



ISSN (E): 2320-3862

ISSN (P): 2394-0530

Impact Factor (RJIF): 5.94

www.plantsjournal.com

JMPS 2025; 13(6): 05-08

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Received: 04-08-2025

Accepted: 08-09-2025

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Floral heritage and women's health: Ethnomedicinal insights from Girwa Tehsil, Udaipur district, Rajasthan (India)

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DOI: <https://www.doi.org/10.22271/plants.2025.v13.i6a.1967>

Abstract

Rajasthan's tribal and rural populations maintain rich ethnomedicinal traditions, yet systematic documentation of plants supporting women's health remains scarce. This study documents ethnomedicinal plants used in Girwa tehsil, Udaipur district, with emphasis on natal and postnatal healthcare. Field surveys were conducted from January 2023 to June 2024 in 22 villages, using semi-structured interviews with midwives, healers, and elders. A total of 115 species belonging to 58 families were recorded, with 18 species directly related to reproductive and gynecological health. Leaves were the most frequently used plant part (42%), followed by fruits (26%) and roots/tubers (14%). Gastrointestinal (28 species), skin & infection-related (25 species), and musculoskeletal disorders (21 species) were the leading categories, while 18 species were specifically used in natal/postnatal contexts. Findings highlight Girwa's floral heritage as a vital but threatened healthcare resource, underscoring the need for phytochemical validation, conservation, and integration into community health.

Keywords: Ethnobotany, medicinal plants, women's health, natal healthcare, Girwa Tehsil, Rajasthan

1. Introduction

Ethnobotany explores the interactions between human societies and plants, providing vital insights into local healthcare practices. India has a long tradition of plant-based medicine, with Vedic literature and Ayurveda documenting hundreds of remedies. Rajasthan, especially the Aravalli hills, is a hotspot of ethnomedicinal knowledge where rural and tribal communities rely on wild and cultivated flora for primary healthcare.

Ethnobotany plays a pivotal role in bridging the gap between traditional wisdom and modern science. As emphasized by Hamilton ^[1], the discipline not only facilitates the documentation of indigenous knowledge but also promotes conservation through participatory and sustainable approaches. Across the globe, communities have long relied on medicinal plants as primary healthcare resources, and India represents one of the richest reservoirs of this traditional knowledge ^[2, 3].

Early systematic documentation of medicinal plants in India was pioneered by Jain ^[2], whose extensive work highlighted their therapeutic applications and cultural significance. Subsequent ethnobotanical studies in northeastern India-such as those by Rao ^[4] on the Khasi and Garo tribes of Meghalaya and Gangwar and Ramakrishnan ^[5] on the tribes of Arunachal Pradesh-provided valuable regional insights. Comparable investigations beyond India, such as those in Bahrain ^[6] and Nepal ^[7], demonstrated the global relevance of ethnomedicinal practices.

In the Indian context, the contribution of non-timber forest products to rural livelihoods has also been acknowledged, as illustrated by Hegde *et al.* ^[8] in the forests of Biligiri Rangan Hills. Among Indian states, Rajasthan holds a special place in ethnobotanical research due to its diverse flora and culturally distinct tribal populations. Seminal works by Singh and Pandey ^[9], Sebastian and Bhandari ^[10, 11], and Joshi ^[12] have enriched our understanding of the ethnomedicinal heritage of this region.

Further advancements were made through the efforts of Katewa and Arora ^[13], who recorded folk medicinal plants of Udaipur district, and Katewa *et al.* ^[14], who highlighted the traditional uses of plant biodiversity from the Aravalli hills. Trivedi ^[15] and Sharma ^[16] expanded this documentation by exploring ethno-medicinal and ethno-religious plant usage across Rajasthan.

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More recently, Jain *et al.* ^[17] presented specific phytotherapeutic claims by the tribal populations of southern Rajasthan, reflecting the continued relevance of indigenous healthcare knowledge. These cumulative works emphasize that ethnobotanical research not only preserves cultural heritage but also provides a scientific foundation for discovering novel bioactive compounds and promoting sustainable use of natural resources.

2. Materials and Methods

2.1 Study Area

Girwa tehsil, located in Udaipur district, Rajasthan, comprises 220 revenue villages within 60 gram panchayats, with a population of ≈289,000. The region lies in the Aravalli range and receives ~608 mm of rainfall annually. Forests and agroforestry systems provide significant plant resources.

2.2 Data Collection

Fieldwork was conducted between January 2023 and June 2024, across seasons to capture plants in flowering/fruiting stages. Data collection methods included:

- Semi-structured interviews with 74 informants (midwives, traditional healers, elderly women).
- Participant observation and “walk-in-the-woods” plant identification.
- Audio-visual recording of knowledge transfer.

2.3 Plant Collection and Authentication

Voucher specimens were collected, dried, and mounted on herbarium sheets. Identification was confirmed with standard floras and cross-checked against ethnobotanical literature.

2.4 Data Analysis

Plants were classified by family, local name, part used, and disease category. Frequencies of plant part use and ailment categories were summarized.

3. Results

3.1 Species Richness and Diversity

The ethnobotanical survey documented 115 plant species belonging to 102 genera and 58 families in Girwa tehsil. The

largest contributing families were Fabaceae (12 species), Moraceae (8), and Euphorbiaceae (7), reflecting patterns typical of semi-arid Rajasthan.

3.2 Plant Parts Utilized

Leaves were the most frequently harvested plant part (42% of species), followed by fruits (26%), roots and tubers (14%), bark (10%), and flowers or seeds (8%). This indicates a preference for renewable plant parts, aligning with sustainable harvesting practices (Figure 1).

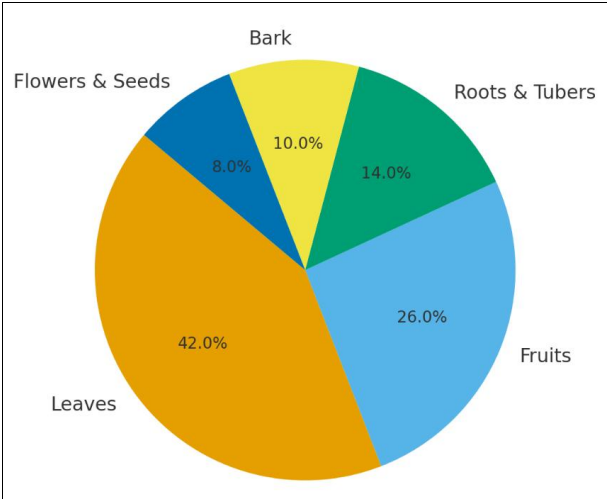


Fig 1: Distribution of plant parts used in Girwa tehsil (pie chart)

3.3 Therapeutic Applications

The recorded plants were employed in treating 14 broad disease categories (Figure 2).

- Gastrointestinal disorders were treated with the highest number of species (28 species), followed by skin and infections (25), respiratory ailments (22), musculoskeletal conditions (21), and wound healing (20).
- Notably, 18 species (≈16% of the total) were associated with reproductive and gynecological care, including galactagogues (*Euphorbia heterophylla*, *Leptadenia reticulata*), uterine tonics (*Asparagus racemosus*), postpartum recovery aids (*Carica papaya*).

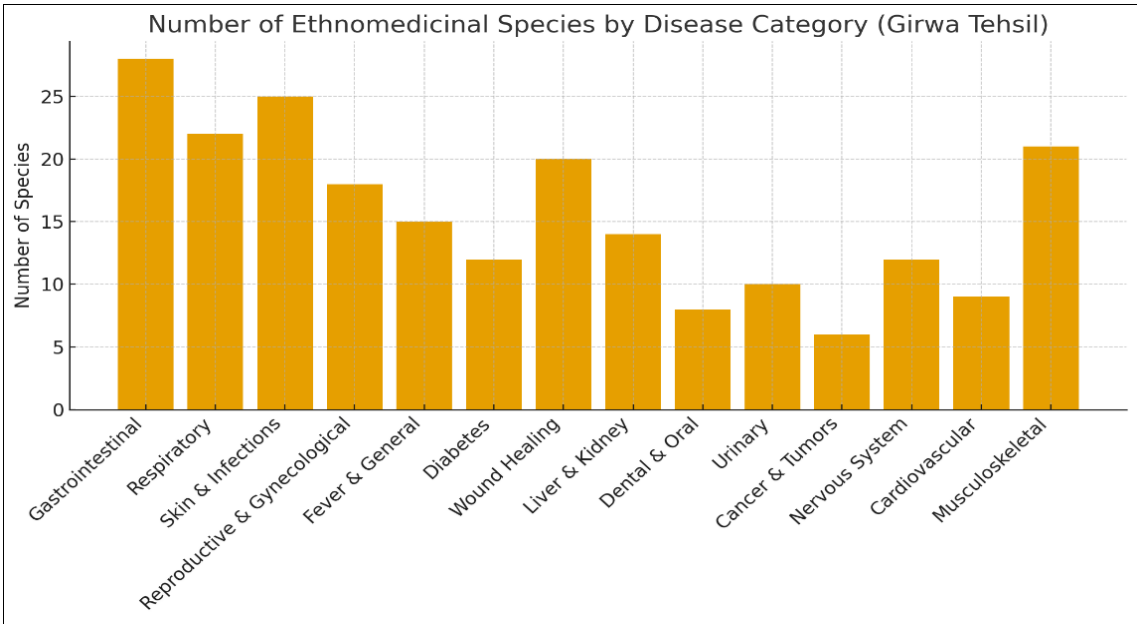


Fig 2: Number of ethnomedicinal species reported per disease category (bar chart)

3.4 Representative Plants for Women's Health

A subset of plants holds special significance for natal and postnatal care (Table 1). These species are widely cited by midwives and elderly women and include *Asparagus racemosus* (uterine tonic), *Hyptis suaveolens* (uterine

infections), *Euphorbia heterophylla* (lactation), and *Carica papaya* (menstrual and fever management).

Table 1. Selected ethnomedicinal plants used in women's reproductive and natal healthcare

Table 1: Ethnomedicinal plants used in women's reproductive and natal healthcare in Girwa tehsil, Udaipur

| S. No. | Botanical Name | Local Name | Primary Application (Women's Health) | Plant Part Used | Mode of Use |
|--------|-------------------------------|---------------|---|--------------------|------------------------|
| 1. | <i>Asparagus racemosus</i> | Shatavari | Uterine tonic, galactagogue | Root | Decoction / powder |
| 2. | <i>Hyptis suaveolens</i> | Vilayitilusi | Uterine infections, digestive aid | Leaves | Decoction |
| 3. | <i>Euphorbia heterophylla</i> | Jungle dudhii | Lactation stimulant | Leaves | Juice / infusion |
| 4. | <i>Carica papaya</i> | Papaya | Menstrual pain relief, postpartum fever | Fruit | Raw / decoction |
| 5. | <i>Leptadenia reticulata</i> | Jivanti | Enhances milk secretion | Whole plant | Decoction |
| 6. | <i>Ampelocissus latifolia</i> | Jungle Angoor | Menstrual disorders, wound healing | Fruit, stem | Paste / juice |
| 7. | <i>Polyalthia longifolia</i> | Ashok tree | Uterine disorders, urinary diseases | Bark, leaves | Decoction |
| 8. | <i>Cassia fistula</i> | Amaltas | Menstrual regulator, constipation relief | Pods, bark | Infusion |
| 9. | <i>Aloe vera</i> | Gwarpatha | Regulates menstruation, postnatal healing | Leaf gel | Gel / juice |
| 10. | <i>Symplocos racemosa</i> | Lodhra | Uterine tonic, vaginal disorders | Bark | Powder |
| 11. | <i>Boerhaviadiffusa</i> | Punarnava | Postpartum weakness, urinary issues | Whole plant | Decoction |
| 12. | <i>Abutilon indicum</i> | Kanghi | Promotes lactation, regulates cycles | Leaves, seeds | Paste / decoction |
| 13. | <i>Moringa oleifera</i> | Sahjan | Enhances lactation, postnatal recovery | Leaves, pods | Curry / decoction |
| 14. | <i>Ficus benghalensis</i> | Bargad | Used in leucorrhoea, wound healing | Bark, aerial roots | Decoction / paste |
| 15. | <i>Ficus religiosa</i> | Peepal | Menstrual disorders, fertility issues | Bark, leaves | Decoction |
| 16. | <i>Ziziphus mauritiana</i> | Ber | Reduces abdominal pain in pregnancy | Fruit | Raw consumption |
| 17. | <i>Vitex negundo</i> | Nirgundi | Relieves postpartum pain, anti-inflammatory | Leaves | Fumigation / poultice |
| 18. | <i>Calotropis gigantea</i> | Aakda | Postpartum fever, uterine stimulant | Flowers, leaves | Decoction / paste |
| 19. | <i>Sida cordifolia</i> | Bala | Strengthens body after childbirth | Leaves, root | Decoction |
| 20. | <i>Curcuma longa</i> | Haldi | Postpartum healing, antiseptic | Rhizome | Paste / milk decoction |

4. Discussion

4.1 Significance of Findings: This study confirms Girwa's role as a repository of women's healthcare knowledge, complementing earlier ethnobotanical surveys in Rajasthan. The high representation of reproductive/natal species (18 plants) marks a novel contribution.

4.2 Cross-Regional Comparison

Patterns align with other Indian ethnobotanical studies where leaves dominate as the preferred plant part, ensuring sustainability compared to root/bark harvesting. Similar reproductive-health plants (*Asparagus racemosus*, *Leptadenia reticulata*) are reported in southern Rajasthan and Madhya Pradesh, indicating shared knowledge systems.

4.3 Safety Concerns

Toxic species (*Datura stramonium*, *Thevetia peruviana*) were cited, reflecting traditional dose control but highlighting the need for pharmacological validation.

4.4 Conservation & Knowledge Erosion

Several species face habitat pressure due to deforestation and overharvesting. Community-based conservation and cultivation of high-demand medicinal plants is recommended to safeguard both biodiversity and indigenous knowledge.

5. Conclusion

This study documents 115 medicinal plants, with 18 species directly supporting reproductive and natal health in Girwa tehsil. Traditional midwives and healers continue to play a vital role in women's healthcare. Scientific validation, sustainable harvesting, and integration into primary healthcare programs are essential to protect this floral heritage and ensure safer, accessible healthcare for rural women.

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