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Ethnobotanical Documentation and Phytosociological Analysis of Medicinal Flora in the Sakambhari Hills, Udaipurwati (Jhunjhunu District), Rajasthan, India

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Abstract: ***Presents an ethnobotanical and botanical survey of medicinal plants in Talal Sakambhari District of Udaipurwati District under Jhunjhunu District of Rajasthan State. The Sakambhari Hills are part of the semi-arid Shekhawati environment, which supports diverse plant communities traditionally used in local tribal and village health practices. This study was conducted to investigate local knowledge of medicinal plant uses and to assess the ecological distribution and community structure of these species. 35 species of traditional medicinal plants, belonging to 22 families, have been identified, highlighting the wealth of traditional plant knowledge and the need to conserve these valuable resources, which are often threatened with extinction in the region [1].***

Keywords: Ethnobotanical, Botanical Survey, Medicinal Plants, Health Practices, Ecological Distribution

I. INTRODUCTION

In India, traditional medicinal systems used by local communities to treat various ailments are considered the cornerstone of traditional herbal medicine. Ethnobotany — the study of relationships between people and plants — provides valuable insight into how traditional knowledge can inform conservation, sustainable use, and potential pharmacological discoveries. In arid and semi-arid regions such as Shekhawati in Rajasthan, the role of medicinal plants extends beyond fulfilling health needs to encompass cultural, economic, and ecological functions. In a similar context, studies emphasize the need to document generational medical knowledge before it is lost to innovation and corruption [2].

The hill of Sakambhari in the Jhunjhunu region has unique ecological features and high traditional value, but has been understudied relative to other areas of ethnic importance in Rajasthan. This research aims to fill this gap by systematically documenting the diversity of medicinal plants, their local uses, and patterns in local plant communities.

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II. WORK AREA

The region, part of the Shekhawati region, is characterised by undulating terrain, extreme seasonal fluctuations, and vegetation adapted to semi-arid conditions. The area is rich in plant diversity, including herbs, shrubs and trees that are traditionally used for medicinal purposes. Local communities, such as the residents of Kalbiliya, Banjara, and Gadolia Luhar, depend on these plants to obtain basic health services.

III. MATERIALS AND METHODS

A. Ethnobotanical Survey

A field survey was conducted to document traditional knowledge about medicinal plants and their uses in a small village located in the foothills of the Sakambhari Hills. Data were collected as follows:

i. Semi-structured interviews with local elders, traditional healers, and practitioners.
ii. Conduct focus group discussions with family members to ensure proper use of herbs.
iii. Direct observation of soil and sample collection.

Documentary information includes local plant names, ingredients used, methods of preparation, and medicinal uses. Plant specimens were identified using standard botanical references and verified by botanists [3].

B. Biological Analysis

Methods of identifying plants socially include:

i. Taking samples from the ground to estimate the frequency and density of weapons.
ii. Understanding the structure of plants
iii. Diversity indicators (such as the Shannon-Wiener Index).

Table 1: Medicinal Plants Documented from Sakambhari Hills, Udaipurwati (Jhunjhunu District, Rajasthan)

S. No.	Botanical Name	Family	Local Name	Habit	Part(s) Used	Traditional Medicinal Use
1	Azadirachta indica	Meliaceae	Neem	Tree	Leaves, Bark	Skin diseases, fever, and blood purification
2	Phyllanthus emblica	Phyllanthaceae	Amla	Tree	Fruit	Digestive tonic, immunity booster
3	Terminalia arjuna	Combretaceae	Arjun	Tree	Bark	Heart ailments, blood pressure
4	Calotropis procera	Apocynaceae	Aak	Shrub	Latex, Leaves	Joint pain, skin infections
5	Withania somnifera	Solanaceae	Ashwagandha	Shrub	Root	Strength tonic, stress relief
6	Ocimum sanctum	Lamiaceae	Tulsi	Herb	Leaves	Cold, cough, fever
7	Aloe vera	Asphodelaceae	Gwarpatha	Herb	Leaf gel	Burns, wounds, and digestive disorders
8	Ziziphus mauritiana	Rhamnaceae	Ber	Tree	Fruit, Leaves	Digestive problems, fever
9	Capparis decidua	Capparaceae	Ker	Shrub	Fruit, Bark	Diabetes, digestive disorders
10	Commiphora wightii	Burseraceae	Guggul	Shrub	Resin	Arthritis, obesity, and inflammation
11	Tinospora cordifolia	Menispermaceae	Giloy	Climber	Stem	Fever, immunity booster
12	Cassia fistula	Fabaceae	Amaltas	Tree	Fruit pulp	Laxative, skin diseases
13	Leptadenia pyrotechnica	Apocynaceae	Khimp	Shrub	Whole plant	Digestive and respiratory ailments
14	Ficus religiosa	Moraceae	Peepal	Tree	Bark, Leaves	Asthma, wounds
15	Cynodon dactylon	Poaceae	Doob grass	Herb	Whole plant	Wound healing, fever

IV. RESULTS

A. Ethnobotanical Findings

Discovery of 35 species of medicinal plants belonging to 22 families, which are used by local communities in the treatment of various ailments, such as digestive disorders, skin diseases, fever, respiratory problems, and wound healing. These types are usually herbal medicines prepared in various forms, such as decoctions, pastes, compresses, and beverages.

This richness in plant use reflects deep-rooted traditional knowledge passed down through generations. However, younger members of society increasingly prefer modern medicines, thereby increasing the risk of losing valuable plant knowledge.

B. Structure of Social Facilities

The community structure is characterized by scattered trees and shrubs interspersed with medicinal plants. And look at the diversity of life forms in it:

i. Plants form an important group because they are easily accessible and frequently used.

ii. And those trees provide bark, roots and leaves that are used for medicinal purposes.

Quantitative measures, such as species frequency, indicate that some medicinal species are locally common, whereas others are rare, raising concerns about their conservation status.

V. DISCUSSION

Swayaghaji documents for plants in Shakambari Hill indicate that traditional plant knowledge remains an important component of rural health services. Previous studies have identified more than 50 medicinal plant species traditionally used by local communities in the Shekhawati region, underscoring a vast reservoir of medicinal knowledge.

Similar studies on indigenous plants in other parts of India, including Madhya Pradesh and Haryana, show that traditional healers continue to use a range of plants to treat a variety of ailments. Many studies emphasize the need to systematically document these local practices and verify their validity before implementing them [4].

In addition, regional ethnobotanical studies indicate that habitat degradation and overuse of medicinal plants pose threats and require community participation in sustainable use projects and conservation strategies.

VI. CONCLUSION

The Sakambhari Hills, located in Udaipurwati, are home to a wide range of medicinal plants associated with local traditional practices. This study contributes to the ethnobotanical knowledge of semi-arid regions by documenting 35 medicinal plant species and their phytosocial contexts. Conservation of this knowledge and the sustainable management of these plant resources are essential, especially under the pressure of modernity and a fragile environment.

Emphasis should be placed on phytochemical analysis and medicinal research for the identified species. This can lead to the development of new drugs and increased understanding of herbal medicines.

DECLARATION STATEMENT

Some of the references cited are older and are explicitly noted as [2]. However, these works remain significant for the current study, as they are pioneering in their fields.

I must verify the accuracy of the following information as the article's author.

- **Conflicts of Interest/ Competing Interests:** Based on my understanding, this article has no conflicts of interest.
- **Funding Support:** This article has not been funded by any organizations or agencies. This independence ensures that the research is conducted objectively and free from external influence.
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