

AN ETHNOBOTANICAL INVENTORY OF MEDICINAL PLANTS AND TRADITIONAL THERAPEUTIC KNOWLEDGE FROM THE PIR PANJAL HIMALAYA (J&K) UT

Botany

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ABSTRACT

Traditional phytotherapy remains an important component of primary healthcare worldwide and represents a valuable repository of indigenous ecological and medicinal knowledge. However, rapid socioeconomic and cultural changes, habitat degradation, and declining intergenerational transmission increasingly threaten the survival of this biocultural heritage. The present study aimed to document the medicinal plant diversity, traditional uses, preparation methods, and therapeutic applications practiced by indigenous Gujjar and Pahari communities of Poonch District, Jammu and Kashmir, India, located in the biologically rich northwestern Pir Panjal Himalaya. Ethnobotanical information was collected through semi-structured interviews, focus group discussions, and Participatory Rural Appraisal (PRA) techniques. The study documented a diverse range of medicinal herbs, shrubs, and trees, with communities relying predominantly on wild plant resources for treating gastrointestinal, dermatological, respiratory, and other common ailments. Asteraceae, Fabaceae, and Lamiaceae were among the most frequently represented medicinal families. Various plant parts were utilized through traditional preparation methods, particularly pastes, decoctions, and infusions. Several multipurpose species also contributed substantially to household healthcare, livelihoods, and ecosystem services. The findings highlight the richness and practical significance of indigenous ethnomedicinal knowledge in the region, while emphasizing its vulnerability due to the aging of traditional knowledge-holders and reduced transmission to younger generations. This inventory provides baseline information for pharmacological validation, biodiversity conservation, sustainable resource utilization, community-based bioprospecting, and preservation of the biocultural heritage of northwestern Himalayan communities.

KEYWORDS

Ethnobotany; Pir Panjal Himalaya; Poonch district; Indigenous knowledge; Conservation; Phytotherapy.

INTRODUCTION

Herbal medicine has evolved alongside human civilization, transforming from primitive stone Age practices into structured traditional medical systems. Historically, the earliest documented usage traces back to 2600 BC in Mesopotamia, utilizing therapeutic plants like Myrrh, Cedar, Licorice, and Poppy. Today, traditional medicine remains a primary healthcare choice for roughly 80% of the population in developing countries due to its efficacy and minimal side effects. In India, this reliance is deeply codified into systems like Ayurveda, Unani, and Siddha, which contain over 8,000 herbal remedies alongside rich oral traditions passed down by diverse ethnic groups. The Indian Himalayan Region (IHR) serves as a critical biodiversity hotspot, housing approximately 1,748 medicinal plant species. Indigenous northwestern Himalayan tribes, such as the Gujjar and Pahari, rely heavily on these botanical resources for medicine, food, fodder, and fuel. However, this generational ethnomedicinal knowledge is rapidly becoming endangered due to urbanization, biodiversity loss, and the shift of younger generations toward modern healthcare. Consequently, there is an urgent need to document and preserve this indigenous oral knowledge before it is permanently lost.

The primary goal of this study is to evaluate the medicinal plant diversity of the Poonch district in Jammu and Kashmir and to document the traditional knowledge related to the use of these plants. This area, located in the Northern Himalayas, exhibits a unique topographical and ecological diversity, making it an important region for ethnobotanical studies. The study aims to:

1. Assess the diversity and distribution of medicinal plant species in selected districts of the Pir Panjal region of Jammu and Kashmir.
2. Document indigenous ethnomedicinal knowledge associated with medicinal plants using participatory rural appraisal (PRA) and semi-structured ethnobotanical surveys.
3. Record local names, plant parts used, methods of preparation, dosage forms, routes of administration, and therapeutic applications of medicinal plants.
4. Examine the knowledge and prescribing practices of traditional healers and indigenous communities.
5. Identify culturally important medicinal plant species and discuss their conservation status and sustainable utilization.

6. Generate baseline scientific information to support biodiversity conservation, sustainable resource management, and future phytochemical and pharmacological investigations.

Significance of The Study

The present study contributes to the growing body of ethnobotanical knowledge by providing an updated account of medicinal plant diversity and indigenous healthcare practices in the Pir Panjal region of Jammu and Kashmir. Documentation of traditional knowledge is particularly important because many experienced knowledge holders are elderly, while oral transmission to younger generations is steadily declining. The findings will serve as valuable baseline information for biodiversity conservation programmes, sustainable harvesting strategies, climate-resilient resource management, and community-based conservation initiatives. Furthermore, the documented ethnomedicinal information may facilitate future phytochemical, pharmacological, and clinical investigations aimed at validating traditional therapeutic claims and identifying novel bioactive compounds. By integrating biodiversity assessment with indigenous knowledge systems, the study contributes to the conservation of both biological and cultural heritage while supporting sustainable utilization of Himalayan medicinal plant resources.

REVIEW OF LITERATURE

India has a rich and diverse ethnobotanical heritage, with vast knowledge of medicinal plants documented in ancient texts such as the Rigveda, Charak Samhita, Sushrut Samhita, and Ayurveda. These texts contain extensive information on the therapeutic uses of plants. Over time, numerous researchers have contributed significantly to the documentation and conservation of medicinal plants and indigenous knowledge.

Nath et al. (1968) highlighted the important role of herbs mentioned in Ayurveda, used by the ethnic tribes of Madhya Pradesh. Bhatnagar et al. (1973) conducted a study on the medicinal plants of the Ghatigaon Forest in Gwalior division. Shrivastava (1985) documented the ethnomedicinal knowledge of the Bhils in Madhya Pradesh. Oommachan et al. (1989, 1990) contributed valuable insights into the ethnomedicinal flora of Pachmarhi and surrounding forests in Madhya

Pradesh. Pandey et al. (1991) focused on the indigenous knowledge of the Baiga tribes of Mandla district, while Sharma et al. (1992) explored folklore medicinal plants of Mewat (Gurgaon district, Haryana). The traditional phytotherapy practices of the Baiga tribe in Shahdol district were reported by Verma et al. (1995), while Rai and Pandey (1997) studied the folk medicines of the Gond tribe in Seoni District, Madhya Pradesh. Samvatsar and Diwanji (2000) documented the medicinal plants and their uses in Western Madhya Pradesh.

A study by Singh & Singh (2009) in Chandauli district, Uttar Pradesh, highlighted the use of 40 medicinal plants from 27 families. These plants, along with a mix of alien species like *Foeniculum vulgare*, *Prosopis spicigera*, *Curcuma longa*, and *Punica granatum*, were used to treat human ailments. A majority (94.6%) of the plants were employed for human health issues. Zibbu and Batra (2010) investigated the chemistry and pharmacological properties of *Nerium Oleander*, noting its anti-inflammatory, antibacterial, anticancer, and cardiotonic effects. Narayan and Singh (2017) conducted an extensive ethnomedicinal study in the tribes of Sonbhadra District, Uttar Pradesh, documenting 171 plant species from 77 families. They identified that shrubs, followed by herbs, were the most commonly used plant types. Common ailments treated with these plants included diarrhea, dysentery, snake bites, skin diseases, and respiratory problems.

Raj et al. (2018) studied the ethnomedicinal plants of the Chilapatta Reserve Forest in West Bengal. A total of 140 species were documented, with trees predominating. The plants were used to treat 58 human ailments and several diseases in domestic animals. The most common ailments treated included stomach issues, cuts, and wounds. Among the plants, *Melia azedarach*, *Centella asiatica*, and *Rauvolfia serpentina* were reported to treat multiple diseases.

In Jammu, Kashmir, and Ladakh, Gairola et al. (2014) documented 948 plant taxa from 129 families. They found that the most frequently used plants were from families such as *Asteraceae*, *Fabaceae*, and *Lamiaceae*. The plants treated a variety of conditions, including dermatological issues, cold and cough, fever, gastrointestinal disorders, and joint ailments.

Bhellum & Sing (2012) conducted an ethnomedicinal survey in the remote villages of District Samba, documenting 35 plant species used for various diseases. Prominent species included *Ageratum conyzoides*, *Ajuga bracteata*, and *Centella asiatica*. These findings were in line with earlier studies by Kumar & Naqshi (1990) and Kapur (1991).

Rao et al. (2015) conducted a study in District Kathua, where they identified 197 plant species from 87 families. *Mentha longifolia*, *Curcuma domestica*, and *Zingiber officinale* were noted for their significant medicinal use. The study also revealed a high consensus among informants for the treatment of diabetes, gastrointestinal, and respiratory disorders.

Ethnomedicinal studies were also conducted by Khan et al. (2004) in the Uri sector, documenting 27 plant species used for treating common ailments such as fever, headache, and minor injuries. These plants were used in various forms, such as pastes, powders, and herbal teas. Similarly, Khuroo et al. (2011) documented 30 plant species in the Kashmir Himalayas, with a wide range of applications for treating burns, respiratory issues, and muscular disorders. Finally, Gupta et al. (2013) studied the Paddar Valley in Jammu and Kashmir, highlighting the diverse uses of local flora for medicinal purposes, including the collection and sale of plants like *Achillea millefolium* and *Aconitum heterophyllum*. Rather et al. (2015) also documented 81 medicinal plants used in Kashmir, noting that the most commonly used species belonged to the *Asteraceae*, *Ranunculaceae*, and *Lamiaceae* families.

These studies reflect a deep and rich tradition of ethnomedicine across various regions of India, contributing to the conservation and utilization of indigenous plant knowledge for health care.

MATERIALS AND METHODS

Study Area

The present investigation was carried out in Poonch District, situated in the Pir Panjal range of the northwestern Himalaya, Union Territory of Jammu and Kashmir, India. The district covers an area of approximately 1,674 km² and lies between 33°25'38"–34°34'00" N latitude and 73°58'46"–74°35'38" E longitude. The elevation ranges from 663 m above mean sea level (Balnoi along the river basin) to

4,760 m (Tatakooti Peak), resulting in remarkable topographical and ecological heterogeneity.

The climate of the district varies from subtropical in the lower altitudes to temperate and alpine at higher elevations. Summer temperatures range between 14°C and 45°C, whereas winter temperatures vary from 1°C to 25°C. The district receives an average annual rainfall of approximately 1,225 mm, with substantial snowfall occurring in the higher reaches from November to March.

According to the 2011 Census of India, Poonch District has a population of 476,820, distributed across 178 villages, with nearly 96% of the inhabitants residing in rural areas. The district comprises six administrative tehsils, namely Haveli (Poonch), Mandi, Surankote, Bafiaz, Balakote, and Mankote. The inhabitants mainly belong to Gujjar, Bakerwal, Pahari, and other indigenous communities, whose livelihoods largely depend on agriculture, livestock rearing, and forest resources. These communities possess rich traditional knowledge regarding the utilization of wild medicinal plants for primary healthcare.

Survey, Sampling, and Identification of Species

Extensive field surveys were conducted during March 2023–September 2025, corresponding to the peak flowering and fruiting seasons when maximum biomass accumulation facilitated accurate identification of plant species.

Ethnomedicinal information was collected from 60 informants, comprising 34 males, 23 females, and 3 traditional healers (Hakims/Vaids). Informants were selected based on their experience and knowledge of traditional medicine. Data were collected through semi-structured questionnaires, personal interviews, focused group discussions, and field observations using Participatory Rural Appraisal (PRA) techniques. Interviews were conducted in the local languages, including Hindi, Gojri, and Pahari.

The survey covered twenty representative villages: Sani, Potha, Lathung, Fazlabad, Chandimarh, Bafiaz, Lassana, Malhan, Hari, Dundhak, Fathepur, Gulpur, Kasblari, Kalaban, Balkote, Ghani, Bagnoo, Shahpur, Topa, Gursai.

Collection of Plant Specimens

Medicinal plant specimens were collected from different habitats of the study area following standard botanical collection procedures. Preference was given to specimens bearing flowers and fruits to facilitate correct taxonomic identification. Herbaceous species were collected as complete plants, including underground parts wherever required, whereas representative twigs bearing reproductive structures were collected from shrubs and trees.

Preparation of Herbarium

Collected specimens were pressed immediately in the field using standard plant presses and subsequently dried following conventional herbarium techniques. Dried specimens were mounted on standard herbarium sheets measuring 11.5 × 16.5 inches. Each specimen was labelled with detailed information including botanical name, family, local name, habit, habitat, collection locality and altitude, date of collection, collector's name, and diagnostic morphological characters.

Identification of Medicinal Plants

The collected specimens were identified using diagnostic morphological characters such as habit, stem, leaves, flowers, fruits, and seeds with the help of regional floras, standard taxonomic literature, and authenticated herbarium specimens. Plant nomenclature was verified following the latest accepted botanical classification to ensure taxonomic accuracy.

Questionnaire

- A semi-structured questionnaire was designed to document ethnomedicinal information from the informants. The questionnaire included details regarding:
- Demographic profile of the informants (age, gender, occupation, education, and source of traditional knowledge).
- Local name and botanical identity of each medicinal plant.
- Family and growth habit.
- Plant part(s) used.
- Method of preparation.
- Mode of administration.
- Dosage and duration of treatment.
- Therapeutic uses and ailments treated.

Statistical Analysis

- The ethnomedicinal data were analyzed using standard quantitative ethnobotanical indices.
- Use Value (UV) was calculated to assess the relative importance of each medicinal plant species using the following formula:
- $UV = \sum U / n$
- where U represents the total number of use reports cited by the informants for a particular species, and n is the total number of informants interviewed.
- Fidelity Level (FL%) was calculated to determine the percentage of informants claiming the use of a particular plant species for treating the same ailment.
- $FL(\%) = (N_p \times 100) / N$
- where N_p is the number of informants reporting the use of a species for a particular ailment, and N is the total number of informants mentioning the plant for any medicinal purpose..

RESULTS: Medicinal Plant Diversity

- A total of 95 plant species from 54 families were documented.
- Dominant families:
 - Asteraceae (9 species)
 - Lamiaceae (5 species)
 - Pinaceae (5 species)
 - Fabaceae and Violaceae (4 species each)
 - Oleaceae, Verbenaceae, Polygonaceae, Solanaceae (3 species each).
- Other families with 2 species included Acanthaceae, Pinaceae, and others.
- Medicinal Uses:** Most plants were used externally as pastes, ointments, or poultices. Internally, they were consumed as decoctions or infusions prepared with water, milk, or honey.
- The study highlights the extensive reliance on medicinal plants in remote and border areas of Poonch, with 70-80% of the population depending on them for primary health care.

Table.1: Taxonomic description of medicinal plants in the study area

Taxonomic Group	Family	Genus	Species	Herbs	Shrubs	Trees
Angiosperms	52	82	89	51	16	20
Gymnosperms	2	5	6	1	-	5
Total	54	87	95	52	16	25

Regarding the habitat diversity the herb was the most dominant form of plant and is represented by 52 plant species from the study area followed by 25 plant species of trees, 16 plant species of shrubs and 2 species of climber during the work (Fig 1.1).

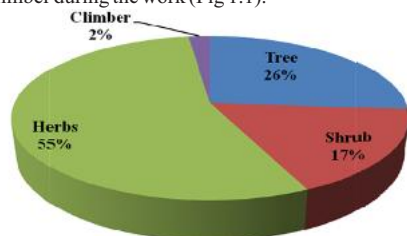


Figure-1.1 Life form of different medicinal plants of the study area

It was further, observed during the study that these 95 plant species were used to cure 45 different ailments. Most of these plants exhibit multiple uses not only used for a single ailment but for more than one ailment. The leaves of 40 plant species were the most commonly used part followed by roots of 27 plants species, flowers of 3 plant species, barks of 13 plant species, seeds of 10 plant species each, fruits of 9 plant species, whole plant of 9 plant species, stem of 6 plant species and rhizome of 03 plant species and corm, tuber, cones, fronds, young twigs and aerial parts of one plant each were found to be used in curing various ailments (Figure 1.2).

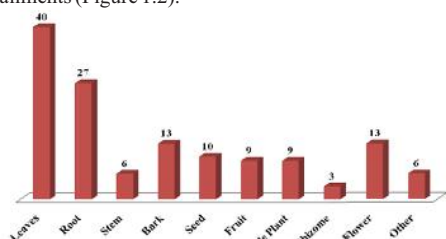


Figure. 1.2 Part used to treat different ailment

In the present study area human ailments were treated by folklore knowledge of traditional healers using medicinal plants. The curing ability (efficacy) of each of the recorded medicinal plant ranges from only one type of disease to multiple types of diseases. Ailments like Urinary disorder is cured by almost 27 plant species; stomach related disorders or dyspepsia, diarrhea, dysentery is cured by 26 plant species; Others i.e., astringent, nervous disorders, ascariasis, blood purifier are cured by 26 plant species; Cuts, wounds, inflammation, sprains & rheumatic pain are cured by 23 plant species; Dermatology i.e., Skin diseases & Boils are cured by 21 plant species; Dental problems i.e., Teeth, gum related problem & ulcers are cured by 19 plant species; Respiratory i.e., Cold, cough, asthma & throat related problems are cured by 17 plant species; Vermifuge is cured by 14 plant species; Fever and allergic are cured by 9 plant species; Women & Sex related problems are cured by 7 plant species; Head & body – ache are cured by 7 plant species; Liver disorder, jaundice are cured by 7 plant species; Pulmonary infections are cured by 6 plant species; Nose, ear, and eye related problems are cured by 5 plant species; Antidote is cured by 3 plant species; Bones related are cured by 2 plant species; etc. the ailments are cured by using the leaves, fronds, twigs, flowers, seeds, rhizome, corms, cones, tubers, young aerial parts, of 95 medicinal plant species that was observed and used from the ancient times for curing these ailments by the peoples.

Table.2: Medicinal plants used in the ailments of various diseases

Ailments	No. of Plants	Plants species
Urinary disorder	27	Viola biflora., Barleria cristata Linn., Adiantum venustum D. Don., Achillea millefolium Linn., Tagetes minuta Linn., Taraxacum officinale F. H. Wigg. aggr., Xanthium strumarium Linn., Bergenia ciliata (Haw.) Sternb., Momordica dioica Wall., Dipsacus inermis Wall., Robinia pseudoacacia Linn., Quercus leucotrichophora A. campus., Hypericum perforatum Linn., Melia azedarach Linn., Cissampelos pareira Linn., Abies pindrow spach., Cedrus deodara Roxb., Pinus roxburghii Roxb., Arundo donax Linn., Portulaca oleracea L., Populus alba Linn., Pedicularis pectinata Wall., Datura stramonium Linn., Solanum nigrum Linn., Vitex negundo Linn., Viola odorata Linn., Viola biflora
Others (astringent, nervous disorders, ascariasis, blood purifier)	26	Allium sativum, Xanthium strumarium Linn., Stellaria media (Linn.) Vill., Dalbergia sissoo Roxb. Ex Dc., Indigofera tinctoria L., Quercus leucotrichophora A. campus., Geranium wallichianum D. Don., Geranium nepalensis Sweet., Juglans regia Linn., Ajuga bracteosa Wall. Ex Benth., Melia azedarach Linn., Cissampelos pareira Linn., Ficus religiosa Linn., Marous alba linn., Mysine africana (Linn.) Spreng., Syzygium cumini Linn., Oleaceae spicata Wall. ex DC., Phytolacca acinosa Roxb., Picea smithiana (Wallich) Boiss., Cynodon dactylon (Linn.) Pers., Polygonum barbatum Linn., Pedicularis pectinata Wall., Datura anoxia Mill., Daphniphyllum Wall., Valeriana jatamansi VC James and Wall., Momordica dioica Wall.
Stomach related disorders or dyspepsia, Diarrhea, Dysentery	26	Allium sativum, Hydrocotyle javanica Thunb., Hederanepalensis Koch., Calotropis procera (Aiton) W. T. Aiton., Artemisia scoparia D. Don., Blumea lacera DC., Berberis lyceum Royle., Dalbergia sissoo Roxb. Ex Dc., Robenia pseudoacacia Linn., Quercus leucotrichophora A. campus., Mentha longifolia (Linn.) Huds., Origanum vulgare Linn., Cissampelos pareira Linn., Marous alba linn., J. multiflorum Andr., Oxalis corniculata Linn., Phytolacca acinosa Roxb., Abies pindrow spach., Polygonum barbatum Linn., Zanthoxylum alatum Roxb., Vitex negundo Linn., Hypericum perforatum Linn., Syzygium cumini Linn., Cynodon dactylon (Linn.) Pers., Verbascum thapsus Linn., Vitex negundo Linn.

Cuts,wounds, inflammation, sprains& rheumatic pain	23	Barleria cristata Linn.,Adiantum venustum D.Don., Acorus calamus Wall. , Artemisia scoparia D.Don. , Berberis ciliata (Haw.) Sternb. Robenia pseudo-acacia inn.,Trifolium repens Linn., Aesculus indica Calebr. ex Camb. , Colebrookia oppositifolia Sm-ith. Origanum vulgare Linn., Salvia moorcroftia -na Wall. , Melia azedarach Linn.,Oleacuspi-date Wall. ex DC. , Cynodon dactylon (Linn.) Pers., Podophyllum hexandrum Royle., Rumex dentatus Spring. , Delphinium dendatum Munz., Populus alba Linn. , Salix albaBoiss. , Datura anoxiaMill. , Lantana camara Linn. , Vitex negundo Linn. , Verbena officinalis Linn.
Dermatology (Skindiseases & Boils)	21	Deeringia amaranthoides (Lamk.) Merr., Achyranthes aspera Linn., Deeringia amaranthoides (Lamk.) Merr., Nerium indicum Mill. , Tagetes minuta Linn., Xanthium strumarium Linn. , Bombax ceiba Linn.,Cannabis sativus-Linn., Dalbergia sissoo Roxb.ExDc. Indigofera tinctoria L., Aesculus indica Calebr. ex Camb. , Salvia moorcroftiana Wall., Cissampelos pareira Linn. , Mysine africana (Linn.) Spreng. , Jasminum humile Linn. Argemone mexicana-Linn.,Pinus wallichianaWall.,Arundo donax-Linn., Podophyllum hexandrum Royle., Salix alba Boiss., Datura stramoniumLinn.,
Dental problems (Teeth, gum relatedproblem & ulcers)	19	Lannea coromandelica (Hout.) Merr., Achyranthes asperaLinn.,Deeringia amaranthoides (Lamk.) Merr., Hydrocotyle javanicaThunb., Hedera nepalensis Koch., Bidens tripartita Li-nn. Xanthium strumarium Linn. Indigofera tinctoria L. , Geranium wallichianumD.Don., Colebrookia oppositifolia Smith. , Origanum vulgare Linn. , Acacia catechuWilld.,Syzygium cuminiLim, J.multiflorum And r.,Pinus bur-gonii Roxb., Podophyllum hexandrum Royle., Polygonum barbatum Linn., Zanthoxylum alatum Roxb.
Respiratory (Cold,cough, asthma&throat related problems)	17	Justicia adhatoda Linn., Barleria cristata Linn., Calotropis procera (Aiton) W. T. Aiton, Achil-lea millifolium Linn., Bidens tripartita Linn., Aesculus indica Calebr. ex Camb. ,Salvia moorcroftiana Wall. , Cissampelos pareira Li-nn ,Marous alba linn., Abies pindrow spach., Cedrus deodaraRoxb., Verbascum thapsus Li-nn.,Vitex negundo Linn.Violacanesence Wall. , Violapilosa,Viola odorataLinn.,Viola biflora
Vermifuge	14	Artemisia scopariaD. Don. , Blumea lacera DC .,Chenopodium album L. , Euphorbia heliosc-opia Linn. , Juglans regia Linn. , Salvia moor-croftiana Wall. , Melia azedarach Linn., Ficus religiosa Linn., Marous alba linn., My sinea-fricana (Linn.) Spreng.,Olea cuspidata Wall. ex DC., Zanthoxylum alatum Roxb.,Daphne papy racea Wall.,Vitex negundoLinn.
Fever and allergic	9	Adiantum venustum D.Don.,Hedera nepalensi s Koch., Achillea millifolium Linn., Berberis lyceum Royle.,Olea cuspidataWall. exDC., Daphne papyraceaWall.,Vitexnegundo Linn., Viola odorata Linn.,Ajuga bracteosa Wall.Ex Benth.,Cedrus deodara Roxb.
Head&body – ache	7	Acorus calamusWall.,Tagetes minuta Linn., Saussureacostuslinn.,Ziziphusmauritiana,Datu rastramoniumLinn.,Solanumnigrum Linn.,Vitex negundo Linn.
Liver disorder, jaundice	7	Taraxacum officinale .H.Wigg.aggr.,Geranium nepalensis Sweet.,Solanum nigrum inn.,Vitex negundo Linn.,Verbena officinalisLinn., Berberis lyceumRoyle.
Women &Sexrelated problems	7	Adiantum capillus-veneris L.,Adiantum venustumD.Don.,BombaxceibaLinn., OriganumvulgareLinn.,MeliaazedarachLinn., ArundodonaxLinn.,Celtisaustralis Linn.

Pulmonary infections	6	Bergeria ciliata (Haw.)Sternb.,Cedrus deodara Roxb.,Pinus roxburghii Roxb., Verbascum thapsusLinn.,Daphne papyracea Wall.,Viola canescence Wall.
Nose,ear, Andeye related problems	5	Bidens tripartite Linn.,Berberis lyceum Royle.,Geranium wallichianum D.Don.,Oxalis corniculata Linn. , Pinus roxburghiiRoxb.
Antidote	3	Achyranthes aspera Linn.,Allium cepa. J.multiflorumAndr.,
Bonesrelates	2	Stellaria media (Linn.)Vill.,Ziziphus mauritiana

These species are used in the plant-based pharmaceutical industries in traditional systems of medicine and most are extracted from natural habitats. If the development of the whole healthful plant and their varied components continues, many species may decrease in, and ultimately disappear from their natural habitats.

The medicinal plants were generally used for fever, diarrhea, dysentery, snake bite, skin diseases, these medicinal plants are used against cuts, cough, fever, gout, rheumatism, stomach ailments, sinusitis, boils, headache and as antihelminthic, etc. Thus, the area is a primary supply of extraction and folks ought to be inspired to cultivate of these species those kind ingredients of the many healthful types of merchandise. Moreover, numerous environmental condition additionally as elevation variation within the space, give suitability for his or her cultivation, that successively is going to be fruitful in maintaining the phytodiversity of the region, besides improving economy and lifestyle of the people.

Medicinal plants are widely used in non-industrialized societies, mainly because they are readily available and cheaper than modern medicine and safe for use. The statistical work on data generated in present work showed the most important plant of the study site on the basis of US value are *Mentha longifolia* (Linn.) Huds. (1.03), *Viola canescence* Wall. (0.93), *Zanthoxylum alatum* Roxb.(0.85), *Syzygium cumini* Lim. (0.62) *Berberis lycium* Royle.(0.60), *Acacia catechu* Willd. (0.60).

Fidelity level (FI%) values of plants for various ailment categories shows that a good number (10 species) of species recorded 100% reliability (Table 5.4). The important species with high fidelity level values for various ailment categories were: *Chrysanthemum coronarium* Linn, *Arisaema jacquemontii* B, *Stellaria media* (Linn.) Vill. *Rhododendron arboreum* Smith, *Trifolium repens* Linn., *Delphinium denudatum* Wall, *Rumex hastatus* D. Don., *Rumex dentatus* L., *Pinus wallichiana* Wall., *Acacia catechu* Willd.

Table 3 –Fidelity, level, of, medicinal plants of various ailment categories

Botanical names	Citations	FI%
<i>Chrysanthemum coronarium</i> Linn,	12	100
<i>Arisaema jacquemontii</i> B,	9	100
<i>Stellaria media</i> (Linn.)Vill.	6	100
<i>Rhododendron arboreum</i> Sm.	33	100
<i>Trifolium repens</i> Linn.,	19	100
<i>Delphinium denudatum</i> Wall,	8	100
<i>Rumex hastatus</i> D.Don.,	12	100
<i>Rumex dentatus</i> L.,	14	100
<i>Pinus wallichiana</i> Wall.,	23	100
<i>Acacia catechu</i> Willd.	26	100

Herbs were the most used medicinal plants. The finding agrees with the general pattern of dominance of herbaceous species seen in most medicinal plant inventories in India and other countries (Giday et al., 2003; Tabuti et al., 2003; Muthu et al., 2006; Yineger et al., 2008; Giday et al., 2010; Bhatia et al., 2014). The dominance of herbs in medicinal flora could be related to the fact that they are more easily accessible in the nearby areas than trees and shrubs (Lulekal et al., 2013).

The leaves were the most used plant part, followed by whole plant, roots, and seeds and fruits. Khan et al. (2009), Kumar and Bhagat (2012) and Bhushan and Kumar (2013) have also reported leaves to be the most used plant parts, and root and whole plant as the other important plant parts used in the local ethnomedicinal preparations of Jammu and Kashmir. According to Castellani (1999), the soft parts of the plants such as leaves, buds and flowers are the richest source of volatile components, delicate fragrances and active principles.

Table 4- Diversity, Local name, Life form, Part/s used, and Indigenous use of Medicinal Plants Diversity of District Poonch in Jammu and Kashmir.

Botanical Name	Local Name	Life	Part used	Indigenous uses	UV
Acanthaceae					
<i>Justicia adhatoda</i> Linn.	Benkar, Brehankar	Shrub	Roots Leaves Flowers	Roots and leaves are used in cough, asthma, chronic bronchitis, leaf extract is having insecticidal and anti-rheumatic properties, flowers, leaves and roots are antiseptic	0.53
<i>Barleria cristata</i> Linn.	Jhinti, Tadrelu	Shrub	Leaves Roots	Leaves and roots are used for reducing swelling And their infusion in cough.	0.30
Adiantaceae					
<i>Barleria cristata</i> Linn.	Hansraj, Dhuntuli	Herb	Rhizome	Plants demulcent, expectorant, diuretic, emmenagogues and febrifuge. The paste of rhizome and fronds mixed with curd is applied locally for 3-5 days for curing herpes, plants fried in butter is used as a tonic.	0.32
<i>Adiantum venustum</i> Don.	Kalikakeie	Herb	Fronds	Fronds used as expectorant, diuretic, astringent, emetic and emmenagogues. The water extract of fronds is given in fever. The oil is applied to cure Piles & wounds.	0.22
Amaranthaceae					
<i>Achyranthes aspera</i> Linn.	Putkanda	Shrub	Leaf	Leaf juice gives relief to blisters of mouth, plant used in dropsy, colic, snake bites and skin eruption.	0.15
<i>Deeringia amaranthoides</i> (Lamk.) Merr.	Parigya	Shrub	Roots leaf	Root and leaf antiseptic, applied on boils and sores.	0.05
Amaryllidaceae					
<i>Allium sativum</i> Linn.	Thoom	Herb	Bulb	Raw bulbs are taken in case of indigestion and altitude sickness. Bulb paste cures skin diseases, and the bulb juice is poured in the ear to treat earache. Bulb fried with mushroom act as antidote on snake bite. To drive the snake away from the vicinity of the house during summer months, the rhizome is crushed to mix into with Water to sprinkle around the house.	0.13
<i>Allium cepa</i> Linn.	Payaj	Herb	Bulb	On snake bite, Eating raw bulbs Reduces fever acting as cooling agent.	0.07
Anacardiaceae					
<i>Lannea coromandelica</i> (Houtt.) Merr.	Jhingan	Tree	Bark	Bark astringent, used as a lotion in eruption of skin and ulcers, decoction of bark is used in tooth ache.	0.10
Apiaceae					
<i>Hydrocotyle javanica</i> Thunb.	Pantrala	Herb	Leaves	Leaves are blood purifier, digestive and used to treat dysentery. Leaves stalk is used for relief from toothache.	0.08
Apocyanaceae					
<i>Nerium indicum</i> Mill.	Karner	Shrub	Bark Roots	Oil extracted from root-bark used in skin diseases of scaly nature and in leprosy.	0.05
Araceae					
<i>Acorus calamus</i> Wall.	Bachh	Shrub	Rhizome Leaf	Antispasmodic, carminative, used in bronchitis. Leaf paste is applied locally to wound. Rhizome fed to horses to increase their stamina.	0.13
<i>Arisaema jacquemontii</i> Bl.	Kirala, Sarap	Shrub	Tubers	Tubers are given to sheep as remedy for colic and Also as wormicide.	0.15
Araliaceae					
<i>Hedera nepalensis</i> Koch.	Banda, Karmora	Climber	Leaves Fruits	Dry leaves used in stimulate sores, berries Purgative and useful in febrile disorders.	0.12
Asclepidaceae					
<i>Calotropis procera</i> (Aiton) W.T.Aiton	Chita, Akk	Shrub	Root Bark	Root bark is used in dysentery and also as expectorant and emetic. Root paste applied locally to cure elephantiasis. Tincture of leaves is used in intermittent fevers. Powdered flowers are Used in cold, cough, asthma and indigestion.	0.17
Asteraceae					
<i>Achillea millefolium</i> Linn.	Rajmori, Saijun	Herb	Leaves	Infusion of species is diuretic, stimulant and homeostatic. Decoction of the leaves and flowers are carminative, tonic and aromatic stimulant. Locals of the area use leaves and flowers for vapors bath in cold and fever. The tea from the Leaves of the plant is given in cold.	0.18
<i>Artemisia scoparia</i> D. Don.	Bano, Jahu	Herb	Leaves	Leaves are anthelmintic and used in other stomachic complaints like indigestion and liver infections, powder of leaves mixed with oil or ghee is massaged on joints to get relief from joint pains.	0.13
<i>Bidens tripartita</i> Linn.	Kumber	Shrub	Leaves	Infusion of plant is taken against cough. Leaf juice is dropped in eyes and ear to cure pain. Leaves are antiseptic and applied to ulcers and Swollen glands.	0.15
<i>Blumea lacera</i> DC.	Nimrudi, Machhal	Herb	Leaves Roots	Leaf juice astringent, febrifuge, diuretic and anthelmintic. Roots are used in cholera.	0.13
<i>Chrysanthemum coronarium</i> Linn.	Guldhodhi	Herb	Flowers	Flowers are used as insecticidal.	0.20
<i>Tagetes minuta</i> Linn.	Genda	Herb	Flower	Flower stomachic, diuretic, iaphoretic, its volatile oil shows spasmolytic, bronchodilator and inflammatory properties.	0.32
<i>Taraxacum officinale</i> F.H. Wigg. aggr.	Hindu, Dudli	Herb	Root	Root is aperient, diuretic and tonic, also used in Chronic disorders of kidney and liver. Vegetables.	0.28
<i>Saussurea costus</i> Linn.	Kuth	Herb		Back pain, piles	0.15
<i>Xanthium strumarium</i> Linn.	Lanetsuru	Herb	root fruits	Decoction of roots is used locally over ulcers, boils and abscesses. The fruits are used as tonic, diuretic, diaphoretic, sedative, cooling and Demulcent and also given in small pox.	0.15
Berberidaceae					

Berberis lyceum Royle.	Simbloo, Kembal	Shrub	Fruit Leaves root	Fruit is cooling and digestive. Leaves and their juice given jaundice. Extracted obtained from the root is used to cure fever, bleeding piles and as a bitter tonic. Its external application on the eyelids is used in acute conjunctivitis.	0.60
Bergenia ciliata (Haw.) Sternb.	Zakhme-hayat	Herb	Root Rhizome	Root is tonic, scurvy, diuretic, and astringent. Also used in fever diarrhea & pulmonary infections. Powder of rhizome and root is dusted to heal wound.	0.38
Bombaceae					
Bombax ceiba Linn.	Simbal, Semul	Shrub	Root bark	Root is used as stimulant, tonic and aphrodisiac, for overcoming sexual impotency, astringent & demulcent.	0.07
Cannabinaceae					
Cannabis sativus Linn.	Bhang	Shrub	Whole plant	Plant used as intoxicant, tonic, sedative, antiseptic And analgesic or anodyne (relieving from pain).	0.20
Caryophyllaceae					
Stellaria media (Linn.) Vill.	Mamiri	Herb	Whole plant	Whole plant used as plaster on swelling and broken bones.	0.10
Chenopodiaceae					
Chenopodium album L.	Bathu, Kunoh	Herb	Leaves	Leaves cardiac, laxative, tonic in general debility And anthelmintic.	0.23
Cucurbitaceae					
Momordica dioica Wall.	Kokora	Climbers	Root	Roasted root used to check bleeding from piles, Bowel infections and urinary complaints.	0.10
Dipsacaceae					
Dipsacus inermis Wall.	Wupalhak	Herb	Root leaves	Root diuretic, leaves used as vegetable, given to Ladies after childbirth.	0.10
Equisetaceae					
Equisetum arvense Linn.	Nari, Troka	Herb	Whole plant	Herb diuretic, homeostatic, useful in dropsy and Kidney troubles, ash of plant is used as anti-acid.	0.13
Ericaceae					
Rhododendron arboretum Sm.	Chau, hardul	Tree	Flower	Edible flower, tea, muscular pain.	0.55
Euphorbiaceae					
Euphorbia helioscopia Linn.	Dudal	Herb	Root Seed latex	Root considered anthelmintic; herb purgative, milky latex applied to eruptions, seeds given in Cholera, seed oil are purgative.	0.13
Fabaceae					
Dalbergia sissoo oxb. Ex Dc.	Shisham, Tali	Tree	Root wood	Root and wood astringent, used in leprosy, boils Eruptions of skin and against vomiting.	0.12
Indigofera tinctoria L.	Neel	Tree	Whole plant	Extract of plant given in epilepsy (unconsciousness) And nervous disorders, also given in bronchitis and as ointment for boils, ulcers.	0.15
Robenia pseudoacacia Linn.	Kikar	Tree	Leaves Flowers	Leaves are antispasmodic and laxative; an infusion is prescribed indigestive disorders. Flowers are boiled and used as powerful diuretic.	0.15
Trifolium repens Linn.	Chaptal	Herb	Flower	Tincture of the flowers is used in the rheumatic Pains due to gout.	0.32
Fagaceae					
Quercus leucotrichophora A. campus	Rein	Tree	Corns	A corns used as diuretic, in gonorrhea and as an astringent, cures indigestion and diarrhea, especially in children.	0.17
Gerinaceae					
Geranium Wallichianum D. Don.	Koashud	Herb	Whole plant	Herb astringent, used in toothache, also applied Externally to eyes in conjunctivitis.	0.42
Geranium nepalensis Sweet	Banda	Herb	Whole plant	Plant astringent, used in kidney troubles.	0.20
Hippocastaneae					
Aesculus indica Calebr. ex Camb.	Bunkhori, Handoon	Tree	Leaves Seeds Fruits	Extract of leaves is useful in whooping cough; oil from seeds is applied to cure rheumatic pains. Powdered fruits made into paste in lukewarm water is applied locally for curing cracked heels And other skin eruptions.	0.13
Hypericaceae					
Hypericum perforatum Linn.	Basanti	Herb	Whole plant	Whole plant is used in urinary troubles, diarrhea and in the therapy of depression state. The decoction of the leaves is used for the good flow Of urine by locals.	0.12
Juglandiaceae					
Juglans regia Linn.	Akhrot	Tree	Leaves Bark	Bark anthelmintic and detergent, leaves are astringent.	0.13
Lamiaceae					
Ajuga bracteosa Wall. Ex Benth.	Kori buti	Herb	Leaf	Plant bitter, astringent and tonic. Leaf juice is Given in fever as substitute for Cinchona.	0.37
Colebrookia oppositifolia Smith.	Binda, Pansra	Herb	Roots	Roots used in epilepsy. Leaves used as poultice On bruises and wounds.	0.08
Mentha longifolia (Linn.) Huds.	Jangli-pudina	Herb	Leaves young twigs	Dried leaves and young twigs are carminative and stimulant, leaf juice is cooling and stomachic, Essential oil of the plant is used for flavorings confectionery.	1.03
Origanum vulgare Linn.	Sathra	Herb	Whole plant	Hot infusion of plant is used to promote menstrual flow if suppressed by cold; oil is aromatic. Also useful in colic, diarrhea, rheumatism and toothache.	0.28
Salvia moorcroftiana Wall.	Kali-jari	Herb	Roots Leaves Seeds	Roots are used in cold and cough. Leaves are used for guinea worm and are applied as poultice for boils. Wounds and chronic affections of the skin. Seeds are emetic used in colic and dysentery, Locally the root is used in stomach pains.	0.20
Meliaceae					

Menispermaceae					
Cissampelos pareira Linn.	Batbel, Buddibel	Shrub	Roots	Roots bitter, purgative, also used in diarrhea, cough, dyspepsia, dropsy and urinary complaints.	0.23
Mimosaceae					
Acacia catechu Willd.	Khair	Tree	Bark	Paste of bark called Katha cures ulcers of mouth.	0.60
Moraceae					
Ficus religiosa Linn.	Papal,	Tree	Seeds Leaves Bark	Bark is astringent, given in gonorrhea, seeds are alternative, leaves and young shoots are purgative infusion of bark is given internally in scabies.	0.22
Marous alba Linn.	Toot, tut	Tree	Bark Fruit	Fruit refrigerant, used also for sore throat and dyspepsia, bark anthelmintic and purgative.	0.13
Myrsinaceae					
Mysine Africana (Linn.) Spreng.	Gugil	Herb	Leaves Fruit	Fruit anthelmintic particularly for tapeworm and Also used as a laxative in dropsy and colic, Decoction of leaves employed as blood purifier	0.08
Myrtaceae					
Syzygium cumini Lim.	Jamun	Tree	Seeds Bark	Decoction of bark and powdered seeds used in diabetes, bark astringent, also used in gargles and mouth washes; fresh juice of bark given with milk Of goat for curing diarrhea in children.	0.62
Oleaceae					
Jasminum humile Linn.	Peelichamel i	Herb	Roots	Flowers are tonic, root used in ringworms.	0.10
J. multiflorum Andr.	Janglichame li	Herb	Leaves Roots	Root antidote to snake bite, leave soaked in Water and applied as poultice on ulcers, flowers are emetic.	0.15
Olea cuspidate Wall. ExDC.	Kahu	Tree	Leaves Roots Seeds	Leaves and bark are bitter, astringent, antipyretic, recommended in fever and debility, leaves considered useful in gonorrhea and whooping cough; oil from seeds is used as rubefacient.	0.13
Oxalidaceae					
Oxalis corniculata Linn.	PeeliKhatti-booti	Herb	leaves	Herb is used as cure as cure for scurvy, leaves refrigerant, antiscorbutic and stomachic; fresh juice of plant given in dyspepsia, piles and anemia; infusion of leaves used to cure opacity of the cornea.	0.15
Papaveraceae					
Argemone Mexicana Linn.	Peelikandya ri	Herb	Seeds	Seeds toxic. The oil is some time mixed with Mustard oil which causes dropsy epidemic.	0.07
Phytolaccaceae					
Phytolacca acinosa Roxb.	Kafal	Shrub	Roots	Locals use the plants pecies as a substitute for Atropa belladonna. Ethno medically the root extract of the species is used in stomach cramps And dysentery.	0.12
Pinaceae					
Abies pindrow Spach.	Tung	Tree	Bark Leaves Cones	Leaves carminative, expectorant, tonic, and astringent. Also used in bronchitis and asthma. Juicy inner bark is taken in constipation. Cones are used as diuretic and purgative.	0.23
Cedrus deodara Roxb.	Diar, Deodar	Tree	Bark	Bark is astringent, useful in fevers, diuretic, carminative, and flatulent, useful in pulmonary and urinary disorders.	0.62
Pinus roxburghii Roxb.	Chir, Chil	Tree	Resin	Resin expectorant, useful in chronic bronchitis, carminative in flatulent colic, checks Hemorrhages in tooth-sockets and nose.	0.25
Pinus wallichiana Wall.	Bluepine, Kail	Tree	Resin	Oleo resin is applied locally on crack heels.	0.38
Picea smithiana (Wallich) Boiss.	Riar, Spruce	Tree	Resin	Oleo resin is applied on cracks of heels and wounds.	0.13
Poaceae					
Arundo donax Linn.	Naar, Baranal	Herb	Rhizome	Decoction of rhizome is used as emollient, Diuretic and to stimulate menstrual discharge.	0.13
Cynodon dactylon (Linn.) Pers.	Khabal, Dub	Herb	Roots	Infusion of root is given in bleeding piles and gleans. Juice of plant astringent, antiseptic, applied in wounds, cuts also given in hysteria, epilepsy, chronic diarrhea, dysentery.	0.25
Podophyllaceae					
Podophyllum hexandrum Royle	Bankakri	Herb	Roots	The root paste is applied on ulcers, cuts and wounds. It is also used as purgative, for curing skin diseases and arresting tumors growth.	0.17
Polygonaceae					
Polygonum barbatum Linn.	Narri	Herb	Seeds Roots	Root sastringent, refrigerant and their extractis Used for washing ulcers, seed purgative, emetic, And tonic and also given in colic.	0.17
Rumex hastatus D. Don.	Aammy khatmal	Herb	Leaves	Leaves are rubbed by the locals against stings by Urtica dioica.	0.20
Rumex dentatus L.	Wbal	Herb	Leaves stem	The sap of leaves and stem is applied on cuts for its astringent properties.	0.23
Portulacaceae					
Portulaca oleracea L.	Kulfa, Lunak	Herb	Leaves	Herbis refrigerant, leaves antiscorbutic, aperient diuretic.	0.12
Ranunculaceae					
Delphinium denudatum Wall	Kastooribooti	Herb	Roots	Root extract is used for rheumatic pains.	0.13
Rhamnaceae					
Ziziphus mauritiana	Beerri	Tree	Fruit	Abdominal pain relief, help in blood circulation. Bones strength	0.12
Rutaceae					
Zanthoxylum alatum Roxb.	Timber	Tree	Seeds Bark Fruit	Bark, fruit and seeds used as carminative, stomachic and anthelmintic; they are also used as mouth fresheners and in toothache.	0.85
Salicaceae					

Populus alba Linn.	Safeda	Tree	Bark Wood	Bark antipyretic, diuretic, blood purifier, used as Substitute of quinine; paste of wood and leaves Applied in rheumatism.	0.13
Salix alba Boiss.	Bisa	Tree	Bark	Bark antiperiodic, astringent and tonic; decoction is given in rheumatism, chronic skin infections like psoriasis.	0.12
Scrophulariaceae					
Pedicularis pectinata Wall.	Michren	Herb	Leaves	Leaves are diuretic, astringent and homeostatic.	0.10
Verbascum thapsus Linn.	Gidder tobacco	Herbs	Leaves & Flowers	Leaves and flowers are used for treatment of diarrhoea and pulmonary diseases. Leaves are used as adulterant for Digitalis. Dried leaves and flowers are smoked in case of asthma and act as stimulant.	0.28
Solanaceae					
Datura innoxia Mill.	Dhatura	Herb	Leaves	Leaves in the form of a poultice used for Rheumatics swelling of the joints, Lumbago & painful tumors.	0.12
Datura stramonium Linn.	Dhathura, Shivapriya	Herb	Leaves Seeds	Leaves and seeds antiseptic, anodyne, narcotic and intoxicant. Leaf powder made in pills, used in hemorrhoids, seed cure dandruff.	0.10
Solanum nigrum Linn.	Makai	Herb	Whole plant	The herb is used as diuretic and laxative decoction narcotic and antispasmodic, freshly prepared extract of herb is effective in cirrhosis in liver.	0.15
Thymelaeaceae					
Daphne papyracea Wall.	Kochhad, Tetmaran	Shrub	Roots Leaves	Plant bitter, purgative, used as febrifuge root and Leaves used against cutaneous infection and gonorrhea.	0.08
Ulmaceae					
Celtis australis Linn.	Khirkak	Tree	Fruit	Fruit is used in amenorrhea and are colic.	0.02
Valerianaceae					
Valeriana jatamansi James And Wall.	Mushkbala	Herb	Roots	Roots used in hysteria, nervous unrest and Emotional troubles	0.10
Verbenaceae					
Lantana camara Linn.	Lantana	Shrub	Flowers	Decoction given in tetanus, rheumatism and malarial tonic.	0.10
Vitex negundo Linn.	Banna	Tree	Roots Leaves Flowers	Roots febrifuge, diuretic; used in rheumatism and dyspepsia, also as an anthelmintic; flowers astringent, used in diarrhea, fever & liver complaints; leaves aromatic, tonic and vermifuge, dried leaves smoked to cure headache, their decoction employed in medicinal baths for acute rheumatism.	0.43
Verbena officinalis Linn.	Karaita	Herb	Leaves Aerial parts	Fresh leaves used as a rebufacient in rheumatism extract of the aerial parts used in liver and gall bladder complaints.	0.08
Violaceae					
Viola canescens Wall.	Banksha	Herb	Flower Leaves Stem	The decoction of plant is used to loose phlegm in the chest and for pulmonary problems.	0.93
Viola pilosa Blume.	Banksha	Herb	Leaves Stem Flower	Decoction of the leaves is used in cold, fever and throat infection in winters.	0.23
Viola odorata Linn.	Banksha	Herb	Leaves Stem Flower	Herb is considered as aperients, antipyretic, cooling, diuretic and expectorant. Locals use the leaves and stem of the herb as one of ingredient of local tea. Decoction of the leaves is used in cold, fever and throat infection in winters.	0.15
Viola biflora Linn.	Banksha	Herb	Leaves Stem Flower	Diuretic and expectorant	0.08

Summary

The present study was undertaken to document the medicinal plant diversity of Poonch District, Jammu and Kashmir (UT), and to record the indigenous ethnomedicinal knowledge practiced by local communities using Participatory Rural Appraisal (PRA) techniques. The study also aimed to document the preparation and administration of traditional herbal remedies by indigenous healers.

Field surveys were conducted during September 2018 and March–April 2019 across representative villages of the district. Ethnomedicinal information was collected through semi-structured interviews and discussions with 60 informants, including traditional healers, using Hindi, Gojri, and Pahari languages.

A total of 95 medicinal plant species belonging to 54 families and 87 genera were documented. Asteraceae was the dominant family, followed by Lamiaceae, Pinaceae, Fabaceae, and Violaceae. Herbs constituted the largest life-form group (52 species), followed by trees (25 species) and shrubs (16 species). Leaves were the most frequently utilized plant part, followed by roots, flowers, bark, seeds, and fruits.

The recorded medicinal plants were traditionally used to treat nearly 45 categories of ailments, including urinary disorders, gastrointestinal diseases, respiratory infections, skin diseases, wounds, rheumatism, fever, and liver disorders. Quantitative analysis identified *Mentha longifolia*, *Viola canescens*, *Zanthoxylum armatum*, *Syzygium cumini*, *Berberis lycium*, and *Acacia catechu* as the most important medicinal species based on Use Value (UV), while several species exhibited 100% Fidelity Level (FL) for specific ailments.

The study revealed that indigenous ethnomedicinal knowledge remains an important component of primary healthcare in the Pir Panjal region. However, this knowledge is rapidly declining due to modernization, changing lifestyles, and reduced knowledge transfer to younger generations. In addition, increasing anthropogenic pressure and unsustainable harvesting threaten several medicinal plant species.

The findings highlight the urgent need for systematic documentation of traditional knowledge, conservation of medicinal plant diversity, promotion of sustainable harvesting practices, and cultivation of economically important medicinal plants. This study provides valuable baseline information for biodiversity conservation, ethnobotanical research, and future pharmacological investigations in the northwestern Himalaya.

Recommendations

- Based on the findings of the study, the following recommendations are proposed:
- Promote community participation in the conservation and sustainable management of medicinal plant resources.
- Encourage cultivation of economically important medicinal plants in home gardens and agroforestry systems to reduce pressure on wild populations.
- Document and preserve indigenous ethnomedicinal knowledge through awareness programmes and intergenerational knowledge transfer.
- Provide institutional support and recognition to traditional healers for conserving and promoting indigenous healthcare practices.
- Establish local medicinal plant conservation programmes and

traditional healer networks to strengthen biodiversity conservation.

- Encourage phytochemical and pharmacological validation of traditionally used medicinal plants for the development of safe and effective herbal medicines.

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