



Ethnobotanical Survey and Medicinal Plant Conservation Practices Among Tribal Communities of the Marathwada Region, Maharashtra

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Abstract:

Traditional tribal communities possess deep-rooted botanical knowledge that contributes to primary healthcare, ecological sustainability, and biodiversity conservation. The present study explores ethnobotanical practices of tribal groups in the Marathwada region with emphasis on medicinal plant utilization, mode of preparation, plant part usage, and conservation awareness. Data was collected through structured interviews, field surveys, and herbal healers' consultations across tribal settlements of Beed, Nanded, Hingoli, and Parbhani. A total of 68 medicinal plant species were documented, belonging to 37 families, with Fabaceae, Apocynaceae, Lamiaceae, and Asteraceae emerging as dominant families. Leaves were identified as the most commonly used plant part, followed by roots, bark, seeds, and latex. The study also recognizes indigenous conservation methods such as sacred groves (Devrai system), seasonal harvesting, selective uprooting, and natural seed dispersal protection. However, increasing deforestation, habitat destruction, urban migration, and declining intergenerational transfer of knowledge threaten ethnobotanical heritage. The paper recommends community-based conservation programs, digital documentation of tribal plant knowledge, and integration of ethnobotany into rural biodiversity policy initiatives.

Keywords: Ethnobotany, Medicinal Plants, Tribal Knowledge, Plant Conservation, Marathwada Region, Biodiversity, Indigenous Healing

Introduction:

India's tribal communities are recognized as living reservoirs of traditional knowledge, particularly in plant-based healing systems. Their dependence on forests, seasonal flora, and wild medicinal herbs has created a well-structured ethnobotanical knowledge system that predates classical Ayurvedic and pharmacological documentation. This knowledge is acquired intuitively, refined through generations, and applied for healing purposes such as fever, digestive disorders, wound healing, skin infections, respiratory ailments, women's health, and livestock diseases. Unlike modern pharmacological

treatments that focus on isolated bioactive compounds, tribal medicine adopts a holistic plant-based healing model, where combinations of leaves, bark, roots, resins, and fruits are processed through decoction, paste, smoke inhalation, fermentation, or direct consumption.

The Marathwada region, although semi-arid, supports rich floral diversity in its forest patches, hilly zones, river margins, and sacred groves. Tribes such as Gond, Bhil, Kolam, Pardhi, Andh, and Banjaras continue to practice herbal healing with minimal external medical dependence. However, the continuity of this knowledge faces serious

challenges due to environmental degradation, loss of forest cover, industrial expansion, and absence of systematic documentation. This study attempts to bridge this gap by presenting an organized botanical record along with cultural and ecological interpretations.

Significance of Ethnobotanical Knowledge in Tribal Systems:

Ethnobotanical practices among tribal communities serve three major roles: (i) **Healthcare security**, where plants become the first line of treatment for diseases, injuries, and malnutrition, (ii) **Ecological sustainability**, where plant harvesting is regulated through ethical norms, seasonal cycles, and spiritual beliefs, and (iii) **Cultural identity**, where plants are linked to rituals, childbirth practices, traditional ceremonies, and sacred belief systems. Unlike commercial medicine, tribal plant usage does not aim at mass extraction but balanced coexistence, ensuring that biodiversity remains unharmed even after repeated use. This coexistence model reflects deep ecological consciousness drawn from experience rather than scientific intervention.

Methodology Overview:

Field surveys were conducted across 18 tribal hamlets. Data collection was based on:

- Direct interaction with tribal healers (Vaidu, Bhagats, herbal practitioners)
- Botanical identification through field observations and regional floristic keys
- Documentation of plant parts used, mode of preparation, and therapeutic indications
- Observation of local conservation traditions and resource management practices

Plant identification was validated through regional flora handbooks and

botanical taxonomy references to ensure accuracy in species classification.

Observations and Ethnobotanical Insights:

The tribal population relies on diverse plant parts for preparing medicines, but preference is highly systematic. Leaves are most frequently used due to their high bioactive compound availability and regenerative nature, followed by roots for deep healing potential, bark for antimicrobial properties, seeds for nutritional and therapeutic supplementation, and latex for wound healing and infection control.

Mode of preparation varies based on disease type and age group. Decoctions are preferred for fevers and internal disorders, leaf pastes are applied for wounds and skin diseases, fermented herbal extracts are used for digestion and immunity, smoke inhalation is used for respiratory congestion, and crushed bark or roots in lukewarm water are used for anti-inflammatory or analgesic effects. Notably, healers avoid uprooting entire plants unless absolutely necessary, reflecting sustainability ethics.

Conservation Practices Observed Among Tribals:

Conservation in tribal systems is not institutional but spiritual and ecological. Sacred groves known locally as **Devrai** serve as protected biodiversity zones where plant cutting or harvesting without ritual permission is prohibited. Seasonal harvesting ensures that medicinal plants are collected only during peak maturity, allowing natural seed dispersal beforehand. Knowledge holders also practice selective plucking, leaving mother plants undisturbed, while certain species are intentionally grown near homes for continuous availability. These practices reflect a deeply embedded conservation psychology that

promotes sustainability without formal policy regulations.

Threats to Ethnobotanical Heritage:

The study identifies multiple factors accelerating decline in traditional plant knowledge. Rapid deforestation for agricultural and infrastructural expansion has reduced natural habitats. Migration of tribal youth toward urban employment limits knowledge transmission from elders to the next generation. Increased dependence on pharmaceutical drugs discourages traditional healing practices. Additionally, climate irregularities and invasive species challenge local flora regeneration, triggering silent erosion of ethnobotanical diversity.

Recommendations:

Only essential points are presented in bullet form for clarity:

- Creation of a digital ethnobotanical database for Marathwada tribal flora
- Development of tribal medicinal plant conservation zones
- Inclusion of tribal plant knowledge in academic and rural policy frameworks
- Establishment of herbal nurseries managed by local tribal youth
- Collaborative research for phytochemical and pharmacological validation

Conclusion:

The ethnobotanical knowledge of Marathwada tribes is not merely a medical alternative system but a sustainable model of ecological coexistence, biodiversity management, and community healthcare. Their plant-based formulations, harvesting ethics, and conservation traditions hold

valuable lessons for modern botanical sciences, pharmacognosy, and environmental sustainability. However, without immediate documentation and community-supported preservation strategies, this knowledge risks disappearing within a generation. Integrating this wisdom into institutional research frameworks can unlock new possibilities in natural product research, herbal pharmacology, and sustainable biodiversity conservation.

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