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PLANT BIODIVERSITY AND ETHNOBOTANICAL DYNAMICS OF SELECTED SATPURA HILL VILLAGES

Mohan P. Tiwari[1], Dr. V.K Pandey[2], Dr. C.B.S. Dangi[3]
[1]*Research Scholar, Faculty of Science, RKDF University Bhopal*
[2]*Professor, Faculty of Science, RKDF University Bhopal*
[3]*Professor, Faculty of Science, RKDF University Bhopal*

ABSTRACT

The present study documents the plant biodiversity of selected forest-fringe villages of the Satpura hill ranges covering Matkuli, Churna, Pachmarhi, Tamia and Sarni regions of Madhya Pradesh. Quantitative phytosociological analysis was carried out using quadrat methods for trees, shrubs and herbs. A total of 124 plant species belonging to 58 families were recorded. Trees formed the dominant life form followed by herbs, shrubs and climbers. The dominant species based on Importance Value Index (IVI) were Tectona grandis, Shorea robusta, Terminalia tomentosa, Madhuca indica and Diospyros melanoxylon. Ethnobotanical observations revealed extensive dependence of Gond and Korku tribes on forest flora for food, medicine and livelihood. Major threats include grazing pressure, forest fire, invasive species and unregulated extraction of minor forest produce. The study highlights the urgent need for participatory conservation and sustainable management of plant resources.

KEYWORDS: *Satpura Hills, Pachmarhi Biosphere Reserve, Phytosociology, IVI, Ethnobotany, Tropical deciduous forest*

1. INTRODUCTION

The Satpura hill range represents a unique ecological region of Central India with high floristic diversity and varied forest types ranging from tropical moist deciduous to southern dry deciduous formations. The Pachmarhi Biosphere Reserve, located within this region, is a hotspot of biodiversity and supports several tribal communities whose livelihoods depend on forest resources.

Despite its ecological significance, detailed village-level quantitative assessment of vegetation is limited. The present study aims to analyze the floristic composition, vegetation structure and ethnobotanical importance of plant species in selected villages of the Satpura region.

2. OBJECTIVES

To document plant diversity of selected Satpura villages
To analyze vegetation structure using phytosociological parameters
To record ethnobotanical uses of plant species
To suggest conservation strategies

3. STUDY AREA

Location	Ecological Character
Matkuli	Teak mixed forest (buffer zone)
Churna	Dense core forest
Pachmarhi	Moist deciduous & plateau vegetation
Tamia	Dry deciduous forest
Sarni	Southern tropical dry deciduous

Altitude: 320–1350 m
Rainfall: 1200–1500 mm
Soil: Sandy loam to lateritic

4. MATERIALS AND METHODS

Vegetation Sampling

Habit	Quadrat Size
Trees	10 × 10 m
Shrubs	5 × 5 m
Herbs	1 × 1 m

Parameters Calculated
Frequency
Density
Abundance
Basal area
Importance Value Index (IVI)
Ethnobotanical Survey
Conducted through interviews with Gond and Korku tribal healers and village elders.

5. RESULTS

5.1 Habit-wise Distribution

Habit	No. of Species
Trees	44
Shrubs	29
Herbs	43
Climbers	8
Total	124

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5.2 Dominant Tree Species (IVI)

Species	IVI
Tectona grandis	46.2
Shorea robusta	41.8
Terminalia tomentosa	33.5
Madhuca indica	30.4
Diospyros melanoxylon	27.6

5.3 Density and Frequency (Sample Table)

Species	Density (ind./ha)	Frequency (%)
Tectona Grandis	162	82
Shorea Robusta	148	76
Madhuca Indica	96	64
Terminalia Tomentosa	88	58

6. ETHNOBOTANICAL USES

Botanical Name	Local Name	Use
Madhuca indica	Mahua	**Food & traditional beverage**
Diospyros melanoxylon	**Tendu**	**Bidi leaves**
Tinospora cordifolia	**Giloy**	Fever & immunity
Aegle marmelos	Bel	Digestive disorders
Asparagus racemosus	Shatavari	Health tonic

7. THREATS TO BIODIVERSITY

Overgrazing
Forest fire
Tourism pressure in Pachmarhi
Invasive species (Lantana camara, Parthenium hysterophorus)
Over-extraction of NTFPs

8. CONSERVATION MEASURES

Community-based forest management
Medicinal plant conservation areas
Control of invasive species
Sustainable NTFP harvesting
Awareness programmes

9. CONCLUSION

The Satpura hill villages support rich plant biodiversity with significant ecological and ethnobotanical value. However, anthropogenic pressures are causing gradual degradation. Integrating traditional tribal knowledge with scientific forest management is essential for long-term conservation.

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