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The Nature And Status Of Some Overlooked Flora Of Mandi District In Himachal Pradesh

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ABSTRACT

Himachal Pradesh is one of the most species-rich regions of the Indian Himalaya and represents an important center of plant diversity. Despite its rich floristic wealth, several locally important plant species remain overlooked and insufficiently documented, particularly with regard to their traditional and ethnomedicinal significance. The present study explores the nature, status, and traditional utility of some underreported flora of Mandi district. Ethnobotanical investigations were carried out through systematic field surveys, open-ended interviews, and focused group discussions with tribal communities and traditional healers. A total of twenty-two overlooked plant species were documented for their therapeutic applications in treating ailments of both humans and livestock. Among the recorded species, *Vitex negundo* exhibited the highest use value, indicating its significant role in local healthcare practices. The findings highlight the urgent need for proper documentation, conservation strategies, and sustainable utilization of these lesser-known yet valuable plant resources to prevent further erosion of traditional knowledge and biodiversity.

Keywords: Conservation, Ethnobotany, Overlooked Flora, Himachal Pradesh, Mandi District, Use Value

1. **Introduction:**

Ethnobotany refers to the scientific study of the relationship between human societies and plants, particularly the ways in which indigenous communities identify, utilize, and manage plant resources. The term "ethnobotany" was first coined by John William Harshberger in 1895 to describe the study of plants used by primitive and aboriginal people. Later, scholars such as Richard Evans Schultes and Richard I. Ford expanded the scope of ethnobotany to include cultural, ecological, and economic dimensions of plant use. Ethnobotanical research plays a crucial role in identifying plant resources used for food, dyes, tannins, medicines, and other livelihood needs, particularly among indigenous and tribal communities (Schultes & Reis, 1995; Ford, 1978).

According to the World Health Organization (WHO, 2013), nearly 80% of the population in developing countries relies on traditional medicine for primary healthcare. In India, more than 7,000 plant species are reported to have medicinal value in indigenous systems such as Ayurveda, Unani, Siddha, and folk medicine (Pandey & Yadav, 2010). The documentation of such knowledge is essential not only for drug discovery but also for biodiversity conservation and sustainable utilization.

India has a long-standing tradition of plant-based medicine dating back to the Vedic period. Ancient texts such as the Rigveda and the Atharvaveda describe numerous medicinal plants and their therapeutic

applications. Even today, approximately 65–70% of India's population resides in rural areas, where dependence on wild and cultivated plant resources remains significant for both healthcare and subsistence (Kala, 2005). The region harbors over 9,000 species of flowering plants, nearly one-third of which are endemic (Singh & Hajra, 1996). Although some researchers have reported medicinal uses of plants from the region (e.g., Chauhan, 1999; Sharma & Samant, 2014), comprehensive studies focusing on overlooked and underutilized flora are still lacking.

Furthermore, there is limited scientific exploration regarding the phytochemical and nanotechnological potential of plant species from this region. The absence of systematic documentation of traditional knowledge increases the risk of erosion of indigenous practices due to modernization and socio-economic transformation. Therefore, systematic surveys of overlooked flora and associated traditional knowledge in the Janjheli Valley can serve as a valuable foundation for future phytopharmacological and conservation-oriented research.The present investigation was undertaken to document and analyze the nature, status, and ethnomedicinal importance of some overlooked plant species of Mandi District, with special emphasis on preserving indigenous knowledge and promoting sustainable utilization of local biodiversity.

2. **Materials and Methods:**

The present investigation was conducted in the Janjheli Valley located in the north-western Himalayan region of Himachal Pradesh. The valley lies in the northern part of Mandi district within the catchment area of the Uhl River and is contiguous with the Siraj Valley. The region is influenced by the outer ranges of the Dhauladhar Range of the Himalaya. Geographically, the area lies between 32°02′11″ N latitude and 76°50′51″ E longitude, with an altitudinal gradient ranging from approximately 1850 to 2850 meters above mean sea level.

Ethnobotanical field surveys were conducted from October 2022 to April 2023 to document indigenous knowledge related to medicinal plants, multi-herbal drug formulations, and their therapeutic applications for humans and livestock.

Ethnobotany, as a cultural domain, encompasses traditional plant knowledge transmitted orally across generations (Berlin, 1992). Language plays a crucial role in accessing this domain, particularly through vernacular nomenclature, which represents "lexical knowledge" embedded in cultural systems (Martin, 2004).

Data were collected using by Semi-structured interviews, Open-ended questionnaires, Focus group discussions and Direct field observations. Informants included traditional healers (Vaidyas), elderly villagers, shepherds, and knowledgeable rural residents. Prior informed consent was obtained from all participants before documentation. Information recorded included local names of plants, plant parts used, method of preparation, dosage, ailments treated, and mode of administration.

Collected plant specimens were identified using regional floras and authenticated through standard taxonomic procedures following Jain and Rao (1977). Voucher specimens were preserved for future reference.

Use Value (UV) Analysis: To assess the relative importance of plant species within the community, the Use Value (UV) index was calculated. The concept of use value was initially introduced by Prance et al. (1987) and later refined by Phillips and Gentry (1993) to incorporate the frequency of citation by informants. The UV index provides a quantitative measure of the relative cultural significance of plant species.

The use value was calculated using the formula:

$$UV = \sum U / N$$

Where, UV = Use value of a given plant species, U = Number of use-reports cited by each informant for that species and N = Total number of informants interviewed

A high UV indicates that a species is widely recognized and frequently used within the community, whereas a low UV suggests limited ethnomedicinal importance. However, it should be noted that the UV index does not differentiate between single-use and multiple-use applications of a species (Musa et al., 2011).

3. Results:

An extensive ethnobotanical survey conducted in the Janjheli Valley of Himachal Pradesh documented 27 ethnomedicinal plant species used by local communities for the treatment of diverse human ailments.

Table: Ethnomedicinal Plants, Disease/Disorder Cured and Use-Value

Botanical Name	**Disease/Disorder Cured**	**∑ Us**	**∑Us/ N**
Butea monosperma (Lam.)Taub.	Hair problems, contraception problems, Stomach worms, blood in urine, semen disorders, diarrhoea	17	0.081
Calotropis gigatea (Linn.) Ait.f.	Piles problems, epilepsy, vomiting, dog bite, scorpion bite, respiratory problems, heel & feet pain, toothache, leucoderma	28	0.133
Cannabis sativa L.	Painful piles problems, insomnia, paralysis, constipation, diarrhoea, ear problems, wound& injuries	31	-
Capsicum annum L.	Cholera, dog bite, throat disease, itching	11	-
Carrisa opaca Stapf.	Fever, acidity, itching, snakebite	8	-
Celastrusp aniculatus Willd.	Vitiligo, asthma, piles problems, ringworm infection, memory problems, menstrual problems	15	0.071
Centella asiatica (L.) Urban	Memory problems, hair problems, sleeping problems, eyes problems, heart problems	26	-
Cinnamomum camphora L.	Facial skin problems, hair fall of eyelashes, arthritis, itching, labor pain, skin problems, Breast milk disorders, cough& cold	32	0.152
Cinnamomum tamala Nee& Ebesm.	Cough problems, back pain, running nose, diabetes, indigestion, dental problems	11	0.052
*Cinnamomum zeylanicum*Bl.	Skin problems, stomach disorders, semen disorders, stammering, influenza	9	0.043

Citrus maxima (Burm.) Merr.	Obesity, spleen enlargement, vomiting, acidity, handshaking (essential tremor)	20	0.095
Clitori aternatea L.	Testicle enlargement, respiratory problems, abortion, tonsils, hiccups, stomach disorders	6	0.029
Cuphea hyssopifolia Kunth.	Stomach disorders, cancer, gonorrhoea, herpes	2	0.009
Cuscuta reflexa Roxb.	Blood disorders, liver problems, hair problems, piles problems	23	0.109
Cymbopogon citralus (DC) Stapf.	Cough, vomiting, heart problems, obesity,	12	0.057
Datura stramonium L.	Sexual disorders, breast swelling, baldness, dog bite, asthma	10	0.048
Dodone aviscosa (L.) Jacq.	Wound healing, bone fracture, sole burning, toes infection, hair problems	5	0.024
Ecliptapro strata Roxb.	Blood pressure, migraine, jaundice, piles, scorpion bite, skin burn by fire,	41	0.195
Elaeocarpus ganitrus Roxb.	Smallpox, cold, blood disorders, brain fever, semen disorders	7	0.033
Elettaria cardamomum (L.) Maton.	Fever, impotency, cough, memory problems, vomiting	29	0.138
Emblica officinalis Gaertn.	Arthritis, eyes problems, hair fall problems, semen disorders	43	0.205
Epiphyllum oxypetalum L.	Itching, gonorrhoea, wound healing, Stomach worm infection	6	0.029
Ficus carica L.	Respiratory problems, ringworm infection, leucorrhoea, thorn removing	9	0.043
Ficus religiosa L.	Toothache, stuttering, cough, asthma	5	0.024
Foeniculum vulgare Mill.	Pimples, diarrhea, flatulence in babies	10	0.048

Ficus benghalensis L.	Urine problem, unwanted abortion, vomiting, haemorrhage, piles, nightfall	15	0.071
Ficus carica L.	Constipation, haemorrhage, heart problems, piles, skin diseases, blood disorders	7	0.033

The Use-Value (UV) index was also calculated to determine the relative cultural importance of each species following Trotter and Logan (1986):

UV = ∑Us /N where ∑Us represents the total number of use-reports for a given species and N denotes the total number of informants interviewed. The highest UV of plant species was recorded for *Emblica officinalis* Gaertn. (UV = 0.205; ∑Us = 43), *Eclipta prostrata* Roxb. (UV = 0.195; ∑Us = 41), *Cinnamomum camphora* L. (UV = 0.152; ∑Us = 32), *Elettaria cardamomum* (L.) Maton (UV = 0.138; ∑Us = 29) and *Calotropis gigantea* (L.) Aiton (UV = 0.133; ∑Us = 28). These species were widely cited by informants and were used for multiple ailments including arthritis, jaundice, blood disorders, respiratory infections, dermatological problems, and reproductive disorders. The plant species with Moderate UV values were recorded for *Cuscuta reflexa* Roxb. (0.109), *Citrus maxima* (Burm.) Merr. (0.095), *Butea monosperma* (Lam.) Taub. (0.081), *Celastrus paniculatus* Willd. (0.071) and *Ficus benghalensis* L. (0.071). These plants were mainly used for gastrointestinal disorders, metabolic conditions, memory enhancement, menstrual problems, and urinary disorders. The Lower UV values were observed for *Cuphea hyssopifolia* Kunth (0.009), *Dodonaea viscosa* (L.) Jacq. (0.024), *Ficus religiosa* L. (0.024), *Clitoria ternatea* L. (0.029) and *Epiphyllum oxypetalum* L. (0.029). These species were cited for specific or limited uses such as wound healing, gonorrhoea, tonsillitis, and skin infections. The recorded plants were used to treat acute and severe ailments such as gastrointestinal disorders (diarrhoea, constipation, stomach worms, indigestion), respiratory ailments (cough, asthma, influenza), dermatological conditions (itching, leucoderma, ringworm, pimples), reproductive and sexual disorders, metabolic disorders (diabetes, obesity), Blood and liver disorders and bone fracture and wound healing. The predominance of treatments for digestive and respiratory disorders reflects common health concerns of rural Himalayan populations.

4. Discussion:

The Use-Value analysis indicates that species with higher UV scores possess greater cultural salience and wider therapeutic applications, supporting the reliability of UV as a quantitative ethnobotanical index (Phillips and Gentry, 1993; Heinrich et al., 1998). The highest UV recorded for *Emblica officinalis* and *Eclipta prostrata* suggests their strong role in local healthcare. *Emblica officinalis* is widely recognized in Ayurveda for its antioxidant, hepatoprotective, and rejuvenating properties (Khan, 2009). Similarly, *Eclipta prostrata* has documented hepatoprotective and anti-inflammatory effects (Singh et al., 2012). Species such as *Cinnamomum camphora* and *Elettaria cardamomum* are commonly used for respiratory and digestive ailments, which is consistent with their known antimicrobial and carminative properties (Fabricant and Farnsworth, 2001). The use of toxic species like *Datura stramonium* and *Calotropis gigantea* indicates sophisticated traditional knowledge regarding dosage and preparation. However, destructive harvesting practices, particularly for bark (*Cinnamomum* spp.), roots, and whole plants (*Eclipta prostrata*, *Cuscuta reflexa*), may threaten natural populations.

The dominance of treatments for gastrointestinal, respiratory, and dermatological ailments aligns with other ethnobotanical studies from the Himalayan region (Kala, 2005; Kumar et al., 2015). The continued dependence on plant-based remedies reflects limited accessibility to modern healthcare and strong cultural adherence to traditional medicine. Field observations revealed the absence of structured *in situ* or *ex situ* conservation strategies in the study area. Increased anthropogenic pressure and commercial demand could accelerate resource depletion.

5. Conclusion:

The present study documents 27 ethnomedicinal plant species used in the Janjheli Valley of Himachal Pradesh. The Use-Value analysis identified *Emblica officinalis*, *Eclipta prostrata*, *Cinnamomum camphora*, *Elettaria cardamomum*, and *Calotropis gigantea* as the most culturally significant species. The findings demonstrate that strong reliance on traditional plant-based healthcare, wide therapeutic applications of locally available flora, potential conservation risks due to unsustainable harvesting.

There is an urgent need for community-based conservation programmes, promotion of cultivation of high-UV species, establishment of herbal gardens and nurseries and integration of indigenous knowledge into biodiversity management policies. Sustainable harvesting and scientific validation of these ethnomedicinal plants are essential to ensure long-term availability and preservation of traditional knowledge systems.

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