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Vegetational Diversity And Ethnobotanical Uses Of Plants In, Barpali, Korba, Chhattisgarh

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Abstract

This study investigates the floristic diversity and ethnobotanical significance of plant species found in Ayurved Gram Barpali, Korba, Chhattisgarh. A total of 56 plant species were documented, encompassing trees, herbs, shrubs, and climbers, distributed across 32 botanical families. The most dominant families identified were Fabaceae, Euphorbiaceae, Apocynaceae, and Asteraceae. Various plant parts—such as leaves, roots, seeds, bark, and latex—were reported to be traditionally used in the treatment of common ailments including fever, diabetes, asthma, wounds, digestive disorders, and skin infections. Seed propagation was the most common method of plant reproduction, followed by stem cuttings and root division. This study highlights the importance of preserving plant diversity and indigenous medicinal knowledge within urban and academic landscapes.

Keywords: Medicinal plants, Ethnobotany, Urban flora, Champa, Fabaceae, Ayurveda, Biodiversity

1. Introduction

Chhattisgarh, is rich in traditional knowledge of medicinal plants. Ayurved gram Barpali, Korba, Chhattisgarh, possesses a varied vegetational composition, ranging from cultivated ornamentals to wild medicinal species. The primary aim of this study is to document the plant species in this area, assess their traditional uses in local healthcare systems, and explore their propagation techniques for future conservation and educational applications. India has a long and rich tradition of using plants for medicinal purposes, rooted in ancient systems such as Ayurveda, Siddha, and traditional tribal medicine. The indigenous knowledge systems,

particularly in tribal-dominated regions, have evolved over generations through observations, trial, and error. Chhattisgarh, often referred to as the "Herbal State of India," harbors a wide range of flora with ethnomedicinal value and is home to a significant tribal population that relies on forest resources for primary healthcare.

This study aims to explore and document the floristic diversity and ethnobotanical practices of Ayurved Gram Barpali, a tribal-dominated area in Korba district, Chhattisgarh. It identifies plant species used in traditional medicine, the plant parts utilized, ailments treated, and propagation methods practiced by local communities.

2. Materials and Methods

2.1. Study Area

Ayurved gram Barpali Korba, Chhattisgarh Barpali is a rural and tribal-dominated village located in the Korba district of Chhattisgarh, India. The area consists of open fields, groves, small forest patches, and managed plantations, creating a mosaic of habitats. This diversity makes Barpali an ideal site for studying the interactions between people and plants in a traditional context. The region lies within the eastern part of central India and falls under the tropical monsoon climatic zone, experiencing hot summers, a pronounced monsoon season, and mild winters. The geographical coordinates of Barpali are approximately 22.347° N latitude and 82.750° E longitude. The average annual rainfall ranges between 1200 mm to 1500 mm, which supports a diverse range of vegetation.

Barpali is inhabited predominantly by indigenous tribal communities such as the Gonds, Baigas, and Oraons, who have traditionally depended on local biodiversity for their livelihood, healthcare, and cultural practices. These communities possess a wealth of ethnobotanical knowledge, especially concerning the use of plants for medicinal purposes. Ayurved Gram Barpali was developed as a model village to promote the cultivation and conservation of Ayurvedic and medicinal plants, incorporating both traditional practices and scientific approaches.

2.2. Data Collection

Plant identification was conducted through field observations, expert consultations, and available regional floras. Each species was recorded with botanical and vernacular names, family, parts used, medicinal uses, and propagation methods. The plants were categorized into trees, shrubs, herbs, and climbers.

3. Results

3.1. Dominant Families

- Fabaceae – 20 species (most dominant)
- Euphorbiaceae – 6 species
- Apocynaceae _ 4 species
- Asteraceae – 3 species
- Myrtaceae, Amaranthaceae, Moraceae, Lbiateae, Rosaceae, Acanthaceae – 2 species each

3.2. Parts Used and Uses

- Most used parts: Leaves, Seeds, Bark, and Roots
- Common ailments treated:
  - Skin diseases (e.g., Neem, Palash, Aak)
  - Fever and cough (e.g., Nilgiri, Munga)
  - Digestive disorders (e.g., Guava,)
  - Diabetes (e.g., Amla, Giloy)
  - Wound healing and bleeding (e.g., Rubber plant, Adusa)

3.3. Species Richness and Composition

A total of **56 plant species** were documented:

- **Trees**: 23 species (e.g., *Azadirachta indica*, *Ficus religiosa*, *Ficus benghalensis*, *Badam*,etc.)
- **Herbs**: 17 species (e.g., *Ashwagandha*, *Phyllanthus niruri*, *Aloe vera*, *Euphorbia hirta*, *Ageratum conyzoides*, etc.)
- **Shrubs**: 12 species (e.g., *Adhatoda vasica*, *Nyctanthes arbor-tristis*, *Rosa indica*, *Champa*, etc).
- **Climbers**: 4 species (e.g., *Tinospora cordifolia*, *Clitoria ternatea*, *Money plant*)

S.N	Common name	Botanical name	Family	Part used	Uses	Propagation
1.	Neem	Azadirachta indica	Meliaceae	Bark, Leaves, Flower, Seed, Oil	Skin disease, fever, Wound, Cough, Diabetes etc	Seed
2	Badam	*Prunus amygdalus*	Rosaceae	Seed,leaves	Nervine tonic, brain health	Seed
2.	Pipal	Ficus religiosa	Moraceae	Milky Latex	Diarrhoea, Piles, Eye trouble,Mouth ulcer.	Seed
3.	Bargad	Ficus benghalensis	Moraceae	Milky Latex	Asthma, Diabetes, Pain, Burn.	Seed
4.	Amaltash	Cassia fistula	Fabaceae	Pulp, Seed, Bark.	Antiviral, Tonic, Ringworm.	Seed
5.	Ber	Zizyphus jujuba	Rhamnaceae	Fruit, seed	Jaundice, Flu, Coughing	Seed
6.	Gulmohar	*Delonix regia*	Fabaceae	Seed	Purifies and enriches the blood, chest complaint.	Seed
7.	Ashok	*Polyalthia longifolia*	Fabaceae	Bark, Seed, Flower	Dysmenorrhoea, Depression in women, Bleeding.	Seed
8.	Palash	*Butea monosperma*	Fabaceae	Bark, Leaves, Flowers, Seeds, Gum	Urinary disorder, Worms, Inflammation, Skin diseases.	Seed
9.	Amrud	*Psidium guajava*	Myrtaceae	Fruit, Leaf	Liver, Digestive system, Diabetes, kidney problem.	Seed
10	Amla	*Embelica offcinalis*	Euphorbiaceae	Fruit, Bark, Flower.	Laxative, Stomachic, Anti diarrhoeal, Jaundice	Seed
11	Munga	*Sesbania grandiflora*	Fabaceae	Leaves	Fever, New born.	Seed
12	Nilgiri	*Eucaliptus tereticornis*	Myrtaceae	Leaf, Bark	Bronchitis, pneumonia, Cold, Flu, Respiratory infection.	Seed
13	Karanj	*Pongamia pinnata*	Fabaceae	Seed	Skin disease, Leucoderma, Parasiticide, Bleeding.	Seed

14	Sesum	*Dalbergia sessoo*	Fabaceae	Leaf, Stem	Skin disease, Dysentry, Gonorrhoea, Itching.	Seed
15	Babul	*Acacia nilotica*	Fabaceae	Leaf, Stem, Bark	Toothache, Antiseptic, Dysentry.	Seed
16	Rubber	*Hevea brasiliensis*	Euphorbeaceae	Bark , Latex, Rootlets.	Cuts and sores, healing wounds.	Seed
17	Kachnar/ Son Pan	*Bauhinia variegate*	Fabaceae	Leaf, Seed	Diarrhoea, Diabetes, Worm, Skin disease.	Seed
18	Subabul	*Leucaena leucocephala*	Fabaceae	Root, Bark	Back pain, Diabetes, herbal cleanse the body.	Seed
19	Jangali jalebi imli	Pithocolobiumdulce	Fabaceae	Bark, Pulp, Leaves, Seed	Dysentery, Chronic Diarrhea, tuberculosis	Seed
20	Thorn tree	*Australian Acacia*	Fabaceae	Leaves, Bark, Root, Seed	Flu, Cough and cold, Skin ailments	Seed
21	Shami	*Prosopis cineraria*	Fabaceae	Bark, leaves, gum	Liver tonic, digestion	Seed
22	Tejpatta	*Cinnamomum tamala*	Lauraceae	Leaves	Digestion, anti-inflammatory	Seed, stem cutting
23.	Sirsa	*Albizia labback*	Fabaceae	Bark, leaves wood	Diarrhea, sore throat, dental issues	Seeds

HERBS

S. No.	Common Name	Botanical Name	Family	Part used	Uses	Propagation
1.	Joyweed	*Alternanthera sessilis*	Amaranthaceae	Stem, Leaf, Root	Eye problem	Seed
2.	Bhringraj	*Tridex procumbens*	Asteraceae	Leaf	Blood clotting, Wound treatment, Boil.	Seed
3.	Bhumi amla	*Phyllanthus niruri*	Euphorbiaceae	Whole plant	Diabetes, Skin disease, Liver disorder.	Seed
4.	Coco grass	*Cyperus rotundus*	Cyperaceae	Leaf	Fevers, Digestive system Disorders, Dysmenorrhea.	Root
5.	Dub grass	*Cynodon dactylon*	Poaceae	Leaf	Fever, Ulcer, Stomach infection,other problems.	Root

6.	Pakai/Spiny amarenth	*Amaranthus spinosus*	Amaranthaceae	Seed	Fever, Snake bite, Diarrhoea.	Root
7.	Carrot/Congress weed	*Parthenium*	Asteraceae		Fever, Diarrhoea, Neurologic disorders, Infections, Dysentery.	Seed
8.	Ageratum	*Ageratum conyzoides*	Asteraceae	Whole plant, leaves, root	Antibacterial, wounds	Seed
9.	Aloe vera	*Aloe barbadensis*	Liliaceae	Leaf,gel,	Skin diseases, digestion	Offset
10.	Charota	*Casia tora*	Fabaceae	Leaf, Seed, Root	Skin diseases	Seed
11.	Dudhi	*Euphorbia hirta*	Euphorbiaceae	Stem, leaf, flower, latex	Gastrointestinal disorder, bronchial & respiratory diseases	Seed
12.	Sada sugahan	*Catharanthus roseus*	Apocynaceae	Leaves, whole plants	Diabetes,hypertension eye infection,	Seed, stem cuttings
13.	Tulsi	Oscimum sanctam	Labiateae	Leaf	Cough, Cold,skin disease	Stem cutting
14.	Chuimui	*Mimosa pudica* L.	Fabaceae	Leaves, roots, stems, flowers, seeds	Piles, Diarrhea & dysentery	Stem cuttings
15.	Bhui neem	*Andrographis peniculata*	Acanthaceae	Whole plant	Antiviral, liver tonic, fever, diabetes,infection	Seed
16.	Desmodium	*Desmodium gangeticum*	Fabaceae	Herb	Root, whole plant	Fever, dysentery
17.	Alycicarpus	*Alysicarpus vaginalis*	Fabaceae	Herb	Whole plant	Cattle fodder, traditional remedy for diarrhea

SHRUBS

S. No.	Vernacular Name	Botanical Name	Family	Part used	Uses	Propagation
1.	Chandani	*Tabernaemontana divaricata*	Apocynaceae	Leaf, Flower	Burn, Skin disease, Conjunctivitis, Wound.	Stem cutting
2.	Indian indigo	*Indigofera tinctoria*	Fabaceae	Leaves	Scorpion bites and ovarian and stomach cancer.	Seed
3.	Harsingar	*Nyctanthes arbor-tristis*	Nyctantheceae	Leaf, seed	Diuretic, Bleeding, Laxative.	Seed/ Stem
4.	Adusa	*Adhatoda vasica*	Acanthaceae	Leaf	Bronchitis, Cough, Eye disease, Asthma, Bleeding.	Stem cutting
5.	Aak	*Calotropis procera*	Asclepiadaceae	Leaf, Root, Flower, Bark	Emetic, Laxative, Swelling, Ringworm, Joint pain	Seed
6.	Dhatura	*Datura alba*	Solanaceae	Leaves, seeds	Asthma, pain relief	Seed
7.	Rose	*Rosa indica*	Rosaceae	Petals, hips (fruit), leaves	Astringent, skin health	StemCutting
8.	Champa	*Plumeria alba*	Apocynaceae	Flowers, fruits, leaf, roots, bark	Skin, fever, antiseptic	StemCutting
9.	Kaner	*Thevecia peruviyana*	Apocynaceae	Leaves,bark,roots,	Skin disease, fever	Stem cutting, seed
10.	Gudhal	*Hibiscus rosa-sinensis*	Malvaceae	Leaf, Flower	Bloodpressure, hair,skin	Stem cutting,
11.	Mongra	*Jasminum sambac*	Oleaceae	Flower	Hedaque, eye , heart, mentle health	Stem cutting
12.	Croton	*Codiaeum variegatum*	Euphorbiaceae	Leaves	Ornamental; sap is toxic and can cause skin irritation.	Stem cuttings

CLIMBERS

S. No.	Vernacular Name	Botanical Name	Family	Part Used	Use	Propagation
1.	Aparajita	Clitoria ternatea	Fabaceae	Seed Root, Leaf,	Memory, anxiety, skin problems	Seed
2.	Giloy	Tinospora cordifolia	Menispermaceae	Stem, Root, Fruit	Skin disease, Urinary disease, Jaundice, Dysentry.	Seed / Stem cutting.
3.	Kagaj fool	Bougenvillea	Nyctaginaceae	Leaf ,Stem	Antiaulcer,Antimicrobial	Stem cutting
4.	Money plant	*Epipremnum aureum*	Araceae	Flower Leaf, Whole plant	Antidiarrheal. Air purification	Cutting

3.4. Commonly Used Plant Parts

- **Leaves** (most used): Neem, Aloe vera, Adusa
- **Seeds**: Ashwagandha, Karanj, Aparajita
- **Roots**: Euphorbia hirta, Shami, Ashwagandha
- **Flowers**: Rose, Champa, Amaltash

3.5. Propagation

- **Seed**: 80% of species
- **Stem Cutting**: e.g., Money plant, Adusa, Rose
- **Rhizome/Offset**: e.g., Banana, *Aloe vera*
- **Root propagation** (*Cynodon dactylon*, *Cyperus rotundus*

4. Discussion

This study underscores the botanical richness and medicinal potential of plants in the area. The floral diversity in the area supports the preservation of a wide range of traditional medicinal plants. With the inclusion of highly valued species like *Ashwagandha*, *Phyllanthus niruri*, *Shami*, and *Tinospora cordifolia*, the area acts as a living repository of ethnobotanical knowledge. Some ornamental species such as *Rosa indica* and *Plumeria alba* also possess notable pharmacological relevance.

The presence of toxic but medicinally important plants like *Datura alba* warrants attention and proper signage for educational and safety purposes. The inclusion of common indoor plants like Money plant and *Aloe vera* shows that both outdoor and indoor biodiversity contribute to medicinal values and air purification.

The **Fabaceae** family is the most dominant, supporting global observations of its ecological adaptability and medicinal relevance. Many species, such as *Azadirachta indica* (Neem) and *Tinospora cordifolia* (Giloy), are widely recognized in Ayurveda for their curative properties.

The widespread use of leaves and seeds indicates a preference for sustainable harvesting practices, preserving plant life while utilizing medicinal value. Traditional knowledge, often orally transmitted, is gradually diminishing. Hence, documentation like this serves dual purposes: conservation of biodiversity and preservation of local ethnomedicinal heritage.

Plants like *Parthenium hysterophorus*, despite being invasive, are noted for certain therapeutic applications but also demand controlled growth to avoid ecological imbalance.

5. Conclusion

The study reveals a diverse and ethnomedicinally rich flora within village. Barpali serves as a small yet significant repository of native medicinal flora. Many of the recorded species are traditionally used in Ayurvedic and folk medicine. Proper management and conservation strategies can enhance the ecological and educational value of such spaces. Integration of this knowledge into academic curriculum and awareness programs can foster respect for traditional medicine and biodiversity conservation among students and the community.

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