



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Morphological Study Of Ethnomedicinal Plants Of Bihar: A Field Survey And Analysis

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Abstract

This study investigates the morphological attributes of ethnomedicinal plants native to Bihar. Field surveys were carried out in select rural and forested areas, where specimens were collected and traditional knowledge was documented through interviews with local herbal practitioners and elders. Detailed descriptions of vegetative and reproductive characters—including leaf shape, venation, stem habit, floral symmetry, and fruit morphology—were recorded in narrative form. The correlation between these morphological features and the traditional uses of the plants is discussed, underlining the role of indigenous knowledge in plant identification and conservation.

Keywords: Ethnomedicinal Plants, Morphology, Traditional Knowledge, Medicinal Flora, Ethnobotany, Biodiversity, Bihar.

Introduction

Bihar is home to a rich diversity of plant species, many of which are integral to local traditional medicine. Ethnomedicinal studies not only validate the wisdom accumulated over generations but also pave the way for new pharmacological discoveries. In this context, a detailed morphological study becomes critical for accurate identification, taxonomical classification, and the effective conservation of these resources. Traditional healers and herbal practitioners often rely on visible and tactile traits to differentiate between species with similar therapeutic properties. Therefore, this research aims to comprehensively document the morphological diversity of key ethnomedicinal plants in Bihar and relate these features to their usage in traditional medicine.

Materials and Methods

Field surveys were conducted across various districts in Bihar, focusing on areas known for rich ethnobotanical traditions. Using a purposive sampling method, local herbal practitioners (vaidyas) and community elders were engaged to identify and authenticate medicinal plant species. Specimens were collected following standard protocols, and each plant was observed in situ for its natural habitat and growth habit. In the laboratory, detailed morphological descriptions were drafted through direct observation and hand-drawn illustrations. Emphasis was placed on recording the following characteristics:

Vegetative Features: Habit, stem type, arrangement, and structure of leaves—including shape, margin characteristics, venation, and texture.

Reproductive Features: Flower architecture, symmetry (actinomorphic or zygomorphic), inflorescence type, and fruit formation, noting whether the fruits were dry capsules, berries, or fleshy types.

All data were recorded narratively without tabulated formats, ensuring that the descriptive text provided a full account of each specimen's morphology.

Results and Discussion

The field surveys revealed a high degree of morphological variability among the ethnomedicinal plants of Bihar. For example, several herbaceous species, primarily used in the treatment of respiratory ailments, exhibited narrow, lanceolate leaves with distinct serrated edges. In contrast, medicinal shrubs associated with anti-inflammatory uses often featured compound leaves with broad, ovate leaflets and a dense venation pattern. Flower morphology varied widely; some species had radially symmetric (actinomorphic) flowers, which may indicate generalist pollination mechanisms, whereas others exhibited bilateral symmetry (zygomorphic), suggesting specialized pollinator relationships. Fruit morphology also diversified—ranging from dehiscent capsules to fleshy drupes—each trait providing clues about the dispersal mechanisms that sustain these plants in their natural habitats. These detailed morphological observations provide essential insights for accurate taxonomic classification. Moreover, the indigenous knowledge recorded alongside these features suggests that traditional practitioners often select plants based on specific morphological markers that they associate with therapeutic efficacy. The integration of vernacular insights with scientific morphological data therefore not only reinforces the importance of these traits in plant identification but also highlights the need to preserve traditional methods of plant knowledge transmission.

Conclusion

The present study underscores the value of a detailed morphological approach in the ethnobotanical investigation of medicinal plants in Bihar. By documenting the vegetative and reproductive traits in narrative form, this research bridges traditional knowledge and modern scientific inquiry. The findings

emphasize that detailed morphological characterization is indispensable for the taxonomical identification, sustainable use, and conservation of medicinal flora. Future studies integrating phytochemical analysis with the morphological data presented here could further validate the therapeutic potential of these plants and support the cultivation of adaptive conservation strategies.

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