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TRADITIONAL KNOWLEDGE OF MEDICINAL PLANTS IN SELECTED BLOCKS OF DISTRICT PAURI GARHWAL, UTTARAKHAND, INDIA

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ABSTRACT :

The present study mainly focus on the traditional knowledge of ethno-medicinal plants traditionally used for various ailments by the villagers of blocks beeronkhal and Pokhra in District Pauri Garhwal of Uttarakhand. Uttarakhand has a rich wisdom of traditional system of medicine since time immemorial. There is urgent need to document the medicinal and aromatic plants associated traditional knowledge which is vulnerable to shrink. Present study is an attempt to document the traditional system of medicine; used by the native communities of district Pauri garhwal, Uttarakhand, India. On the basis of semi-structural questionnaire and in consultation with the local herbal practitioner (Vaidyas), 121 species used for the treatment of diseases were documented. Local practioners use various parts of the plant. About 28% of the species were used for their leaves, followed by roots (25%), fruits (12%) and seeds (9%), tuber (6%), rhizome, whole plant and Gum & Bark (5%). About 23% of the recorded species were used for treating digestive disorders (28 species), 14% for skin diseases (17 Species), 13% for Fever (16 Species), 8% for wound and cuts, 7 % for Bone disorders and 17% for other diseases. Habitat destruction and lack of traditional knowledge are main threats to medicinal plants in the area of Pauri Darhwal, Uttarakhand.

Key Words: Traditional knowledge Medicinal plants, Beeronkhal, Pokhra, Ethnobotany, Pauri Garhwal

Introduction

Around the world, traditional knowledge in basic healthcare has gained widespread recognition, particularly in recent decades. Approximately 75% of people in underdeveloped nations still receive their primary healthcare via traditional systems, according to the World Health Organization (WHO). About 65% of people in India rely on this system **(Uniyal and Shiva, 2005).** Known for its abundance of medicinally significant plants and related traditional knowledge (TK), Uttarakhand is a state in India.

The rural populations of Uttarakhand's isolated Pauri Garhwal area have their own social and cultural norms and ways of life. Regardless of their complexity or simplicity, these cultures have a wealth of traditional knowledge about medicinal plants. They are forced to rely on their traditional medical practices for both diagnosing and treating physiological diseases as well as maintaining their health due to the underdeveloped western medical system in this area. The discovery of numerous significant plant-based medications has resulted from the traditional medical system **(Uniyal *et al.*, 2002; Semwal *et al*., 2010).**

Because these resources may be crucial in the development of novel plant-based medications in addition to healthcare, documentation and additional research on the traditional usage of medicinal and aromatic plants (MAPs) have been deemed to be of utmost importance. **(Negi *et al*., 1985, Samant, 1993; Gaur, 1999; Phondani *et al*., 2010; Kandari *et al.*, 2012)** Multiple researchers have documented information on the use of plants for primary healthcare in Uttarakhand. Furthermore, Bisht et al. (2012) listed the usage of Lamiaceae plant species in Uttarakhand, India. For rural communities to survive and thrive sustainably, this information is crucial. However, this knowledge is passed down orally from one generation to the next, making it susceptible to extinction **(Kala, 2005).** Thus, the goal of the current study is to record and emphasize the value of traditional knowledge used to the treatment of various illnesses in the region of Pauri Garhwal in State Uttarakhand.

Methodology:

MATERIALS AND METHODS

Beerokhal Block (29.8631° N, 79.0419° E) and Pokhra (29.9161° N, 78.9168° E) Pauri Garhwal district (30.1466° N, 78.7767° E) Uttarakhand state, India. Rich biodiversity, culture, tradition, and mythology are supported by the distinct physiognomic, climatic, and topographic conditions found in

this vast altitudinal region. In addition to core industries including agriculture, horticulture, and cattle, the local Native populations rely on their immediate natural resources for their existence. The research area's residents were best familiar with the local aromatic and therapeutic plants and their customary applications. In 2024–2025, a preliminary household survey was conducted to gather data on the medicinal use of local plants. Every effort was made to gather as much information as possible about the traditional uses, modes of use, and parts utilized of medicinal plants during the field surveys.

The specimens were collected and identified with the help of through previous works **(Duthie, 1906; Gaur, 1999; Naithani, 1985; Kirtakar and Basu, 1994, Dhiman, 2003; Purohit & Vyas, 2005)** and by the help of local herbalist.

Map showing study area i.e. Pauri Garhwal, Uttarakhand

Result and Discussion:

Interviews were conducted with 28 herbal practitioners, also known as Vaidyas, in various parts of the study area. The bulk of Vaidyas were between the ages of 30 and 76, and they were well-versed in the majority of the medicinal plants that grew around. In all, 121 plant species were found to be utilized in conventional medicine (Table 1). Therefore, traditional knowledge is the main source of healthcare for the native communities in the research area. The majority of the species that local communities employed were typically found in the adjacent woodland region, wastelands, and other areas. Some of the uncommon or nonexistent species in the study region were acquired from sources outside the district. About 28% of the species were used for their leaves, followed by roots (25%), fruits (12%) and seeds (9%), tuber (6%), rhizome, whole plant and Gum & Bark (5%). About 23% of the recorded species were used for treating digestive disorders (28 species), 14% for skin diseases (17 Species), 13% for Fever (16 Species), 8% for wound and cuts, 7 % for Bone disorders and 17% for other diseases. Habitat destruction and lack of traditional knowledge are main threats to medicinal plants in the area of Pauri Darhwal. The study emphasizes how people in remote areas of the study area are more reliant on plants in times of need when there are inadequate or no contemporary healthcare facilities. Additionally, the resources' good association with rural populations shows how important they are to livelihood **(Misra *et al.*, 2008).** Typically, the majority of the species that were utilized for their underground portions were uprooted. Furthermore, the development, reproduction, and survival of plants may be adversely affected by extensive wild collection **(Bhattarai *et al.* 2010).** It should be mentioned that the Uttarakhand government outlawed the harvesting of 34 different types of medicinal plants from the wild.

Table 1. Traditional use of medicinal plants in two blocks of District Pauri Garhwal, Uttarakhand.

S.N.	Name of the Plant	Local	Ailment/Disease	Part used
1.	*Abies pindrow* Royle	Raga	Wounds/injury	Leaf
2.	*Abrus precatorius*	Rattidana	Rheumatic pain, ulcer	Root
3.	*Acacia catechu* Will.	Kher	Ulcer	Root paste

4.	*Aconitum balfourii*	Bauva	Arthritis	Tuber powder.
5.	*Aconitum heterophyllum*	Ateesh	Diarrhea, body pain	Paste of tuber
6.	*Acorus calamus*	Bach	Dysentery, fever, asthma, COLD	Rhizome
7.	*Adhatoda zeylanica*	Basinga	Cough and cold	Leaves and flowers
8.	*Aegle marmelos*	Bel	Fever and cold	Fruit
9.	*Ajuga bracteosa*	Neelkanth	Acidity, indigestion	Leaf
10.	*Ajuga parviflora*	Neelbadi	Gastric problem	Leaf
11.	*Allium cepa*	Piyaj	Ear pain, headache, high blood pressure	Bulb
12.	*Allium sativum*	Lahsun	Joint pain	Bulb
13.	*Amaranthus spinosus*	Kadya sagoti	Burns	Leaf
14.	*Angelica glauca*	Choru	Cough and cold, stomachache	Root
15.	*Arisaema intermedium*	Meen	Fever, skin infections, body pain	Root
16.	*Arnebia benthamii*	Balchadi	Piles	Root
17.	*Artemisia roxburghiana*	Kunju	Diabetes	Leaf
18.	*Asparagus adscendens*	Ghirun	Fever	Whole Plant
19.	*Asparagus curillus*	Jhirna	urinary infection.	Root .
20.	*Barleria cristata*	Kularkattya	Skin Problem	Leaf
21.	*Bauhinia vahlii*	Malu	pyorrhea	Root
22.	*Bauhinia variegata*	Kachnar	Hypertension	Leaf
23.	*Berberis lycium*	Kingod	Blood purification, skin diseases	Root
24.	*Berberis osmastonii*	Kingore	Eye infection	Root
25.	*Bergenia ciliata*	Patharchatta	Kidney stone, diabetes	Root
26.	*Betula utilis*	Bhojpatr	Fever, body pain	Gum or bark extract
27.	*Bistorta affinis*	Kukdi	Stomachache, fever	Roots
28.	*Boerhavia diffusa*	Pundari	Cut and wound	Roots
29.	*Brassica campestris*		Fever, joint pain, jaundice	Seed Oil
30.	*Callicarpa macrophylla*	Daiya	Rheumatic pain	Fruit
31.	*Cannabis sativa*	Bhang	Curing fever, bronchitis	Seed and leaves
32.	*Carum carvi*	Kalajeera	Fever, headache	Seed
33.	*Cassia tora*	Chakunda	Stomachache, cough and cold	Seed
34.	*Cedrus deodara*	Dewdar	Piles	Wood/Seed oil
35.	*Celastrus paniculata*	Malkangi	Arthritis	Seed
36.	*Centella asiatica*	Brahmi	Memory enhancer	Leaf
37.	*Centipeda minima*	Nakh-chiki	Gastric	Whole Plant
38.	*Cicerbita macrorhiza*	Karatu	Headache	Leaf
39.	*Cinnamomum tamala*	Kikhadu, Tejpat	Blood pressure, digestion	Leaf
40.	*Citrus limon*	Nimbu	Gastric disorders, vomiting, acidity	Fruit
41.	*Cleome viscosa*	Jakhya	Blood pressure	Seeds

42.	*Cobretia duthie*	Murya	Stomachache, intestinal disorder	Root .
43.	*Colebrookia oppositifolia*	Bindu	Eye problems	Leaf
44.	*Coriandrum sativum*	Dhaniya	Diarrhea, constipation	Seed
45.	*Cuscuta europaea*	Alasjbail	Skin diseases	Whole Plant
46.	*Cynodon dactylon*	Doob	Nose bleeding and anemia	Plant
47.	*Cynoglossum zeylanicum*	Rajpatti	Wound and ulcer	Leaf
48.	*Dactylorhiza hatagirea*	Hattazari	Diarrhea	Tuber
49.	*Datura stramonium*	Dhatura	Bronchitis, asthma, cough	Flowers
50.	*Delphinium denudatum*	Nirbisi	Intestinal problem	Leaf
51.	*Dioscorea bulbifera*	Genthi	Diabetes, skin diseases, burns	Tubers.
52.	*Diplocyclos palmatus*	Shivlingi	Fever	Fruits
53.	*Eupatorium adenophorum*	Kala Binda	Wounds	Leaf
54.	*Euphorbia royleana*	Sullu	Ear Problem	Bark
55.	*Ficus Palmata*	Bedu	Improve Health	Fruit
56.	*Ficus religiosa*	Peepal	Swelling and Joint Pain	Bark
57.	*Fritillaria roylei*	Kakoli	Body weakness	Bulb
58.	*Fumaria indica*	Pitphapara	Headache and Fever	Leaf
59.	*Gloriosa superba*	Langali, Kalihari	Chronic ulcer, skin diseases	Rhizome
60.	*Glycine max*	Kala Bhatt	Eye tonic	Seed
61.	*Habenaria pectinata*	Ridhi	Body weakness	Root
62.	*Hedychium spicatum*	Van haldi	Asthma, bronchitis	Rhizome
63.	*Hordeum vulgare*	Jau	Cataract, eye diseases	Leaf
64.	*Impatiens balsamina*	Balsam, majethi	Burns	Leaf
65.	*Juglans regia*		Pyorrhea	Stem
66.	*Macrotyloma uniflorum*	Gaith	Kidney stone	Seed
67.	*Malaxis muscifera*	Jeevak	Body weakness	Bulb
68.	*Megacarpaea polyandra*	Barmauo	Asthma, fever, stomach pain	Root
69.	*Melia azedarach*	Dainkan	Skin diseases	Leaf
70.	*Mentha longifolia*	Pudina	Liver disorder, vomiting	Leaf
71.	*Micromeria biflora*	Gorkapaan	Ulcer	Leaf
72.	*Murraya koenigii*	Curry patta	Blood pressure, Diabetes	Leaves
73.	*Myrica esculenta*	Kaphal	Fever, headache, body pain	Fruit
74.	*Nardostachys jatamansi*	Jatamashi	Heart disease, high blood pressure	Root
75.	*Nicotiana rustica*	hamaku	Skin sores	Root.
76.	*Ocimum sanctum*	Tulsi	Cough and cold	Leaf
77.	*Orchis chusua*	Hatha	Fever and cough.	Tuber
78.	*Origanum vulgare*	Van Tulsi	Skin diseases, insect bites.	Leaf

79.	*Oxalis corniculata*	Khatti Buti	Pimples, skin disease	Leaf
80.	*Paeonia emodi*	Chandra	Intestinal pain, dysentery, piles	Root
81.	*Perilla frutescens*	Bhangjeer	Ear problem	Leaf
82.	*Phaseolus vulgaris*	Sem	Skin irritation	Leaf
83.	*Phyllanthus emblica*	Amla	Diabetes, eye problems, body weakness	Fruits
84.	*Picrorhiza kurrooa*	Kutki	Fever, stomachache, Jaundice	Root
85.	*Pimpinella diversifolia*	Bazeer	Gastric disorder	Plant
86.	*Pinus roxburghii*	Chir	Swellings, Boils, Skin diseases	Seed Oil
87.	*Podophyllum hexandrum*	Ban Kakri	Blood purifier, wounds and skin diseases	Tuber
88.	*Polygonatum verticillatum*	Salam Mishri, Meda	Body pain	Tuber
89.	*Potentilla fulgens*	Bajradanti	Tooth ache, pyorrhea	Plant
90.	*Punica granatum*	Anar	Bleeding gums and nose, cough and asthma	Fruit
91.	*Prunus cerasoides*	Painya	Swelling and Joint pains	Bark
92.	*Pyracantha crenulata*	Ghangara	Burns	Leaf
93.	*Pyrus pashia*		Eye injury	Fruit
94.	*Raphanus sativus*		Piles, jaundice, diabetes	Rhizome
95.	*Rheum emodi*	Archu, Dolu	Rheumatism	Roots
96.	*Rheum moorcroftianum*	Tantric, Archa	Cough and cold	Rhizome
97.	*Rhododendron arboretum*	Burans	Blood pressure	Flower
98.	*Rhus parviflora*	Tungla	Wounds	Bark
99.	*Ricinus communis*	Arand	Bronchitis, skin diseases, jaundice	Roots and Bark
100.	*Rubus ellipticus*	Hisalu	Skin diseases	Root
101.	*Rumex hastatus*	Almoda	Skin diseases	Root
102.	*Sapium insigne*	Khinnu	Burns	Leaf
103.	*Selinum vaginatum*	Bootkesh	Skin disease	Root
104.	*Sida rhombifolia*	bhunyala	Stomachache	Root
105.	*Solanum nigrum*	Makoi	Jaundice and fever	Leaf
106.	*Solanum surattense*	Kantkari	Jaundice	Fruits
107.	*Stephania glabra*	Gindaru	Fever	Root
108.	*Swertia chirata*	Chirayita	Fever, blood purifier	Root
109.	*Tagetes minuta*	Genda	Earache	Leaf
110.	*Taraxacum officinalis*	Kadvae	Fever	Roots
111.	*Terminalia bellirica*	Baheda	Stomach disorder, fever	Fruits
112.	*Tinospora cordifolia*	Giloye	High blood pressure, weakness	Root
113.	*Trigonella foenum-graecum*	Methi	Rheumatism	Leaf
114.	*Toona ciliata*	Toon	Cuts and wounds	Leaf
115.	*Urtica dioica*	Kandali	Tooth cavity and epilepsy	Leaf
116.	*Valeriana jatamansi*	Sumaya	Stomach pain, nervous disorder	Root
117.	*Verbascum thapsus*	Akalveer	Intestinal pain	Root
118.	*Viola biflora*	Seni	Diaphoretic, intestinal pain.	Fruit
119.	*Vitex negundo*	Siwali	Wounds	Leaf
120.	*Zanthoxylum armatum*	Timru	Toothache, pyorrhea	Stem

121.	*Zingiber officinale*	Adrak	Cough and cold	Rhizome

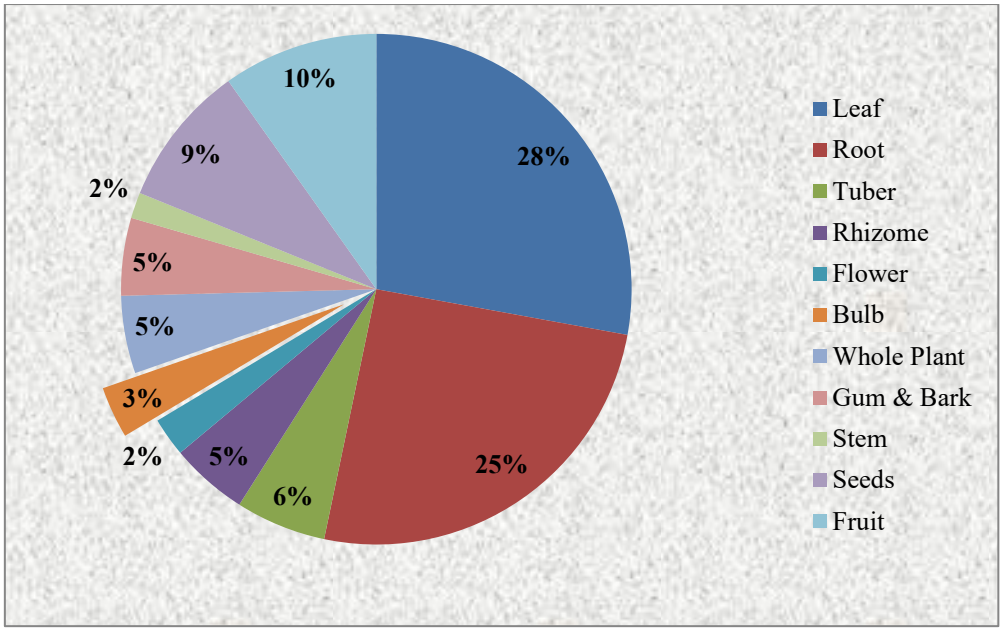

Fig-1: Different Parts of medicinal plant used traditionally by villagers/vaidhs in two blocks of Pauri Garhwal, Uttarakhand

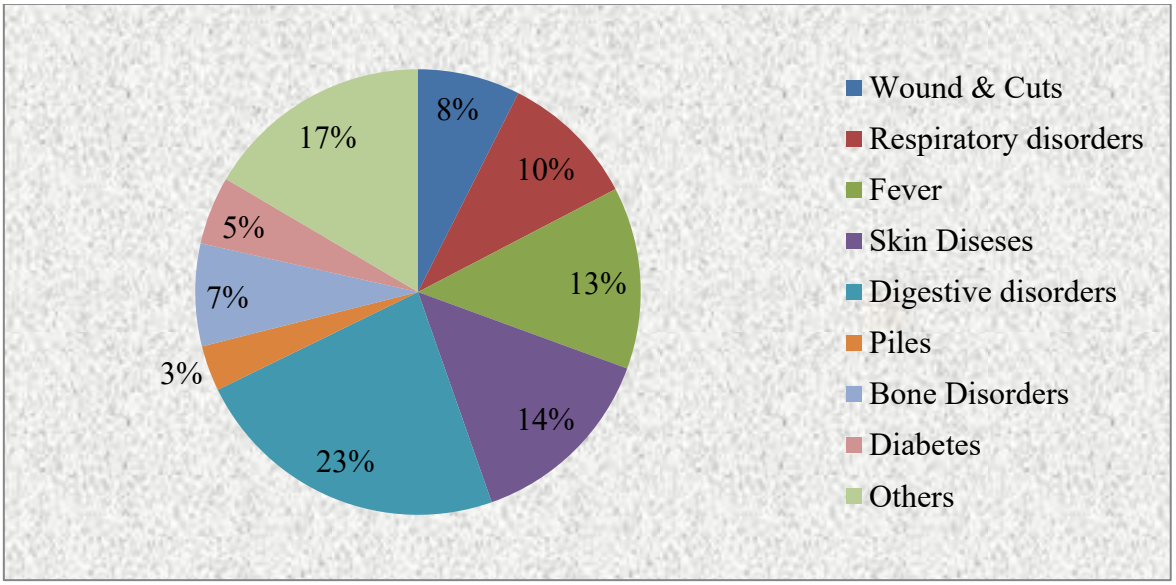

Fig-2: Different diseses/ailments cure by medicinal plant in two blocks of Pauri Garhwal, Uttarakhand

The International Union for Conservation of Nature (IUCN) was founded to prioritize species conservation, assess threat status, and develop appropriate strategies due to the vast diversity of species, according to **Godiyal *et al.* (2024)** study on threatened medicinal plants in Uttarakhand and their Genetic Diversity Assessment Through Molecular Markers. The Himalaya is known for its abundance of medicinal plants, according to **Debi, (2024),** who conducted research on floristic variety and medicinally significant plant species in the hillside of Landour, Mussoorie. Such interdisciplinary research leverages data and methods spanning space, time, and species associated with medicinal plant evolution, ecology, genomics, and metabolomic trait diversity, all of which heavily draw from traditional knowledge, according to **Davis and Choisy (2024)** study on medicinal plants meeting modern biodiversity science.

Conclusion

The ecological balance between the environment and humans must be preserved. Since the number of individuals suffering from various ailments is increasing and placing a strain on the well-established medical system, it is now critical to take alternative medical systems into account. In addition to being reasonably priced, the medicinal plants that the locals in the area employ have a strong potential to treat a wide range of illnesses and conditions

with negligible to no negative side effects. The time has come for these alternative medicine modalities (Aurveda, Unani) to be employed in conjunction with contemporary medical systems to improve future healthcare facilities and treat patients. Commercially valuable medicinal plants should be promoted and encouraged to be grown, as this will help to preserve genetic biodiversity and create revenue. Two species—Rosmarinus officinale and Asparagus racemosus—from the reported data are found in Uttarakhand. From a total of 28 plant species for commercial production and genetic biodiversity protection, the State Medicinal Plant Board (SMPB) assists in the overall coordination of the operations in the state's medicinal and aromatic plant sector (SMPB Uttarakhand). Because this knowledge system is fast vanishing, it is necessary to capture and document the ethno-medical diversity and knowledge. Therefore, it's critical to protect this priceless resource so that NGOs and the government can both contribute.

After the one year of study we have made following recommendation.

- To encourage the production of those therapeutic plants those have a significant demand.
- Pick a good location with low levels of economic development and good agro-ecological characteristics.
- To comprehend and identify ideal growing circumstances for significant medicinal plants, research and development must be conducted.
- By fostering more collaboration between academics and farmers, this can contribute to increased productivity and production of medicinal and herbal plants.
- To expand the area of mountainous, arid land used for the growth of aromatic and therapeutic plants.
- To make the villagers more knowledgeable about natural medicines and vitamins.
- Learn how cultural variables affect the usage and production of medicinal plants to preserve biodiversity.

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