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TRADITIONAL MEDICINAL PLANTS OF THE SHEKHAWATI REGION, RAJASTHAN: DIVERSITY, INDIGENOUS KNOWLEDGE, AND PHARMACOLOGICAL RELEVANCE

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Abstract: *Arid and semi-arid regions are often perceived as biologically impoverished; however, they harbor a distinctive assemblage of plant species that exhibit remarkable ecological resilience and medicinal value. The Shekhawati region of Rajasthan, situated on the northeastern fringe of the Thar Desert, supports a rich diversity of medicinal plants that have been integral to indigenous healthcare systems for centuries. These plant resources form the foundation of traditional medical practices, particularly in rural communities where access to modern healthcare remains limited. The present study documents and analyses the medicinal plant diversity of the Shekhawati region with a focus on traditional ethnobotanical knowledge, therapeutic applications, and potential pharmacological significance. Using a mixed-method approach, primary data were collected through systematic field surveys, semi-structured interviews with traditional healers (vaidya, hakims), elderly community members, and local herbal practitioners, supplemented by extensive literature review. The study records key medicinal species, plant parts used, preparation methods, and ailments treated, highlighting their role in the management of common conditions such as digestive disorders, respiratory ailments, skin diseases, fever, diabetes, and inflammatory conditions.*

Key words: Rajasthan Desert, Shekhawati Region, Medicinal Plants, Traditional Medicine

Introduction

In recent decades, global demand for herbal medicines and plant-based therapeutics has increased significantly, driven by concerns over side effects of synthetic drugs, rising antimicrobial resistance, and a growing preference for natural and holistic healthcare approaches. The global herbal medicine market is estimated to grow at over 6-7 percent annually, intensifying interest in ethnobotanical resources from arid regions (UNEP, 2021). However, traditional medicinal knowledge in Shekhawati faces serious threats from habitat degradation, overharvesting, agricultural expansion, climate change, and socio-cultural transformation, leading to an erosion of indigenous knowledge systems. Despite the therapeutic importance of desert medicinal plants, systematic documentation and scientific validation of ethnobotanical knowledge in the Shekhawati region remain limited. There exists a critical gap between traditional healing practices and modern pharmacological research, particularly in identifying bioactive compounds, standardizing dosages, and ensuring sustainable utilization. Addressing this gap is essential not only for biodiversity conservation but also for strengthening rural healthcare, supporting livelihood opportunities, and contributing

The dominance of sandy to loamy-sandy soils with low organic matter, poor moisture retention, and high salinity further limits agricultural productivity and plant diversity. Despite these ecological stresses, the Shekhawati landscape supports a distinctive assemblage of xerophytic and drought-adapted flora that possess considerable medicinal and therapeutic value. Traditional healthcare systems in the Shekhawati region rely heavily on locally available medicinal plants, reflecting centuries of empirical knowledge and human environment interaction. Indigenous and pastoral communities such as the Bishnoi, Bhil, and Raika have developed sophisticated ethnobotanical practices cantered on the sustainable use of desert vegetation. These communities utilize roots, leaves, bark, seeds, latex, and whole plants for the treatment of a wide spectrum of ailments, including gastrointestinal disorders, respiratory infections, skin diseases, fever, diabetes, joint pain, and wound healing. Such practices form an integral component of Ayurveda, Unani, and diverse folk medical traditions, particularly in remote villages where institutional healthcare access remains limited (Kala, 2005; Jain, 2016). Studies indicate that nearly 70-80 percent of rural populations in arid and semi-arid India continue to rely on traditional medicine as their primary source of healthcare, underscoring the socio-cultural and medical relevance of medicinal plants (WHO, 2019). In Rajasthan alone, over 600 plant species have been reported to possess medicinal value, many of which are native or well-adapted to desert ecosystems (Joshi & Singh, 2018). In the Shekhawati region, commonly used medicinal species such as Azadirachta indica, Calotropis procera, withania somnifera, tecomella undulata, and Prosopis cineraria are known for their antimicrobial, anti-inflammatory, antioxidant, antidiabetic, and hepatoprotective properties, supported by preliminary pharmacological studies.

Against this backdrop, the present study seeks to document medicinal plant diversity in the Shekhawati region, examine indigenous ethnobotanical knowledge, and assess the therapeutic significance of selected species. By integrating traditional wisdom with scientific inquiry, the study aims to contribute to the conservation of ethnobotanical heritage and to highlight the potential of arid-zone medicinal plants in contemporary healthcare and pharmaceutical research. The indigenous communities such as the Bishnoi, Bhil, and Raika tribes have preserved extensive ethno-botanical knowledge over generations, passing on practical understanding of plant identification, preparation, and therapeutic application (Kumar et al., 2015). The growing global interest in herbal medicine and natural remedies

underscores the importance of documenting this knowledge and scientifically validating the medicinal potential of regional flora. Studies indicate that many plants in the Rajasthan Desert possess bioactive compounds with antimicrobial, antioxidant, anti-inflammatory, and other therapeutic activities (Sharma et al., 2012; Yadav & Singh, 2018). However, systematic studies on the Shekhawati Region specifically remain limited, leaving gaps in both ethnobotanical documentation and pharmacological research.

Objectives: This study aims to:

1. Document traditional knowledge related to medicinal plants in the Shekhawati Region of Rajasthan.
2. Identify key medicinal plant species and their therapeutic uses.
3. Analyse the pharmacological potential of selected medicinal plants.
4. Assess the conservation status and threats to medicinal plant biodiversity.
5. Explore strategies for sustainable utilization and integration into modern medicine.

Review of Literature

Several studies have explored the ethno-botanical and pharmacological importance of Rajasthan's flora. Jain (1991) provided early documentation of medicinal plants used by local communities, highlighting species such as *Withania somnifera*, *Aloe vera*, and *Calotropis procera*. Sharma et al. (2012) further emphasized the therapeutic significance of desert plants, reporting that many species contain bioactive compounds with potential applications in drug development, including antibacterial, antifungal, and anti-inflammatory properties. Ethno-medical surveys indicate that Rajasthan's medicinal plants are traditionally used to treat diverse ailments. For instance, *Tribulus terrestris* is used for urinary disorders, *Ocimum sanctum* for respiratory ailments, and *Ziziphus nummularia* for gastrointestinal problems (Kumar et al., 2015). Yadav and Singh (2018) highlighted the antioxidant and antimicrobial activity of several desert-adapted species, suggesting their potential role in modern pharmacology. Despite this, the literature reveals significant gaps. Many plants remain underexplored in terms of clinical research, chemical characterization, and conservation assessments (Sharma et al., 2012; Yadav & Singh, 2018). Moreover, while studies exist for Rajasthan broadly, focused research in the Shekhawati Region with its unique climatic, ecological, and cultural context is sparse.

Need for the Present Study

While Rajasthan's medicinal plants have been studied to some extent, research focusing specifically on the Shekhawati Region is limited. Documenting the local flora, understanding traditional knowledge, and investigating pharmacological potential are crucial for several reasons:

1. Preservation of Indigenous Knowledge: Traditional medicinal practices are at risk of being lost due to modernization and cultural shifts.
2. Conservation of Biodiversity: Many medicinal plants face threats from habitat degradation, overharvesting, and climate stress.
3. Sustainable Utilization: Identifying plants with pharmacological potential can support their integration into modern medicine and promote local livelihoods.

This study therefore seeks to bridge the gap between ethnobotanical knowledge and scientific validation, providing a foundation for conservation and sustainable use of medicinal plants in Shekhawati.

Methodology

A comprehensive floristic survey was conducted in the Shekhawati Region of Rajasthan, with particular focus on the rainy season, when plant diversity and abundance are at their peak. Field excursions were carried out once or twice a month, while during the monsoon period, visits were increased to once a week to capture the seasonal variations in flora. Native plant

species were identified and catalogued using standard floras (e.g., Jain, 1991; Gamble, 1967) and with the guidance of subject experts in botany. For each species, information on local names, habitat, growth form, and ethnobotanical uses was recorded. Photographs and herbarium specimens were collected for further verification and documentation.

Study Area

The Shekhawati region, located in the northeastern part of Rajasthan within the broader arid zone of the Thar Desert, is characterized by extreme climatic and edaphic conditions that impose severe constraints on vegetation growth. The region experiences prolonged summers with temperatures frequently exceeding 45°C, cold winters with temperatures occasionally falling below 5°C, and low annual rainfall ranging between 300 and 450 mm, most of which is received during short and erratic monsoon spells (IMD, 2022). The study was conducted in selected districts of Rajasthan, focusing primarily on the Shekhawati Region, which encompasses parts of Sikar, Jhunjhunu, and Churu districts. This region is renowned for its rich medicinal plant diversity and has historically supported a variety of indigenous healthcare practices. Climatically, the Shekhawati Region falls under the arid zone of the Rajasthan Desert (Thar Desert), characterized by extreme temperatures and low, erratic rainfall. Summer temperatures can soar up to 50°C, while winters may drop to 5-8°C, creating a harsh environment for both humans and vegetation. The average annual rainfall is typically less than 250 mm, mostly concentrated during the short monsoon season between July and September. High evapotranspiration rates, coupled with sandy, low-fertility soils, pose significant challenges for plant growth, yet many species have evolved unique adaptations to survive under these conditions. The region is also home to several indigenous communities, such as the Bishnoi, Bhil, and Raika tribes, who have historically relied on local flora for medicine, food, and ritual purposes. Traditional water-harvesting systems and scattered patches of natural vegetation, including sandy plains, rocky outcrops, and scrublands, provide diverse microhabitats that support the growth of medicinal plants.

Observations

In the present survey only 161 plant species were recorded. The possible reason for fewer number of plant species was scanty and erratic rainfall during the last three years, which caused severe droughts in this region. These droughts destroyed the natural vegetation cover. Commonly ephemerals and perennial species were very few observed in the field, which may be due to lack of ample soil moisture, due to which seeds were unable to germinate or their germplasm seemed to be dead. The area under present study is the part of northeastern Indian desert. This part poses problems to human beings. Its extent is large but opportunities are limited or insignificant particularly for eco-development. Among 161 plant species observed in different seasons, dominant and co-dominant plant species recorded in monsoon and post- monsoon seasons in the Churu are given in Table 5. These species belongs to 52 families among these Poaceae stood first with 27 plant species followed by Asteraceae (13), Amaranthaceae (09) and Fabaceae (08). Among 161 plant species, most of plants show herbaceous habit, i.e. 44.72 percent. During the entire tenure of the study, surveys of arid areas of Churu and its surroundings were made in different months for detailed vegetation studies. Results reveal that bulk of the vegetation consists of a kind of scrub, which made up of shrubs and perennial herbs and are capable of great drought resistance. There are a few trees, which showed stunted growth and are thorny in nature. In desert many medicinally important plants were observed. These were: Tumba (*Citrullus colocynthis*), Bara Gokhru (*Pedalium murex*), Harmal (*Peganum harmala*), Khrinti (*Sida cordifolia*), Bhakri (*Tribulus terrestris*), Hingota (*Balanites aegyptiaca*), Ram Bui (*Arnebia hispidissima*), Sankhapushpi (*Convolvulus microphyllus*), Makoy (*Solanum nigrum*), Ringani

(*S. surrattense*), Aasgandh (*Withania somnifera*), Marua (*Majorana hortensis*), Santhi (*Boerhavia diffusa*), Bhui Aanwalaa (*Phyllanthus amarus*), Jaramal (*P. fraternus*), Gwarpatha (*Aloe barbedensis*), etc. The different plant species, which are common at different sites around environs of Churu were: Bui (*Aerva persica*), Latjeera (*Achyranthes aspera*), Styanashi (*Argemone mexicana*), Neem (*Azadirachta indica*), Bagro (*Cleome viscosa*), Chamghash (*Corchorus depressus*), Kaga Roti (*C. tridens*), Shinio (*Crotalaria burhia*), Pipal & Bar (*Ficus* spp.), Kali Bui (*Heliotropium* spp.), Rota Belari (*Ipomoea* spp.), Khimp (*Leptadenia pyrotechnica*), Biyani or Sarphanko (*Tephrosia purpurea*), Khejari (*Prosopis cineraria*), Arand (*Ricinus communis*), Aak (*Calotropis procera*), Rohira (*Tecomella undulata*), Bordi (*Ziziphus* spp.), Tumba (*Citrullus colocynthis*), Kair (*Capparis decidua*), Hingota (*Balanities aegytiaca*), Kankero (*Maytenus emarginata*), Nagfani (*Opuntia dillenii*), Vilayati Kikar (*Parkinsonia aculeata*), Khara Jhal (*Salvadora oleoides*), Meetha Jhal (*S. persica*), Farash (*Tamarix* spp.), Arni (*Clerodendrum phlomidis*), Hiran Chabbo (*Farsetia hamiltonii*), Muralia (*Lycium barbarum*) and Phog (*Calligonum polygonoides*) is rare. Among grasses, Lamp (*Aristida funiculate*), Murat (*Bracharia ramosa*), Bharut & Dhaman (*Cenchrus* spp.), Chinki (*Chloris virgata*), Dhoob (*Cynodon dactylon*), Makaro & Tantiya (*Dactyloctenium* spp.), Dab *(Desmostachya* (Desmostachya bipinnata), Karad (Dicanthium annulatum), Jharnio Ghas (Digitaria ascendense), Maduo (Eleusine compressa), Lutia Lamp (Eragrostis spp.), Kuncha (Erianthus munja), Munt or Ghirano (Panicum spp.), Kagio (*Tetrapogon tenela*), Ghas (*Tragus racemosus*) etc. were present. During rainy season a large number of weeds also make their appearance through seeds/underground vegetative parts. The common weeds of this region are: Dharno Ghas (*Anticharis liniaris*), Kantio Chandelo (*Amaranthus* spp.), Agio (*Borreria articularis*), Goyalo (*Chenopodium* spp.), Unt-Kantalo (*Echinops echinatus*), Sureli (*Gisekia pharnacioides*), Choti Santri (*Heliotropium marifolium*), Kali Bui (*H. subulatum*), Boyasan (*Polygala chinensis*), Luni (*Portulaca oleracea*), Bhakri (*Tribulus terrestris*), Chiri Bajara (*Mollugo cerviana*), Rangatio Khar (*M. nudicaulis*), Dhedo Santo (*Trianthema portulacastrum*), Santhi (*Boerhavia diffusa*), Kaga Roti (*Corchorus* spp.), Dudheli (*Euphorbia* spp.), Bekario (*Indigofera* spp.), Gudalio Santo (*Zaleya redimita*) etc. Exotic plants like Jungli Surajmukhi (*Verbesina enceliodis*) and Congress Ghas (*Parthenium hysterophorus*) are very much disturbing the natural phyto-diversity of the Indian desert (Mohammed, 2007).

Data Collection

The study employed a combination of qualitative and quantitative research methods. Field surveys were conducted to identify and document plant species in their natural habitats, and GPS coordinates were recorded for significant medicinal plant sites. Structured and semi-structured interviews were carried out with traditional healers, including Vaidyas, Hakims, and tribal practitioners, along with local community members, while focus group discussions were organized to validate the medicinal uses of plants. Ethnobotanical documentation involved recording detailed information on the plant parts used, methods of preparation, and their therapeutic applications, which were cross-referenced with classical Ayurvedic and Unani texts. In addition, phytochemical and pharmacological analyses were performed in the laboratory on selected medicinal plants to identify active compounds, and antimicrobial as well as antioxidant assays were conducted on plant extracts. Finally, the conservation status of medicinal plants was assessed using IUCN criteria supported by field observations, and major threats such as overgrazing, deforestation, and climate change were systematically evaluated.

Key Medicinal Plants of the Rajasthan Desert: Twenty medicinal plants are selected for the present studies. The brief descriptions of these plants are given below:

Table 01: Dominant and co-dominant plant species recorded during monsoon and post- monsoon seasons in the Shekhawati Region

Monsoon	Post-Monsoon
Bui (Aerva persica), Kantio Chandelo (Amaranthus hybridus), Bharut (Cenchrus spp.), Shinio (Crotalaria burhia), Motha (Cyperus rotundus), Dhoob (Cynodon dectylon), Tanitio (Dactylocetenium sindium), Lutia lamp (Eragro cillaris), Khimp (Leptadaenia pyrotechnica), Biyani (Tephrosia purpurea) and Ghas (Tragus racemosus)	Bui (Aerva persica), Bharut (Cenchrus spp.), Shinio (Crotalaria burhia), Khimp (Leptadaenia pyrotechnica) and Biyani (Tephrosia purpurea).
Co-dominants: Siris (Albizia lebbek), Lamp (Aristida funiculate), Hingota (Balanities aegyptiaca), Santhi (Boerhavia diffusa), Agio (Borreria articularis), Murat (Brachiaria ramose), Aak (Calotropis procera), Sonamukhi (Cassia spp.), Kair (Capparis decidua), Arna (Clerodendrum phlomidis), Bagro (Cleome viscosa), Kaga Roti (Corchorus tridens), Cham Ghas (C. depressus), Tumba (Citrullus colocynthis), Kachari (Cucumis callosus), Jharnio Ghas (Digitaria adscendens), Hiran Chabbo (Farsetia hamiltonii), Sureli (Gisekia pharnacioides), Kali Bui (Heliotropium spp.), Bekario (Indigofera spp.), Muralia (Lycium barbarum), Kankero (Maytenus emarginata), Chiri Bajara (Mollugo cerviana), Rangatio Khar (M. nudicaulis), Bara Gokharu (Pedalium murex), Bhui aanwalaa (Phyllanthus amarus), Luni (Portulaca oleracea), Khejari (Prosopis cineraria), Vilayati Babool (P. juliflora), Kuncha (Erianthum munja), Meetha Jhal (Salvadora persica), Kali Jibi (Sonchus spp.), Bhakri (Tribulus terrestris), Dhedo Santo (Trianthema portulacastrum), Aasgandh (Withania somnifera), Gudalio Santo (Zaleya redimita) and Bordi (Ziziphus spp).	o-dominants: Lamp (Aristida funiculata), Satyanashi (Argemone mexicana), Hingota (Balanities aegyptiaca), Santhi (Boerhavia diffusa), Aak (Calotropis procera), Kair (Capparis decidua), Sonamukhi (Cassia spp.), Arna (Clerodendrum phlomidis), Kaga Roti (Corchorus tridens), Tumba (Citrullus colocynthis), Motha (Cyperus spp.), Tantio (Dactyloctenium sindicum), Jharnio Ghas (Digitaria adscendens), Lutio Lamp (Eragrostis spp.), Kali Bui (Heliotropium spp.), Bekario (Indigofera spp.), Muralia (Lycium barbarum), Bara Gokharu (Pedalium murex), Bhui Aanwalaa (Phyllanthus amarus), Khejari (Prosopis cineraria), Vilayati Babool (P. juliflora), Kuncha (Erianthum munja), Ringani (Solanum surratense), Kali Jibi (Sonchus spp.), Ghas (Tragus spp.), Bhakri (Tribulus terrestris), Dhedo Santo (Trianthema portulacastrum), Aasgandh (Withania somnifera), Jangali Surajmukhi (Varbesina encelioides), Gudalio Santo (Zaleya redimita) and Bordi (Ziziphus spp.).

Source: Field Based Survey

Table 02: Medicinal Plants: Family, Uses, and Pharmacology in the Shekhawati Region

Plant	Family	Uses	Pharmacology
Shatavari	Asparagaceae	Female tonic, improves lactation, digestion, immunity	Saponins (Shatavarins) - Adaptogenic, immunomodulatory, estrogenic
Hingota	Zygophyllaceae	Jaundice, skin diseases, constipation, worms	Saponins, alkaloids - Hepatoprotective, anthelmintic
Bhangaro	Lamiaceae	Cough, asthma, fever, inflammation	Flavonoids, diterpenoids -Anti-inflammatory, antipyretic, bronchodilator
Santhi	Poaceae	Urinary disorders, blood purifier, rituals	Tannins, phenolic compounds - Diuretic, anti-inflammatory
Phog	Polygonaceae	Digestive stimulant, appetite, fodder	Flavonoids - Antioxidant, digestive stimulant
Tumba	Cucurbitaceae	Purgative, skin diseases, worms	Bitter glycosides (colocynthin) - Purgative, anthelmintic
Shankhapushpi	Convolvulaceae	Brain tonic, memory, stress relief, sleep	Alkaloids (Shankhapushpine) - Nootropic, anxiolytic, sedative
Bhringaraj	Asteraceae	Hair growth, liver & skin disorders	Wedelolactone, coumestans - Hepatoprotective, hair growth promoter
Vishnukranta	Convolvulaceae	Memory enhancer, brain tonic	Alkaloids, flavonoids - Nootropic, anticonvulsant
Sureli	Capparaceae	Arthritis, skin diseases, blood purifier	Glucosinolates - Anti-inflammatory, hypolipidemic
Chiria-ka-Bajara	Poaceae	Edible millet, light digestion	Carbohydrates, minerals - Antioxidant, digestible
Bara Gokharu	Zygophyllaceae	Kidney stones, urinary disorders, aphrodisiac	Steroidal saponins (protodioscin) - Diuretic, lithotriptic, aphrodisiac
Harmal	Nitrariaceae	Worms, fever, skin problems	Alkaloids (harmaline, harmine) - Anthelmintic, antimicrobial, CNS active
Bhui-Aanwalaa	Phyllanthaceae	Jaundice, hepatitis, stones	Lignans (phyllanthin) - Hepatoprotective, antiviral, diuretic
Khejari	Fabaceae	Food (sangri), blood purifier, digestion	Flavonoids, alkaloids - Antioxidant, anti-diabetic
Meetha Jhal	Salvadoraceae	Oral hygiene, gum diseases, teeth strength	Fluoride, silica, alkaloids - Antibacterial, oral hygiene
Kungyi	Asteraceae	Quit smoking aid, cough, fever	Flavonoids, terpenes - Anti-inflammatory, detoxifying
Ringani	Solanaceae	Asthma, cough, urinary problems	Alkaloids (solanine) - Bronchodilator, expectorant, anti-asthmatic
Rohira	Bignoniaceae	Liver disorders, skin diseases, fever	Flavonoids, triterpenoids - Hepatoprotective, antimicrobial
Ashwagandha	Solanaceae	Strength, stress relief, immunity booster	Withanolides - Adaptogen, immunomodulator, anti-stress

Discussion

India is globally recognized for its rich diversity of medicinal plants, ranking among the top producers of herbal medicines. These plants support traditional healthcare systems such as Ayurveda, Unani, Siddha, and folk medicine, while also contributing significantly to the pharmaceutical and nutraceutical industries (Raina et al., 2003; Singh & Jain, 2012). Medicinal plants also provide economic opportunities, particularly for rural communities, by generating income and promoting sustainable livelihoods. The Shekhawati Region of Rajasthan, situated in the arid zone of the Thar Desert, is home to a unique assemblage of medicinal plants that have adapted to extreme temperatures (up to 50°C) and low rainfall (less than 250 mm annually). Indigenous communities such as the Bishnoi, Bhil, and Raika have preserved extensive traditional knowledge about these plants for generations, using them to treat ailments ranging from gastrointestinal disorders and respiratory problems to skin infections (Sharma et al., 2015; Jain, 1991). This ethno botanical heritage is an invaluable resource, yet it is under threat due to habitat degradation, overharvesting, and declining transmission of traditional knowledge. The continuing reduction of forest cover and natural habitats has led to a decline in the availability of medicinal plants across the region. If this trend persists, both biodiversity and the local economy may suffer, as wild collection forms a significant part of regional livelihoods (Kumar & Singh, 2018). To counter these challenges, large-scale cultivation of medicinal plants Medi culture is essential. Cultivation not only ensures a sustainable supply of raw materials for the herbal industry but also relieves pressure on wild populations and preserves the region's phytogeography. Scientific research and development can play a pivotal role in this process. Efforts should focus on improving plant varieties, enhancing biomass production, and increasing levels of pharmacologically active secondary metabolites through suitable agro-techniques and biotechnological interventions (Raina et al., 2003). Locally adapted cultivation practices can help farmers diversify into medicinal plant farming, offering economic incentives while conserving traditional knowledge and ecological integrity.

Traditional Uses vs. Scientific Validation

Many medicinal plants used in traditional medicine have been scientifically validated for their pharmacological activities. However, more research is needed to develop standardized extracts and formulations for clinical use.

Conservation Challenges

- The major threats to medicinal plants in the Rajasthan Desert include:
- Overexploitation: Unsustainable harvesting for commercial purposes.
- Habitat Destruction: Agricultural expansion and urbanization.
- Climate Change: Rising temperatures and erratic rainfall patterns affecting plant survival.

Sustainable Utilization Strategies

- Community-Based Conservation: Involving local communities in conservation efforts.
- Cultivation and Domestication: Encouraging large-scale cultivation of medicinal plants.
- Government Policies: Implementing protective measures and sustainable harvesting guidelines.

Conclusion

The Rajasthan Desert, particularly the Shekhawati Region, is a rich repository of medicinal plants, many of which possess significant ethno botanical, pharmacological, and therapeutic importance. These plants have been an integral part of traditional healthcare practices for centuries, with indigenous knowledge preserved and transmitted by local communities such as the Bishnoi, Bhil, and Raika tribes. This traditional wisdom has been instrumental in

treating a wide range of ailments, from respiratory and gastrointestinal disorders to skin infections, and continues to serve as a valuable resource for primary healthcare in rural areas. Scientific studies have begun to validate the therapeutic potential of many of these plants, confirming the presence of bioactive compounds with antimicrobial, anti-inflammatory, antioxidant, and other medicinal properties. Such validation highlights the urgent need for systematic research to explore novel compounds, develop herbal formulations, and conduct clinical trials, bridging the gap between traditional knowledge and modern medicine. Sustainable utilization of medicinal plants is essential to safeguard this natural wealth. Conservation strategies-including habitat protection, cultivation initiatives, and the development of agro-techniques-can prevent overexploitation and ensure the long-term availability of these species. Awareness programs, capacity-building workshops for local communities, and policy interventions are crucial to promote conservation while encouraging farmers to engage in Medi culture as a viable livelihood option. This study emphasizes the dual importance of biodiversity conservation and preservation of indigenous knowledge. Protecting Rajasthan's medicinal plant heritage ensures that these invaluable resources remain available for future generations, supports rural livelihoods, and contributes to global healthcare solutions. By integrating traditional practices with modern scientific approaches, the Shekhawati Region can serve as a model for sustainable medicinal plant management in arid environments.

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