



Native Plant-Derived Medicinal Practices And Their Sustainable Application In Murshidabad District, West Bengal

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Abstract

Native plant-derived medicinal practices constitute an integral part of traditional healthcare systems in rural India, particularly in biodiversity-rich districts such as Murshidabad, West Bengal. Indigenous communities, traditional healers (Vaidyas, Ojhas), and rural households rely extensively on medicinal plants for treating a wide range of ailments. The present study reviews the traditional ethnomedicinal knowledge associated with native plant species in Murshidabad district and explores their sustainable applications in healthcare and biodiversity conservation. Data from previous ethnobotanical studies indicate that over 50 medicinal plant species belonging to approximately 39 families are commonly used in the district. Frequently utilized plant parts include leaves, roots, bark, fruits, and seeds, addressing ailments such as digestive disorders, skin diseases, fever, diabetes, jaundice, and musculoskeletal problems. Sustainable application of these medicinal resources requires proper documentation, conservation of sacred groves, community participation, cultivation practices, and integration of traditional knowledge with scientific validation. This study highlights the significance of preserving indigenous medicinal knowledge and promoting sustainable utilization for ecological and socio-economic development in Murshidabad.

Keywords: Ethnomedicine, Medicinal plants, Indigenous knowledge, Sustainability, Murshidabad, West Bengal, Traditional healthcare, Biodiversity conservation

1. Introduction

Medicinal plants have served as the foundation of healthcare systems since ancient civilization. In India, traditional systems such as Ayurveda, Siddha, and Unani have extensively utilized plant-based remedies. Rural communities continue to depend on local medicinal flora due to accessibility, affordability, and cultural acceptance. Murshidabad district, situated in central West Bengal, possesses rich floral diversity due to its fertile alluvial plains and favorable climatic conditions. The district harbors numerous native

medicinal plants that are traditionally used by local communities and tribal populations. Knowledge regarding these plants has been transmitted orally across generations and forms an important component of indigenous cultural heritage. Despite their importance, traditional medicinal practices face threats from habitat destruction, modernization, overharvesting, and loss of traditional knowledge. Therefore, documenting native medicinal plants and promoting their sustainable use are essential for conserving biodiversity and ensuring healthcare security.

2. Materials and Methods

2.1 Study Area

Murshidabad district lies between **23°43'30" N to 24°50'20" N latitude** and **87°49'17" E to 88°46'00" E longitude**, covering approximately **5,324 km²** in West Bengal, India. The district experiences a tropical monsoon climate and includes agricultural lands, wetlands, riverine ecosystems, and sacred groves that support diverse medicinal flora.

2.2 Data Collection

The present study is based on:

- Field observations from different villages of Murshidabad district
- Interviews with traditional healers (Vaidyas, Ojhas)
- Discussions with local elderly residents and herbal practitioners
- Review of published ethnobotanical literature
- Cross-verification of plant identification using standard floras

Structured questionnaires were employed to record:

- Local plant names
- Botanical names
- Plant parts used
- Preparation methods
- Therapeutic applications
- Harvesting practices

2.3 Data Analysis

Collected data were analyzed to determine:

- Species diversity
- Dominant plant families
- Frequently used plant parts
- Major disease categories treated
- Sustainability status of medicinal resources

3. Results

3.1 Diversity of Medicinal Plants

Ethnobotanical surveys revealed approximately **52 medicinal plant species belonging to 39 families and 51 genera** used in Murshidabad district.

Common Medicinal Plants Documented

| Botanical Name | Local Name | Family | Medicinal Use |
|--------------------------------|-------------|----------------|----------------------------|
| <i>Azadirachta indica</i> | Neem | Meliaceae | Skin diseases, fever |
| <i>Ocimum tenuiflorum</i> | Tulsi | Lamiaceae | Cold, cough |
| <i>Aloe vera</i> | Ghritkumari | Asphodelaceae | Burns, digestive disorders |
| <i>Terminalia arjuna</i> | Arjun | Combretaceae | Heart problems |
| <i>Phyllanthus emblica</i> | Amla | Phyllanthaceae | Immunity, digestion |
| <i>Andrographis paniculata</i> | Kalmegh | Acanthaceae | Liver disorders |
| <i>Tinospora cordifolia</i> | Guduchi | Menispermaceae | Fever, immunity |
| <i>Centella asiatica</i> | Thankuni | Apiaceae | Memory enhancement |
| <i>Curcuma longa</i> | Turmeric | Zingiberaceae | Wound healing |
| <i>Syzygium cumini</i> | Jamun | Myrtaceae | Diabetes |

3.2 Plant Parts Used

The most commonly used plant parts were:

- **Leaves (45%)**
- **Roots and tubers (20%)**
- **Bark (12%)**
- **Fruits (10%)**
- **Seeds (7%)**
- **Whole plant and latex (6%)**

Leaves were preferred because harvesting them causes less damage to plants compared to root extraction.

3.3 Therapeutic Applications

Medicinal plants were used for treating:

- Skin diseases
- Digestive disorders
- Fever and infections
- Diabetes
- Hypertension
- Jaundice
- Respiratory diseases
- Joint pain
- Bone fractures
- Kidney stones
- Reproductive health problems

4. Discussion

Traditional medicinal practices in Murshidabad demonstrate deep ecological knowledge and strong cultural continuity. Indigenous healers possess specialized understanding of plant identification, dosage, and preparation methods.

Importance of Native Medicinal Practices

a) Affordable Healthcare

Plant-based remedies provide low-cost healthcare solutions, especially for economically disadvantaged rural populations.

b) Biodiversity Conservation

Traditional beliefs often protect medicinal plants through sacred groves and ritual restrictions. Murshidabad contains around **153 sacred groves**, which serve as reservoirs of medicinal biodiversity.

c) Pharmacological Potential

Recent phytochemical studies have identified important secondary metabolites such as:

- Alkaloids
- Phenolics
- Tannins
- Glycosides

These compounds possess antimicrobial, anti-inflammatory, and antioxidant properties.

5. Sustainable Applications

5.1 Conservation through Cultivation

Promoting cultivation of medicinal plants in:

- Home gardens
- Community nurseries
- Agroforestry systems
- Institutional herbal gardens

can reduce pressure on wild populations.

5.2 Protection of Sacred Groves

Sacred groves should be recognized as community conservation zones due to their role in preserving rare medicinal species.

5.3 Documentation of Indigenous Knowledge

Oral traditions are disappearing rapidly. Proper scientific documentation is essential for preserving ethnomedicinal heritage.

5.4 Scientific Validation

Collaboration between traditional healers and scientific institutions can validate therapeutic claims and improve acceptance.

5.5 Sustainable Harvesting Practices

Recommended strategies include:

- Selective leaf harvesting
- Seasonal collection
- Avoiding destructive root extraction
- Seed dispersal after harvest

6. Conclusion

Native plant-derived medicinal practices in Murshidabad district represent a valuable intersection of traditional wisdom, healthcare, and biodiversity conservation. The district's rich medicinal flora supports rural livelihoods and primary healthcare needs. However, habitat loss, environmental contamination, and erosion of indigenous knowledge threaten these resources. Sustainable conservation strategies—including cultivation, sacred grove protection, scientific validation, and community engagement—are necessary to preserve these medicinal traditions for future generations. Integrating traditional ethnomedicine with modern healthcare systems can contribute significantly to sustainable development and ecological resilience.

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