorders, diarrhoea, bleeding gums, fever. - Potential anti-diabetic, anti-cancer effects.
8.	<i>Mimosa pudica</i> L.	Touch-me-not	Leaf, Stem, Root	Used for digestive issues, wound healing, pain relief, anxiety, and respiratory problems.

#### 4. Data Analysis

The results of the ethnobotanical survey were analyzed using the Use Value (UV), Informant Consensus Factor (Fic), and Fidelity Level (FL).

##### 4.1 Informant Consensus Factor (FIC)

The informant consensus factor (Fic) was calculated to assess the agreement among plant users regarding the use of plants for various illness categories in the study area. The formula used for this calculation was based on the methodology established by Heinrich et al. in 1998. The Fic provided insights into the consensus among informants about the medicinal plants utilized for specific ailments.

$$Fic = \frac{Nur - Nt}{(Nur - 1)}$$

where Nur denotes to the number of use-reports for a specific disease group and Nt refers to the quantity of plant species used for a particular disease group by all informants.

##### 4.2 Use Value (UV)

The relative significance of each plant species known locally to be used as herbal remedies was represented by the use value (UV), which was calculated using the

formula established by Phillips et al. in 1994. This calculation provided insights into the importance of each plant species within the local context of herbal medicine.

$$UV = \frac{\sum U}{n}$$

where UV is the use value of a species, U is the number of use information mentioned by each informant for a given plant species and n is the total number of informants questioned for a given plant.

##### 4.3 Fidelity level (FL)

To determine the most commonly used plant species for treating a particular disease group among the informants in the study, the fidelity level (FL) was calculated. The FL was computed using the formula established by Friedmen et al. in 1986:

$$FL(\%) = \frac{Np}{N} \times 100$$

where Np is the number of use-reports cited for a given species for a particular ailment category and N is the total number of use reports cited for any given species.

#### 5. Conclusion

importance of Fabaceae family members among traditional healers in Panna, Madhya Pradesh, reveals

a rich heritage of medicinal knowledge deeply rooted in nature. These plants serve as invaluable resources for addressing a wide range of health concerns, from digestive issues and diabetes management to wound healing, respiratory support, and even snake bites. Each member, such as Palash, Dhobin, Shisam, Babool, Kachnar, Ratti, and Khair, offers unique therapeutic properties that have been recognized and utilized by traditional healers for generations. Their extensive use underscores the significance of traditional medicine in maintaining community health and well-being, highlighting the harmonious relationship between humans and their natural environment.

## References

- Asfaw, M. M., & Abebe, F. B. (2021). Traditional medicinal plant species belonging to Fabaceae family in Ethiopia: A systematic review. *International Journal of Plant Biology*, 12(1), 8473.
- Benarba, B. (2016). Medicinal plants used by traditional healers from South-West Algeria: An ethnobotanical study. *Journal of Intercultural ethnopharmacology*, 5(4), 320.
- Cholil, M. (2017). Complexities in dealing with gender inequality: Muslim women and mosque-based social services in East Java Indonesia. *Journal of Indonesian Islam*, 11(2).
- Gras, A., Hidalgo, O., D'ambrosio, U., Parada, M., Garnatje, T., & Valles, J. (2021). The role of botanical families in medicinal ethnobotany: A phylogenetic perspective. *Plants*, 10(1), 163.
- Gwalwanshi, D. R., Bishwas, A. J., & Vyas, D. (2014). Biodiversity of ethno medicinal plants used by traditional healers in selected remote villages of Panna district (Madhya Pradesh), India. *Journal of Medicinal Plants Studies*, 2(1), 10-17.
- Hailemariam, M. B., Woldu, Z., Asfaw, Z., & Lulekal, E. (2021). Ethnobotany of an indigenous tree *Piliostigma thonningii* (Schumach.) Milne-Redh.(Fabaceae) in the arid and semi-arid areas of South Omo Zone, southern Ethiopia. *Journal of Ethnobiology and Ethnomedicine*, 17, 1-18.
- Ishaq, A. R., El-Nashar, H. A., Younis, T., Mangat, M. A., Shahzadi, M., Ul Haq, A. S., & El-Shazly, M. (2022). Genus *Lupinus* (Fabaceae): A review of ethnobotanical, phytochemical and biological studies. *Journal of Pharmacy and Pharmacology*, 74(12), 1700-1717.
- Jain, S. K., & Tarafder, C. R. (1970). Ethnobotany of Madhya Pradesh: I. Plants used by the Bharia tribe. *Economic Botany*, 24(2), 223-230.
- Joshi, P., & Joshi, P. (2013). Ethnomedicinal plants used for diarrhea by tribals of Madhya Pradesh, India. *Asian Pacific Journal of Tropical Biomedicine*, 3(3), 238-245.
- Kala, C. P. (2005). Ethnomedicinal botany of the Apatani in the Eastern Himalayan region of India. *Journal of Ethnobiology and Ethnomedicine*, 1(1), 11.
- Macêdo, M. J. F., Ribeiro, D. A., Santos, M. D. O., Macêdo, D. G. D., Macedo, J. G. F., Almeida, B. V. D., ... & Souza, M. M. D. A. (2018). Fabaceae medicinal flora with therapeutic potential in Savanna areas in the Chapada do Araripe, Northeastern Brazil. *Revista Brasileira de Farmacognosia*, 28, 738-750.
- Macêdo, N. S., Silveira, Z. D. S., Bezerra, A. H., Costa, J. G. M. D., Coutinho, H. D. M., Romano, B., ... & da Silva, M. V. (2020). *Caesalpinia ferrea* C. Mart.(Fabaceae) phytochemistry, ethnobotany, and bioactivities: a review. *Molecules*, 25(17), 3831.
- Maroyi, A. (2023). Medicinal uses of the Fabaceae family in Zimbabwe: A review. *Plants*, 12(6), 1255.
- Mothogoane, M. S. (2019). Studies on the medicinally important *Rhynchosia* (Phaseoleae, Fabaceae) species: taxonomy, ethnobotany, phytochemistry and antimicrobial activity. University of Johannesburg (South Africa).
- Patil, P., & Patil, D. (2011). Traditional herbal medicines used for the treatment of skin diseases in Akola district. *Indian Journal of Traditional Knowledge*, 10(2), 299-304.
- Pieroni, A., Houlihan, L., Ansari, N., Hussain, B., & Aslam, S. (2007). Medicinal perceptions of vegetables traditionally consumed by South-Asian migrants living in Bradford, Northern England. *Journal of ethnopharmacology*, 113(1), 100-110.
- Sahu, A. R., Sahu, M., & Mishra, S. (2020). A preliminary report on traditional use of selected plants of Fabaceae family at Bargarh district, Western Odisha. *Int J Herb Med*, 8, 109-13.
- Sharma, M., & Kumar, A. (2013). Leguminosae (Fabaceae) in tribal medicines. *Journal of Pharmacognosy and Phytochemistry*, 2(1), 276-283.
- Shukla, V. J., et al. (2009). Medicinal plants from tribal area of Madhya Pradesh: An ethnomedicinal survey. *International Journal of Green Pharmacy*, 3(1), 78-82.
- Singh, N., Singh, A., & Pabla, D. (2019). A review on medicinal uses of *Bauhinia variegata* Linn. *PharmaTutor*, 7(6), 12-17.
- Stohs, S. J., & Bagchi, D. (2015). Antioxidant, anti-inflammatory, and chemoprotective properties of *Acacia catechu* heartwood extracts. *Phytotherapy research*, 29(6), 818-824.
- Subhan, N., Burrows, G. E., Kerr, P. G., & Obied, H. K. (2018). Phytochemistry, ethnomedicine, and pharmacology of *Acacia*. *Studies in Natural Products Chemistry*, 57, 247-326.
- Surendran, S., Prabha, A. C., Ramasubbu, R., & Krishnaraj, M. V. (2021). *Humboldtia Vahl* (Fabaceae): a review on ethnobotany, phytochemistry and pharmacology. *Phytomedicine Plus*, 1(3), 100080.

24. Sutjaritjai, N., Panyadee, P., Phumthum, M., Inta, A., & Balslev, H. (2022). High diversity of medicinal uses of Thai legumes (Fabaceae) and their potential in public herbal medicine. *Diversity*, 14(8), 588.
25. Tirkey, A. (2006). Some ethnomedicinal plants of family-Fabaceae of Chhattisgarh state.
26. Van Wyk, B. E., & Albrecht, C. (2008). A review of the taxonomy, ethnobotany, chemistry and pharmacology of *Sutherlandia frutescens* (Fabaceae). *Journal of ethnopharmacology*, 119(3), 620-629.

