



Survey of ethnomedicinal plants in Ajmer District, Rajasthan

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Abstract

The current study aims to highlight the deep intricacies between traditional plant-based knowledge and the healthcare still woven into everyday life in the Ajmer district of Rajasthan. This survey-based study documented a total of 45 different medicinal plants in the region of Ajmer belonging to 28 different families. Out of these 28 families, the highest number of plants belonged to Fabaceae family which has the maximum number of plants (7/15.56%), followed by Solanaceae, which had four plants and made up 8.89% of the total. Thereafter, there were three plants each from the Amaranthaceae, Apocynaceae, Lamiaceae, and Moraceae families, each making up 6.67% of the total. There were two plants in each of the Combretaceae and Myrtaceae families, which made up 4.44% of the total. The highest number of plants belonged to the category of “trees”, which included nearly 18 plants (40%) followed by herbs (15 plants/33.3%), shrubs (8 plants/17.8%) and the least number of plants belonged to climbers (4 plants/8.89%). The plants were used for treatment of several ailments that included tooth problems, toothache, Cough, Diarrhea, Allergy, Burns, Skin problems, Anaemia, Skin diseases, Diabetes, Kidney diseases, Joint pain, Constipation, Digestion, Liver problems, Bleeding, Asthma, Worm infection, Cold, Wound healing, Fever, Indigestion, Weakness, Immunity, Liver disorders, Urinary problems, Wounds and stress.

Keywords: Ethnomedicinal plants, Ajmer, plant family, disorder name etc

Introduction

Ever since the evolution of mankind on earth, humans have shared a harmonious mutualistic relationship with the plants. As a direct consequence of this, medicinal plants have been an integral part of human healthcare systems ever since the foundation of traditional medicine across the world. Specifically talking about India, the usage of plant-based remedies is mainly rooted in cultural practices and continues to play a significant role in primary healthcare, especially in rural and semi-arid regions. Traditional healthcare systems such as Ayurveda, Unani, and folk medicine rely exclusively on locally available plant species for the prevention and treatment of various diseases. Despite the rapid advancement of modern medicine, a large section of people is exclusively dependent on herbal remedies owing to their accessibility, affordability, as well as perceived safety (Gupta *et al.*, 2023; Ojha *et al.*, 2026) [1, 2]. Rajasthan, one of the largest states in India, boasts of diverse ecological conditions ranging from arid deserts to semi-arid plains. All these unique environmental conditions act as favorable niche supporting the growth of a wide variety of plant species that have adapted to harsh climates and possess significant medicinal properties. This medicinal knowledge, often passed down orally through generations, plays a crucial role in managing common health problems such as digestive disorders, skin diseases, respiratory ailments, and metabolic conditions (Anita *et al.*, 2007; Sarin *et al.*, 2014; Giridhar *et al.*, 2016) [3, 4, 5].

It is important to conduct ethnobotanical studies in order to document such indigenous knowledge systems, since they not only enable preservation of cultural heritage but also provide valuable leads for the discovery of new therapeutic agents. A number of modern drugs have originated from plant sources, highlighting the importance of systematically studying medicinal flora. The recent years have been marked by increasing pressure from urbanization,

overexploitation, as well as environmental degradation, all of which has threatened both plant diversity as well as traditional knowledge systems. Considering this, there is an urgent need to document as well as conserve this information before it is lost. Also, there is need to conduct studies focusing on regional medicinal plant diversity, which will contribute to conservation planning by the identification of frequently used species that may need protection or sustainable management (Das *et al.*, 2023; Chhetri *et al.*, 2021; Sharma *et al.*, 2023; Vats *et al.*, 2025) [6, 7, 8, 24].

In this context, the present study was therefore undertaken to document the diversity of medicinal plants used in the Ajmer district of Rajasthan and also analyze their family-wise distribution, parts used as well as methods of preparation, and disease-wise applications. By systematically recording this information, it can be used for preservation of traditional knowledge and support future pharmacological and conservation research.

Materials and Methods

Selection of Study Area

The ethnomedicinal survey took place in certain communities and forested regions within the research area. The places were chosen because they had a lot of different plants, traditional healers, ethnic groups, and people who relied on plant-based medicine. Before the actual visits, scouting trips were made to find good places, check how easy it was to get to them, see what kinds of plants were there, and find informed people who could help.

The study area was recorded with its geographical coordinates, altitude, climate, soil type, and plant life. We utilized maps of the research region to indicate the places where we would take samples and make sure that we covered all of the varied ecosystems, such as forests, farmland, wastelands, and the areas around villages.

Survey Period and Field Visits

Field surveys were conducted periodically over a duration of ___ months/years (e.g., 2025–2026) to ensure proper documentation of plant diversity across different seasons. Seasonal visits were important to observe flowering and fruiting stages, which are essential for correct plant identification. Surveys were carried out during pre-monsoon, monsoon, and post-monsoon seasons to maximize plant collection and documentation.

Results

Survey of medicinal plants in Jaipur district: The results of the survey enlisted in Table 1 showed a total of 45 medicinal plants in the Ajmer district of Rajasthan belonging to 28 different families. These included *Acacia nilotica*, *Achyranthes aspera*, *Adhatoda vasica*, *Aegle marmelos*, *Albizia lebeck*, *Aloe vera*, *Amaranthus viridis*, *Argemone mexicana*, *Azadirachta indica*, *Boerhavia diffusa*, *Butea monosperma*, *Calotropis procera*, *Cassia fistula*, *Catharanthus roseus*, *Chenopodium album*, *Cuscuta reflexa*, *Cynodon dactylon*, *Datura metel*, *Embelia ribes*, *Eucalyptus globulus*, *Ficus benghalensis*, *Ficus racemosa*, *Ficus religiosa*, *Lawsonia inermis*, *Leucas aspera*, *Mentha spicata*, *Moringa oleifera*, *Nyctanthes arbor-tristis*, *Ocimum sanctum*, *Phyllanthus emblica*, *Pongamia pinnata*, *Ricinus communis*, *Sida cordifolia*, *Solanum nigrum*, *Solanum xanthocarpum*, *Syzygium cumini*, *Tamarindus indica*, *Tecomella undulata*, *Terminalia bellirica*, *Terminalia chebula*, *Tinospora cordifolia*, *Tribulus terrestris*, *Tridax procumbens*, *Withania somnifera* and *Ziziphus mauritiana*. The most common forms of usage of these plants included

Decoction, Powder, Oral, Paste, Juice, Oil inhalation and Oil. Commonly used plant parts included Bark, Roots, Leaves, Fruit, Leaf gel, Latex, Flowers, Fruit pulp, Stem, Whole plant, Fruits and Seeds. Diseases that were treated using these parts included Tooth problems, Toothache, Cough, Diarrhea, Allergy, Burns, Skin problems, Anaemia, Skin diseases, Diabetes, Kidney diseases, Joint pain, Constipation, Digestion, Liver problems, Bleeding, Asthma, Worm infection, Cold, Wound healing, Fever, Indigestion, Weakness, Immunity, Liver disorders, Urinary problems, Wounds and stress.

People often used the leaves of Neem, Tulsi, Aloe vera, and Adusa. People also liked the fruits of amla, jamun, bel, and amaltas. Some plants used specific portions like latex, stem, flower, or leaf gel. These plants could help with a wide range of illnesses. The most plants that treated skin problems were Neem, *Aloe vera*, *Argemone mexicana*, *Lawsonia inermis*, *Butea monosperma*, and *Pongamia pinnata*. Plants including Neem, *Catharanthus roseus*, *Ficus racemosa*, and *Syzygium cumini* were used to treat diabetes. *Cassia fistula*, *Terminalia chebula*, and *Ricinus communis* were used to treat constipation. Giloy, Tulsi, *Leucas aspera*, and *Nyctanthes arbor-tristis* were used to treat fever. People used plants including Adusa, Tulsi, *Terminalia bellirica*, *Ficus religiosa*, and Ber to help with coughs and other breathing difficulties. *Cuscuta reflexa*, *Solanum nigrum*, and *Tecomella undulata* were used to cure liver issues. Ashwagandha, *Moringa oleifera*, and *Sida cordifolia* helped with weakness and stress. *Boerhavia diffusa* and *Tribulus terrestris* were used to treat problems with the kidneys and urinary tract.

Table 1: Survey of Medicinal Plants in Ajmer District, Rajasthan.

S. No.	Name of Plant	Common Name	Family	Habit	Plant Part Used	Diseases Treated	How to Use
1	<i>Acacia nilotica</i>	Babool	Fabaceae	Tree	Bark	Tooth problems	Decoction
2	<i>Achyranthes aspera</i>	Apamarg	Amaranthaceae	Herb	Roots	Toothache	Powder
3	<i>Adhatoda vasica</i>	Adusa	Acanthaceae	Shrub	Leaves	Cough	Decoction
4	<i>Aegle marmelos</i>	Bel	Rutaceae	Tree	Fruit	Diarrhea	Oral
5	<i>Albizia lebeck</i>	Siris	Fabaceae	Tree	Bark	Allergy	Decoction
6	<i>Aloe vera</i>	Ghratkumari	Asphodelaceae	Herb	Leaf gel	Burns, skin problems	Paste, oral
7	<i>Amaranthus viridis</i>	Chaulai	Amaranthaceae	Herb	Leaves	Anaemia	Oral
8	<i>Argemone mexicana</i>	Satyanashi	Papaveraceae	Herb	Latex	Skin diseases	Paste
9	<i>Azadirachta indica</i>	Neem	Meliaceae	Tree	Leaves, bark	Skin diseases, diabetes	Paste, decoction
10	<i>Boerhavia diffusa</i>	Punarnava	Nyctaginaceae	Herb	Roots	Kidney diseases	Powder
11	<i>Butea monosperma</i>	Palash	Fabaceae	Tree	Flowers	Skin diseases	Powder
12	<i>Calotropis procera</i>	Aak	Apocynaceae	Shrub	Leaves	Joint pain	Paste
13	<i>Cassia fistula</i>	Amaltas	Fabaceae	Tree	Fruit pulp	Constipation	Oral
14	<i>Catharanthus roseus</i>	Sadabahar	Apocynaceae	Herb	Leaves	Diabetes	Oral
15	<i>Chenopodium album</i>	Bathua	Amaranthaceae	Herb	Leaves	Digestion	Oral
16	<i>Cuscuta reflexa</i>	Amarbel	Convolvulaceae	Climber	Stem	Liver problems	Decoction
17	<i>Cynodon dactylon</i>	Doob grass	Poaceae	Herb	Whole plant	Bleeding	Juice
18	<i>Datura metel</i>	Dhatura	Solanaceae	Shrub	Leaves	Asthma	Paste
19	<i>Embelia ribes</i>	Vidanga	Primulaceae	Climber	Fruits	Worm infection	Powder
20	<i>Eucalyptus globulus</i>	Nilgiri	Myrtaceae	Tree	Leaves	Cold	Oil inhalation
21	<i>Ficus benghalensis</i>	Bargad	Moraceae	Tree	Latex	Wound healing	Paste
22	<i>Ficus racemosa</i>	Gular	Moraceae	Tree	Fruit	Diabetes	Oral
23	<i>Ficus religiosa</i>	Peepal	Moraceae	Tree	Bark	Asthma	Decoction
24	<i>Lawsonia inermis</i>	Mehndi	Lythraceae	Shrub	Leaves	Skin diseases	Paste
25	<i>Leucas aspera</i>	Thumbai	Lamiaceae	Herb	Leaves	Fever	Decoction
26	<i>Mentha spicata</i>	Pudina	Lamiaceae	Herb	Leaves	Indigestion	Oral
27	<i>Moringa oleifera</i>	Drumstick	Moringaceae	Tree	Leaves	Weakness	Oral
28	<i>Nyctanthes arbor-tristis</i>	Harsingar	Oleaceae	Shrub	Leaves	Fever	Decoction
29	<i>Ocimum sanctum</i>	Tulsi	Lamiaceae	Herb	Leaves	Cold, cough	Oral, decoction
30	<i>Phyllanthus emblica</i>	Amla	Phyllanthaceae	Tree	Fruit	Digestion, immunity	Oral
31	<i>Pongamia pinnata</i>	Karanj	Fabaceae	Tree	Seeds	Skin diseases	Oil

32	<i>Ricinus communis</i>	Arandi	Euphorbiaceae	Shrub	Seeds	Constipation	Oil
33	<i>Sida cordifolia</i>	Bala	Malvaceae	Herb	Roots	Weakness	Powder
34	<i>Solanum nigrum</i>	Makoi	Solanaceae	Herb	Leaves	Liver disorders	Oral
35	<i>Solanum xanthocarpum</i>	Kantakari	Solanaceae	Herb	Fruits	Asthma	Powder
36	<i>Syzygium cumini</i>	Jamun	Myrtaceae	Tree	Seeds	Diabetes	Powder
37	<i>Tamarindus indica</i>	Imli	Fabaceae	Tree	Fruit	Digestion	Oral
38	<i>Tecomella undulata</i>	Rohida	Bignoniaceae	Tree	Bark	Liver disorders	Decoction
39	<i>Terminalia bellirica</i>	Baheda	Combretaceae	Tree	Fruit	Cough	Powder
40	<i>Terminalia chebula</i>	Harad	Combretaceae	Tree	Fruit	Constipation	Powder
41	<i>Tinospora cordifolia</i>	Giloy	Menispermaceae	Climber	Stem	Fever, immunity	Decoction
42	<i>Tribulus terrestris</i>	Gokhru	Zygophyllaceae	Herb	Fruits	Urinary problems	Powder
43	<i>Tridax procumbens</i>	Coat buttons	Asteraceae	Herb	Leaves	Wounds	Paste
44	<i>Withania somnifera</i>	Ashwagandha	Solanaceae	Shrub	Roots	Weakness, stress	Powder, oral
45	<i>Ziziphus mauritiana</i>	Ber	Rhamnaceae	Tree	Fruit	Cough	Oral

Family wise distribution of the medicinal plants

The results of the survey (Table 2 and corresponding pie chart) showed that the reported 45 therapeutic plants belonged to 28 distinct plant groups. This illustrates that Ajmer district uses a wide range of plant groups for therapeutic reasons.

Out of these 28 families, the highest number of plants belonged to Fabaceae family which has the maximum number of plants (7/15.56%), which was 15.56% followed by Solanaceae, which had four plants and made up 8.89% of the total. Thereafter, there were three plants each from the

Amaranthaceae, Apocynaceae, Lamiaceae, and Moraceae families, each making up 6.67% of the total. There were two plants in each of the Combretaceae and Myrtaceae families, which made up 4.44% of the total.

The other 20 families each had one plant, which made up 2.22% of the overall distribution included Acanthaceae, Asphodelaceae, Asteraceae, Bignoniaceae, Convolvulaceae, Euphorbiaceae, Lythraceae, Malvaceae, Meliaceae, Menispermaceae, Moringaceae, Nyctaginaceae, Oleaceae, Papaveraceae, Phyllanthaceae, Poaceae, Primulaceae, Rhamnaceae, Rutaceae, and Zygophyllaceae.

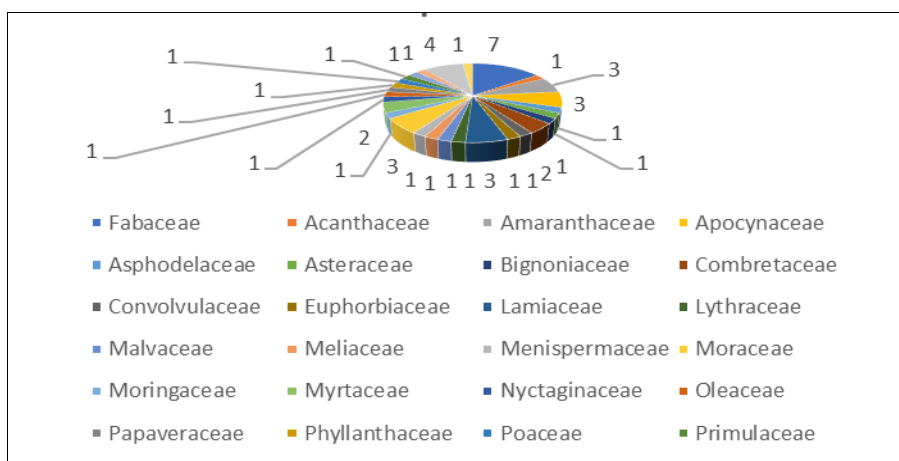


Fig 1: Family wise distribution of the medicinal plants

Habit Wise Distribution of the Medicinal Plants

The results of the survey in Table 2 and its corresponding pie chart showed that the enlisted 45 medicinal plants found in Ajmer district belonged to different habitats including the trees, herbs, shrubs, and climbers.

The highest number of plants belonged to the category of “trees”, which included nearly 18 plants (40%) followed by herbs (15 plants/33.3%), shrubs (8 plants/17.8%) and the least number of plants belonged to climbers (4 plants/8.89%).

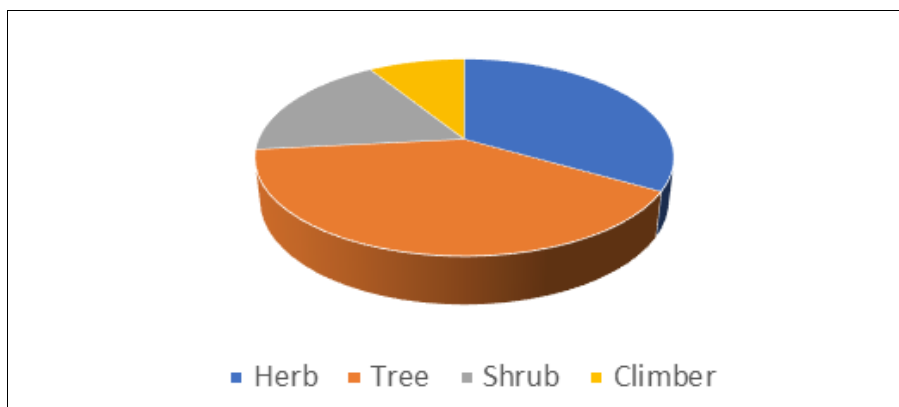


Fig 2: Habit-Wise distribution of the medicinal plants

Discussion

The current study aims to highlight the deep intricacies between traditional plant-based knowledge and the healthcare still woven into everyday life in the Ajmer district of Rajasthan. The current survey-based manuscript documented a total of 45 different medicinal plant species belonging to 28 different families, which evidently portrays the ways in which local communities still continue to depend on the natural resources for management of health conditions. This dependence of local communities on plants is not just owing to ease of accessibility, but is also reflective of the long-standing cultural trust in herbal remedies that has been passed down over the generations in people of Rajasthan. In regions like Rajasthan, which is an arid desert area marked by harsh climatic conditions, healthcare access may be limited in rural areas, where knowledge becomes especially valuable (Sunil L *et al.*, 2024; Saini *et al.*, 2025; Kataria *et al.*, 2013) ^[10, 11, 12].

The diversity of plant families highlighted in the current study is worth noticing. Out of all the enlisted families, the highest number of plants belonged to the Fabaceae family, followed by Solanaceae as well as several others like Acanthaceae, Amaranthaceae, Apocynaceae, Asphodelaceae, Asteraceae, Bignoniaceae, Combretaceae, Convolvulaceae, Euphorbiaceae, Lamiaceae, Lythraceae, Malvaceae, Meliaceae, Menispermaceae, Moraceae, Moringaceae, Myrtaceae, Nyctaginaceae, Oleaceae, Papaveraceae, Phyllanthaceae, Poaceae, Primulaceae, Rhamnaceae, Rutaceae and Zygophyllaceae. This goes to suggest that certain plant groups are particularly well adapted to the local environment and are also a rich storehouse of medicinal properties. Different plants enlisted in these families contain several bioactive compounds such as alkaloids, flavonoids, and tannins, which form the principal reason for the usage of these plants in traditional remedies (Ullah *et al.*, 2014; Bhatia *et al.*, 2014; Raj *et al.*, 2018) ^[13, 14, 15].

Out of all the observations, the most interesting observations passed down over the years is the preference for usage of plants leaves over other parts. The other commonly used plant parts included Bark, Roots, Fruit, Leaf gel, Latex, Flowers, Fruit pulp, Stem, Whole plant, Fruits and Seeds. This may be attributed to the fact that out of all the available plant parts, leaves are the most easily available plant part and can be harvested without destroying the plant (Mallik *et al.*, 2015; Rao *et al.*, 2015; Ali *et al.*, 2023; Singh *et al.*, 2017; Akhtar *et al.*, 2013) ^[17, 18, 19, 20]. Also, the leaves are a rich storehouse of bioactive compounds that have been reported to possess potent antioxidant, antimicrobial, antifungal, antiviral and anti-helminthic properties. Also, this goes to indicate that traditional practices are largely aligned with sustainable use of resources. However, the use of roots, bark, and whole plants in certain cases raises concerns about overharvesting and long-term conservation. If such practices are not managed carefully, they could threaten the survival of some species (Thakur *et al.*, 2016; Pala *et al.*, 2019; Matowa *et al.*, 2020) ^[21, 22, 23].

The methods of preparation further depict the practical wisdom and knowledge of local communities. Local people used these plants in various forms such as decoctions, powders, and pastes, all of which are simple yet effective

ways of extracting and utilizing the plant compounds. In particular ways, decoction is widely used, since boiling at high temperature aids in releasing the active constituents of plant into the water, making it easier to consume. On a similar note, the usage of pastes for skin conditions often highlights a direct and targeted approach to the treatment. Usage of oil-based preparations as well as inhalation techniques often indicates a nuanced understanding and approach of various ways in which these different formulations can be utilized for different types of ailments, especially respiratory and dermatological problems (Sharma *et al.*, 2025; Giday *et al.*, 2010; Adhikari *et al.*, 2019) ^[24, 25, 26].

Talking about the diseases treated with these plants, we saw that plants were used for treatment of several ailments that included tooth problems, toothache, Cough, Diarrhea, Allergy, Burns, Skin problems, Anaemia, Skin diseases, Diabetes, Kidney diseases, Joint pain, Constipation, Digestion, Liver problems, Bleeding, Asthma, Worm infection, Cold, Wound healing, Fever, Indigestion, Weakness, Immunity, Liver disorders, Urinary problems, Wounds and stress. When we closely observe look at the types of diseases treated, a clear pattern emerges. Digestive disorders account for the highest proportion of treatments, followed by skin diseases, respiratory conditions, as well as diabetes. This distribution likely stems from the common health challenges faced by people in the region of Rajasthan. Digestive issues stem from several accountable factors that include the dietary habits, water quality, as well as seasonal changes, while skin problems increase in intensity in the hot and dry climate. Other respiratory issues such as cough, cold, and asthma are also common, which maybe linked to prevalence of dust and environmental pollution (Rani *et al.*, 2013; Kaur *et al.*, 2020; Nankaya *et al.*, 2020) ^[27, 28].

The increasing usage of plants for the management of diabetes is particularly important, as it portrays increasing reliance on traditional remedies for the management of chronic conditions. Plants such as neem, jamun, and sadabahar are already known in scientific literature for their potential antidiabetic properties, which prove to be the reason for their continued usage in folk medicine. Similarly, several plants are used for fever, weakness, as well as immunity, which suggests that traditional medicine is not only curative but also preventive in nature (Sharma *et al.*, 2022) ^[30].

Another important aspect of this study is the repeated usage of certain well-known medicinal plants such as neem, tulsi, aloe vera, and giloy. All these plants are widely recognized across India for their therapeutic value and are often used for multiple health conditions. Their popularity in the area of Rajasthan is indicative of their versatility as well as efficacy in the treatment of malicious conditions. The usage of fruits such as amla, bel, as well as jamun highlight various ways in which nutrition and medicine are closely interlinked in traditional practices, with many edible plants serving dual roles both as food and as medicine.

At the same time, the relatively lower number of plants used for conditions like worm infections and bleeding disorders is indicative of either lower prevalence of these issues or limited traditional knowledge in these specific areas. This

variation in usage patterns of plants provides greater insight into ways in which local health priorities shape ethnomedicinal practices.

Overall, this study sheds light on the importance of preserving traditional knowledge systems, especially in biodiversity-rich regions like Rajasthan. These age-old practices are time-tested and have been retained over time, with a growing need to validate them scientifically through phytochemical as well as pharmacological research. Such form of validation will not only integrate traditional medicine with modern healthcare systems, but also aid in making treatment more accessible as well as affordable to the common people.

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