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Ethnomedicinal Investigation on some overlooked Aromatic and Medicinal Plants of Chamba Jot, Himachal Pradesh

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ABSTRACT

Ethnobotanical investigations conducted in different parts of the Himalayas have demonstrated that numerous plant species occurring in the lower and middle altitudinal zones possess significant therapeutic and pharmacological potential (Sharma and Kumar, 2015; Kaur et al., 2011). Several plant species, including *Ficus carica*, *Fumaria indica*, *Gentiana venusta*, *Juglans regia*, *Ocimum sanctum*, and *Murraya koenigii*, are widely used in traditional medicinal systems for the treatment of various ailments such as digestive disorders, skin infections, respiratory diseases, and metabolic complications (Jain et al., 2012; Samant et al., 2007). Field surveys were carried out between 2024 and 2025 to document medicinal and aromatic plants traditionally used by local communities. Ethnobotanical information was collected through structured questionnaires, semi-structured interviews, and participatory rural appraisal (PRA) techniques involving traditional healers, elderly villagers, and other knowledgeable informants. Information regarding vernacular names, plant parts used, preparation methods, modes of administration, and therapeutic uses was systematically recorded for each documented species. The documented species included herbs, shrubs, and trees distributed across different ecological zones ranging from lower subtropical regions to higher temperate altitudes. A total of 20 plant species were recorded for their therapeutic applications in the treatment of various ailments, including respiratory disorders, digestive problems, skin diseases, and inflammatory conditions. The findings demonstrate that traditional knowledge related to medicinal plants continues to play an important role in rural healthcare systems in the Himalayan region. Several plant species such as *Ocimum sanctum*, *Murraya koenigii*, *Juglans regia*, and *Nepeta cataria* were found to possess high ethnomedicinal significance based on their frequent use by local communities.

Introduction

The north-western Himalayan region of India, particularly Himachal Pradesh, is recognized as one of the richest biodiversity hotspots for medicinal and aromatic plants. The region supports a diverse range of ethnomedicinal flora that has been traditionally utilized by rural communities for primary health care and disease management (Samant et al., 2007; Kanwar et al., 2006). Indigenous knowledge associated with plant-based remedies has been transmitted through generations via oral traditions and remains an integral component of the traditional healthcare systems practiced by local healers and village elders in many Himalayan communities (Guleria and Vasishth, 2009).

Ethnobotanical investigations conducted in different parts of the Himalayas have demonstrated that numerous plant species occurring in the lower and middle altitudinal zones possess significant therapeutic and pharmacological potential (Sharma and Kumar, 2015; Kaur et al., 2011). Several plant species, including *Ficus carica*, *Fumaria indica*, *Gentiana venusta*, *Juglans regia*, *Ocimum sanctum*, and *Murraya koenigii*, are widely used in traditional medicinal systems for the treatment of various ailments such as digestive disorders, skin infections, respiratory diseases, and metabolic complications (Jain et al., 2012; Samant et al., 2007).

Aromatic and ethnomedicinal plant species such as *Nepeta cataria*, *Laurus nobilis*, *Ocimum sanctum*, and *Hypericum calycinum* are particularly valued due to their rich content of essential oils and secondary metabolites. These plants contain biologically active compounds including flavonoids, alkaloids, terpenoids, and phenolic constituents, which exhibit a wide range of pharmacological activities such as antimicrobial, anti-inflammatory, antioxidant, and

neuroprotective effects (Dubey et al., 2013; Vishwanathan and Basavaraju, 2010).

Despite their significant therapeutic potential, traditional knowledge related to medicinal plant use is gradually declining due to rapid socio-economic changes, modernization, migration of rural populations, and increasing dependence on modern healthcare systems (Sharma et al., 2013). Consequently, the systematic documentation and scientific evaluation of ethnomedicinal plants have become essential for the conservation and sustainable utilization of plant genetic resources in the Himalayan region. Species such as *Fragaria indica*, *Geranium phaeum*, *Indigofera heterantha*, *Magnolia denudata*, *Miscanthus sinensis*, and *Myrica esculenta* represent valuable components of the regional flora that remain relatively under-documented in ethnobotanical literature (Samant et al., 2007).

In view of the rich traditional knowledge associated with medicinal plants in the region, the present study was undertaken to document the ethnomedicinal and aromatic plant diversity of Jahu Valley and surrounding areas of Himachal Pradesh. Special emphasis was placed on lesser-reported medicinal species including *Ficus carica*, *Fragaria indica*, *Fumaria indica*, *Gentiana venusta*, *Geranium phaeum*, *Hedera helix*, *Hypericum calycinum*, *Indigofera heterantha*, *Juglans regia*, *Laurus nobilis*, *Leucaena leucocephala*, *Magnolia denudata*, *Miscanthus sinensis*, *Murraya koenigii*, *Myrica esculenta*, *Nepeta cataria*, *Ocimum sanctum*, and *Oxalis articulata*.

Materials and Methods

Study Area

The present study was conducted in various localities of Himachal Pradesh, India, including Chamba Jot. These sites represent diverse ecological habitats ranging from subtropical to temperate climatic zones. The altitudinal range of the study area varied from approximately 1017 m to 2852 m above sea level, encompassing forest margins, agricultural lands, roadside vegetation, grasslands, and alpine meadows.

Ethnobotanical Survey

Field surveys were carried out between 2015 and 2016 to document medicinal and aromatic plants traditionally used by local communities. Ethnobotanical information was collected through structured questionnaires, semi-structured interviews, and participatory rural appraisal (PRA) techniques involving traditional healers, elderly villagers, and other knowledgeable informants. Information regarding vernacular names, plant parts used, preparation methods, modes of administration, and therapeutic uses was systematically recorded for each documented species (Phillips and Gentry, 1993; Samant et al., 2007).

Plant Collection and Identification

Plant specimens were collected during field surveys and identified using standard regional floras and taxonomic literature. Voucher specimens of the recorded species—including *Ficus carica*, *Fragaria indica*, *Fumaria indica*, *Gentiana venusta*, *Geranium phaeum*, *Hedera helix*, *Hypericum calycinum*, *Indigofera heterantha*, *Juglans regia*, *Justicia adhatoda*, *Lantana camara*, *Laurus nobilis*, *Leucaena leucocephala*, *Magnolia denudata*, *Miscanthus sinensi*, *Murraya koenigii*, *Myrica esculenta*, *Nepeta cataria*, *Ocimum sanctum*, and *Oxalis articulata* were prepared and deposited in the herbarium of Career Point University, Hamirpur, Himachal Pradesh.

Quantitative Ethnobotanical Analysis

To evaluate the relative importance of each plant species, the Use Value (UV) index was calculated following the quantitative ethnobotanical approach proposed by Phillips and Gentry (1993):

UV=∑UiNUV = \frac{\sum U_i} {N}UV=N∑Ui

where **Ui** represents the number of use reports cited by each informant for a given species, and **N** represents the total number of informants interviewed. This index provides an estimate of the relative cultural and medicinal significance of plant species within the studied community.

Results

The ethnobotanical survey conducted in Jahu Valley and surrounding regions documented **20 medicinal and aromatic plant species** belonging to diverse taxonomic families and ecological habitats. These species were recorded based on their traditional uses in the treatment of various human ailments by local communities and traditional healers. The documented species included herbs, shrubs, and trees distributed across different ecological zones ranging from lower subtropical regions to higher temperate altitudes. The plant species identified in the study were *Ficus carica*, *Fragaria indica*, *Fumaria indica*, *Gentiana venusta*, *Geranium phaeum*, *Hedera helix*, *Hypericum calycinum*, *Indigofera heterantha*, *Juglans regia*, *Justicia adhatoda*, *Lantana camara*, *Laurus nobilis*, *Leucaena leucocephala*, *Magnolia denudata*, *Miscanthus sinensis*, *Murraya koenigii*, *Myrica esculenta*, *Nepeta cataria*, *Ocimum sanctum*, and *Oxalis articulata*. Among these species, herbs represented the dominant life form, followed by shrubs and trees. The majority of plants were found growing in forest margins, agricultural fields, grasslands, and roadside habitats.

Plant Parts Used

Different plant parts were used for medicinal purposes, including leaves, roots, bark, fruits, flowers, and whole plants. Among these, leaves were the most frequently

utilized plant part, followed by roots and fruits. Leaves were commonly used due to their easy availability and high concentration of bioactive compounds.

Therapeutic Applications

The documented plant species were traditionally used for treating a wide range of ailments, including respiratory disorders (cough, asthma, bronchitis), gastrointestinal disorders (indigestion, diarrhea, stomach pain), skin diseases and wounds, fever and inflammatory conditions, blood purification and nutritional supplementation. Species such as *Ocimum sanctum*, *Justicia adhatoda*, and *Nepeta cataria* were widely used for respiratory problems, while *Ficus carica*, *Fragaria indica*, and *Oxalis articulata* were commonly used for digestive ailments. Similarly, *Fumaria indica*, *Geranium phaeum*, and *Indigofera heterantha* were reported for their role in blood purification and treatment of skin disorders.

Quantitative Ethnobotanical Analysis

The **Use Value (UV)** analysis revealed that certain plant species possessed higher cultural importance among the local population. Plants such as *Ocimum sanctum*, *Murraya koenigii*, *Juglans regia*, and *Myrica esculenta* showed relatively higher use values, indicating their frequent use in traditional healthcare practices.
The high use values of these species suggest their strong ethnopharmacological relevance and highlight their potential for further phytochemical and pharmacological investigations.

Discussion:

The present ethnobotanical investigation documented several medicinal and aromatic plant species traditionally utilized by local inhabitants of the Himalayan region for the treatment of a wide range of ailments. Species such as *Ocimum sanctum*, *Murraya koenigii*, *Nepeta cataria*, and *Laurus nobilis* were frequently reported for the treatment of respiratory disorders, digestive ailments, and febrile conditions. These findings are consistent with earlier ethnobotanical studies conducted in various Himalayan regions, which have also highlighted the therapeutic significance of these plants in traditional healthcare practices (Jain et al., 2012; Vishwanathan and Basavaraju, 2010).
Similarly, plants such as *Ficus carica*, *Fragaria indica*, and *Oxalis articulata* were commonly used as nutritional supplements and for the treatment of gastrointestinal disorders. Comparable uses of these species have been documented in ethnomedicinal surveys conducted in the western Himalayan region (Samant et al., 2007; Sharma and Kumar, 2015).

Species including *Fumaria indica*, *Geranium phaeum*, and *Indigofera heterantha* were reported by local informants to be effective as blood purifiers and for the treatment of skin diseases, wounds, and inflammatory conditions. These medicinal applications may be attributed to the presence of bioactive phytochemical constituents such as alkaloids, flavonoids, and phenolic compounds that exhibit antimicrobial, antioxidant, and anti-inflammatory activities (Dubey et al., 2013).

Furthermore, several woody tree species including *Juglans regia*, *Magnolia denudata*, and *Myrica esculenta* were identified as important medicinal resources within the local ethnopharmacological system. *Juglans regia*, for instance, is traditionally used for improving cognitive health and cardiovascular function, whereas *Myrica esculenta* has been reported to possess therapeutic efficacy against respiratory and digestive disorders (Samant et al., 2007).

The documentation of aromatic herbs such as *Nepeta cataria* and *Ocimum sanctum* further emphasizes the importance of essential oil-producing plants in traditional medicine. These species contain volatile oils and other secondary metabolites with well-documented antimicrobial, antioxidant, and anxiolytic properties (Vishwanathan and Basavaraju, 2010).
Overall, the findings of the present study highlight the rich ethnomedicinal heritage of the Himalayan region and underscore the importance of preserving traditional knowledge associated with medicinal plants. As this knowledge is predominantly retained by elderly members of rural communities, there is an urgent need for systematic documentation, scientific validation, and conservation of these valuable plant resources to ensure their sustainable utilization for future generations (Sharma et al., 2013).

4. Conclusion

The present study provides a comprehensive documentation of medicinal and aromatic plants traditionally used by local communities in Jahu Valley and surrounding regions of Himachal Pradesh. A total of **20 plant species** were recorded for their therapeutic applications in the treatment of various ailments, including respiratory disorders, digestive problems, skin diseases, and inflammatory conditions.
The findings demonstrate that traditional knowledge related to medicinal plants continues to play an important role in rural healthcare systems in the Himalayan region. Several plant species such as *Ocimum sanctum*, *Murraya koenigii*, *Juglans regia*, and *Nepeta cataria* were found to possess high ethnomedicinal significance based on their frequent use by local communities.
However, the gradual loss of traditional knowledge due to modernization and socio-economic changes highlights the urgent need for systematic documentation and conservation of ethnobotanical resources. Furthermore, scientific validation through phytochemical and pharmacological

studies is necessary to explore the therapeutic potential of these plant species.

The study contributes valuable baseline information for future research on medicinal plants and supports the development of sustainable conservation strategies for Himalayan biodiversity.

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