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Applied Domestication of Medicinal Plants and Traditional Practices in Jhunjhunu, Rajasthan: Modern Applications

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Abstract: ***Jhunjhunu, a prominent district in the Shekhawati region of Rajasthan, is well-known for its rich tradition of medicinal plant use and domestication in household gardens, farms, and community spaces. This study investigates the applied use of domesticated medicinal plants, emphasizing contemporary applications of traditional remedies. Data were collected from 125 households, 20 local pansaris, and 15 herbal vendors through structured interviews. Key domesticated species included Tulsi, Aloe vera, Ashwagandha, Guduchi, Neem, Harad, Mulethi, Amla, and Babul. Findings reveal that traditional knowledge continues to be actively applied, adapting to modern healthcare needs while preserving cultural heritage and promoting biodiversity conservation.***

Keywords: Domesticated medicinal plants, Jhunjhunu, Traditional healthcare, Herbal medicine, Rajasthan, Ethnobotany, Home gardens.

1.1 Introduction

Traditional medicine has historically formed the primary healthcare system in rural Rajasthan. Jhunjhunu, with its arid climate and sandy soils, relies heavily on domesticated medicinal plants cultivated in households, farms, and temple precincts. These plants are used for preventive, curative, and wellness purposes, complementing modern pharmaceuticals. This study examines the contemporary use of domesticated medicinal plants in Jhunjhunu, highlighting the integration of traditional practices into modern lifestyles and their socio-cultural significance.

1.2 Historical Background

Jhunjhunu has a deep-rooted tradition of herbal medicine, influenced by Ayurveda, folk medicine, and local ethnobotanical knowledge. Historical records and oral traditions indicate the use of species such as Tulsi, Aloe vera, Ashwagandha, Guduchi, Neem, Harad, and Mulethi for treating common ailments. Domestication was adopted to ensure year-round availability, reduce dependency on wild resources, and sustain household healthcare. Pansaris and local healers have historically served as custodians of medicinal knowledge, preparing remedies and guiding communities.

1.3 Review of Literature

The area under research work was studied by following botanists and time to time viz; first of all the Sekhawati region was touched from vegetational study point of view by Mulay and Ratnam (1950), Bikaner and pilani neighbourhood areas by joshi (1956 and 1958), vegetation of chirawa by Nair (1956), again Nair and Joshi for Pilani and neighbourhood areas (1957), vegetation of harsh nath in aravalli's hills was studied by Nair and Nathawat (1957), vegetation of Jhunjhunu, Manderella and neighbourhood by Nair (1961), vegetation of ajit sagar dam by Nair and Kanodia (1959); Nair, Kandodia and Thomas (1961) studied the vegetation of Khetri town and neghbourhood areas and vegetation of Lohargal and it's neighbourhood areas of Sikar district by Nair and Malhotra (1961). After the work of Nair and Malhotra (1961), i.e. four decades ago. the area was again left for any sort of further research work in the field of applied Botany.

Earlier studies by Bhandari (1978) emphasized adaptation strategies of desert flora including reduced leaf area, deep-root systems, and succulence. Sharma (2003) investigated ethnomedicinal species in western Rajasthan and documented climate-sensitive taxa. Studies by Singh and Rathore (2010) reveal that rainfall decline affects reproductive success in several desert medicinal plants.

A significant, very authentic taxonomic work was contributed in the field of botany by Bhandari with the publcation of a book Flora of the Indian desert (1990). From the field of applied phytogeography point of view. Charan gave a valuable contribution with a publication of a book on Plant Geography (1992). Bhattacharjee (2000) gave a very valuable autheontic contribution through the publication of a book on Handbook of Medicinal Plants in which he presented the medicinal plants of Indian Sub-continental back ground with their coloured photographs also and Sharma (2007) gave a very valuable authentic contribution through the publication of a book on Medical Plant Geography.

Rajasthan's medicinal plant research highlights the ecological, socio-economic, and cultural significance of domesticated species. Jain (1981) provides foundational ethnobotanical documentation. Sharma and Meena (2007) highlight home gardens as critical sites for plant diversity conservation. Singh and Kaur (2010) analyze socio-economic impacts of medicinal plant cultivation in arid zones. Gupta and Kumar (2014)

discuss integrating traditional remedies with modern healthcare. However, detailed studies on domesticated plant use and contemporary adaptation in Jhunjhunu remain limited.

1.4 Objectives

1. Document domesticated medicinal plant species in Jhunjhunu households and farms.
2. Explore contemporary applications of traditional remedies.
3. Identify challenges in sustaining domesticated medicinal plants.
4. Recommend strategies for sustainable conservation and promotion.

1.5 Methodology

1. Study Design: Descriptive and ethnobotanical survey.

2. Data Collection: Structured interviews with 125 households, 20 pansaris, and 15 herbal vendors; plant specimen collection for verification.

3. Plant Identification: Verified using Jain (1981) and herbarium references.

4. Data Analysis: Quantitative assessment of plant usage frequency and qualitative documentation of preparation methods, remedies, and modern adaptations.

1.6 Study Area

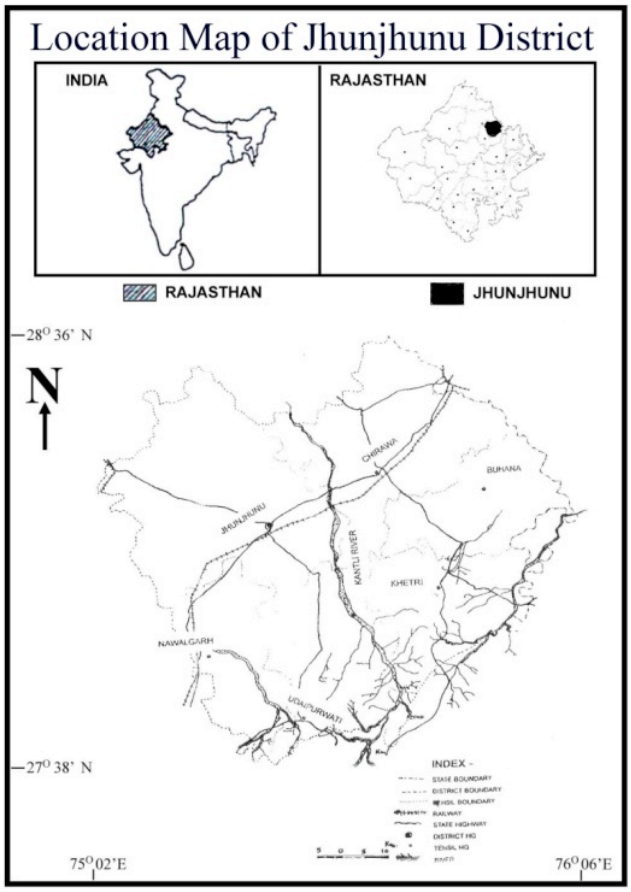
Jhunjhunu district, located in northeastern Rajasthan, has a semi-arid climate with low rainfall (400–550 mm annually) and sandy loam soils. Agriculture, home gardens, and temple premises are primary sites for domestication of medicinal plants. The region is characterized by xerophytic flora adapted to arid conditions.

The district is irregular hexagon in shape in the northeastern part of the State lies between 2702" east longitudes. It is surrounded by Churu district on the northwestern side Hissar and Mahendragarh district of Haryana State in the northeastern part and by Sikar district in the west, south and south eastern part-2. For the propose of administration the district is divided into five administrative subdivision viz, Chirawa, Udaipurwati, Jhunjhunu, Khetri and Nawalgarh Six Tehsil viz Jhunjhunu, Chirawa, Khetri, Nawalgarh, Buhana, Udaipurwati and eight Panchyat Samities viz Jhunjhunu, Chirawa, Khetri, Nawalgarh, Buhana, Udaipurwati, Alsisar and Surajgarh.

The total geographical area of the district is 2928 square Kms. This stands at 1.73 percent of the total area of the state from the points of area, Jhunjhunu district stand at 22nd place among the existing 33 districts of the state most of the part of the district is coerce by blow sand and dunes which for part of the great that desert sand shifting and active dunes are main hazards to cultivation. Soil erosion is the Result of constant deforestation and mining activity which have resulted in baring the slopes.

The district encompasses of three distinct geomorphic units.

1. The hilly area in south eastern part of district is characterized by hills of Aravalli range, running in north easterly direction. The highest peak, 1051 m high is in the south of Lohagar village bordering Sikar district. Hills are almost barren of vegetation except a few bushes of acacia and cactus.



2. The undulating area with small isolated hills having steep slope lies in the south western part of district. The major portion of hills is found in Khetri and Udaipurwati tehsils. The general elevation above mean sea level rests between 300 and 450m Quaternary level forms are represented by sand and colluvial deposits of talus and scree at piedment slopes.

3. The desertic plain generally lying at an altitude of about 300m amsl occupies the northern part of the district and is covered with sand dunes. The general slope of the area is from south to north. Sand dunes are drifting in nature.

District Jhunjhunu is situated in Arid Rajasthan plain known as Rajasthan. It comprises of Rolling hills, some of the arrival ranges in the southeastern side running in the south eastern Direction and range of the Aravali Hills in extreme southeastern of Udaipurwati existing towards Singhana and Khetri in the east, viz Nawalgarh-Khetri upland its general elevation above means sea level is between 300 to 450 meters. The highest peek is in the south of Lohagarh village and its height is 1051 meters, this is no perennial river in the district katti and Dohan are only seasonal rivers. River katti originated from Khadela hill sides of Shrimadhopur Tehsil. Sikar and enters near south west of Udaipurwati tehsil running towards north –west direction and ultimately disappears in the sandy tracks of the Churu District. This river, however, divides the district almost into two parts. Similarly Dohan River also originates from Shrimadhopur hills and flows to north –eastern direction passing through some eastern part and ultimately disappears in sandy tracks of Mahendragarh district of Haryana Besides, there. Major streams of Udaipur Lohagarh ki nadi chandrawati and sukh nadi. There is no lake in the district however small tanks are in existence in some areas. There are only four tanks used for irrigation purposes. There is also a

bound of “Ajit Sagar” about 11Km. from Khetri on Nizampur road.

1.7 Observations

1. 55 domesticated medicinal plant species were recorded in households and community spaces.

2. Frequently used species: Tulsi, Aloe vera, Ashwagandha, Guduchi, Neem, Harad, Mulethi, Amla, Babul.

3. Remedies addressed respiratory infections, digestive disorders, skin ailments, stress management, and immunity enhancement.

4. Preparation methods included decoctions, powders, pastes, oils, and herbal teas.

5. Households with home gardens demonstrated higher engagement with traditional practices and better knowledge transfer to younger generations.

1.8 Discussion

Domestication ensures reliable access to medicinal plants, reduces pressure on wild populations, and supports biodiversity conservation. Traditional practices remain relevant despite modern pharmaceuticals and urbanization. Pansaris continue to serve as knowledge custodians and providers of herbal remedies. Economic opportunities exist through the commercialization of herbal products. Challenges include declining interest among youth, environmental degradation, and limited formal recognition of traditional knowledge.

1.9 Results

1. 78% of households regularly used at least three domesticated medicinal plant species.

2. Home gardens were crucial for sustaining traditional healthcare practices.

3. Knowledge transmission occurred primarily through family traditions, community networks, and guidance from pansaris.

4. Sustainable commercial opportunities exist for herbal products, enhancing local livelihoods.

1.10 Conclusion

The domestication of medicinal plants in Jhunjhunu supports healthcare, cultural heritage, and biodiversity conservation. Traditional knowledge remains relevant and adaptable to modern lifestyles. Awareness programs, educational initiatives, and economic incentives are essential to preserve and promote the sustainable use of domesticated medicinal plants.

1.11 Recommendations

1. Encourage cultivation of medicinal plants in homes, schools, and community gardens.

2. Integrate traditional remedies with primary healthcare initiatives.

3. Support pansaris with training in sustainable collection, processing, and marketing.

4. Educate youth to preserve traditional medicinal knowledge.

5. Document endangered species and traditional preparation methods for conservation.

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