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A Survey of Ethnobotanical Plants of S.G.R.R. (P.G.) College Campus, Dehradun, (Uttarakhand)

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Abstract: Ethnobotany is the study of the direct interaction between plants and man in his culture. Ethnobotanical studies focus on the utility of different plant species and their values such as food, medicine, crafts making, essential oil, cultural and spiritual etc.

The present study has been carried out in S.G.R.R. (P.G.) College, Dehradun, Uttarakhand. A survey was conducted during the winter season (October 2024 – January 2025).

Overall, 40 plants were reported among them 2.5% Pteridophytes, 12.5% Gymnosperms, and 85% of Angiosperms. In Angiosperms, different life forms are herbs 14, shrubs 14, trees 11 and climbers 1. Overall, Dicots are contributed by 29 plants, and 7 plants belong to monocot.

The study highlights the importance of preserving traditional knowledge and promoting sustainable use of ethnobotanical plants to ensure their continued availability for future generations.

Therefore, it is an urgent need for inventorying and recording all ethnobotanical information among diverse ethnic communities.

Index Terms **-** Ethnobotany, cultural and spiritual, traditional knowledge, medicine, etc.

Introduction

Ethnobotany is the scientific study of cultural practices and traditional knowledge in relation to religious, medicinal and other uses of plants by indigenous people. The word ethnobotany derived from the terms ‘ethno’ the study of people and ‘botany’ for the study of plants. Ethnobotany is considered a branch of ethnobiology.

Ethnobotany is an interdisciplinary field that brings together experts from various fields including botany, economics, landscape, architecture, archaeology, geography, medicine, linguistics, anthropology and pharmacology. The location and preservation of endangered and threatened plant species have also benefited from ethnobotanical surveys.

The focus of ethnobotany is on how plants have been used, managed, and perceived human societies. In the recent years, more attention has been given to sustainable use and integrated management of the economically important species due to an increasing recognition of their contribution to fulfil basic needs of the people, household economies, food security and disease cure.

Asia is a very popular global center due to its ancient written traditional knowledge regarding the use of medicinal plant species for treating various ailments as mentioned in Ayurveda, Unani, and Siddha.

This knowledge is of great potential value to humanity seems unfortunately to be doomed to extinction with rapid acculturations and westernization in many parts of the world. (Schultes, 1997).

I. OBJECTIVES

1. To survey the different types of ethnobotanical plants of S.G.R. (P.G.) College campus Dehradun.
2. The plants will be identified with the help of relevant literature and available local flora.

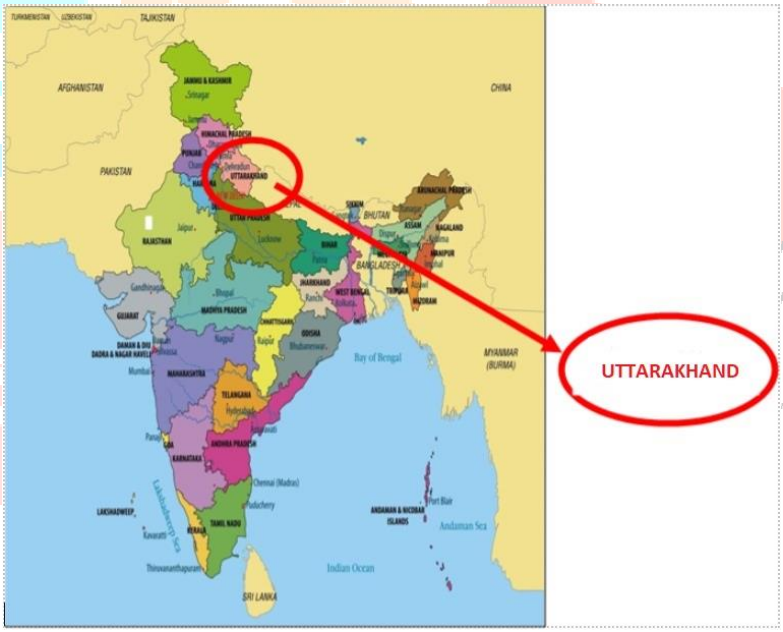
II. METHODOLOGY

Material

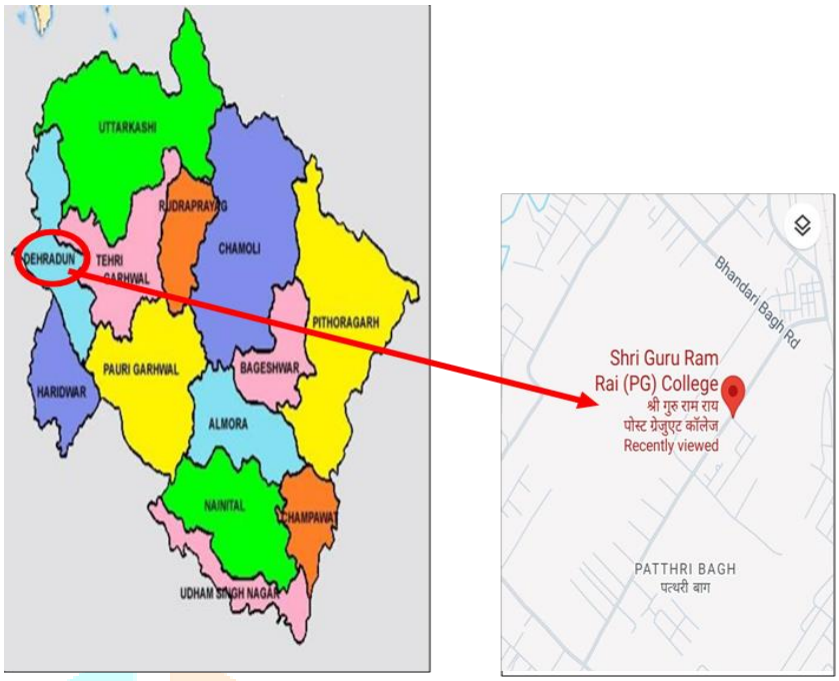
Field, notebook, pencil, and camera.

Method

A survey of some ethnobotanical plants of S.G.R.R. (P.G) College (Latitude 30.306380 N and Longitude 78.032010 E) Campus Dehradun was carried out in the month of October (2024) -January (2025). The plants were identified with the help of relevant literature and available local flora. (Map 1, Map2)



Map1: Showing Uttarakhand Location in Map of India.



Map2: Map of Uttarakhand Showing Districts.

IV. Result and Observations

4.1 Result and observations are summarized in Table 4.1

S.No.	BOTANICAL NAME	COMMON NAME	FAMILY	HABIT	IMPORTANACE
1	*Nephrolepis cordifolia*	Fish bone fern	Nephrolepidaceae	Herb	Kidney, Liver disorder, skin diseases, cough, pain, food, making basket, purification rituals, wedding ceremonies.
2	*Zamia integrifolia*	Zamia palm	Zamiaceae	Shrub	Fever, skin diseases, insect repellent, staple food, tea, coffee, shelter for wildlife, basket, mats, hawan and puja ceremonies .
3	*Cupressus sempervirens*	Pencil Pine	Cupressaceae	Tree	Stomach pain, diabetes,toothache,reduce stress, improve sleep, air purification, insect repellent, flour, spices, furniture making, perfumery, associated with moksha.
4	*Araucaria cookie*	Cook pine	Araucariaceae	Tree	Respiratory infection, toothache, viral infection, furniture making, butter,flour,pickle, paper making.
5	*Thuja orientalis*	Morpankhi	Cupressaceae	Shrub	Digestion, menstrual issue, fever, furniture making, purify the environment, tea, oil making, reduce stress, haven.

6	*Cycas revoluta*	Sago palm	Cycadaceae	Tree	Allergic reaction, digestive issue, cough, asthma, fever, wounds healing, desserts, snack, noodles, salads, worship the goddess of Durga.
7	*Ocimum basilicum*	Tulsi	Lamiaceae	Herb	Fever, cough, cold, hair issue, toothache, bad breath, reduce stress and anxiety, Indian dishes, soups, tea, curries, promote indoor air quality and worship of Vishnu.
8	*Bougainvillea spp.*	Paper flower	Nyctaginaceae	Shrub	Respiratory problem, fever, insect repellent, skin care, natural dye, fencing and crafting, soil erosion control, salads, tea, decoration home, temples during festivals and celebration.
9	*Caryota urens*	Fish tail palm	Arecaceae	Tree	Skin diseases, fever, jiggery, making ropes, baskets, furniture construction, prevent soil erosion.
10	*Aloe vera*	Ghrit kumari	Liliaceae	Herb	Burn wound healing, promote tissue repair, reduce dandruff, skin allergies, cosmetic, food, beverages, protection from evil spirit and attract positive energies.
11	*Euphorbia hirta*	Dudhi ghass	Euphorbiaceae	Herb	Asthma, hypertension, herbal tea, dengue, malaria, stomach aches, insect repellent, puja and havan.
12	*Alternanthera sessilis*	Joy weed	Amaranthaceae	Herb	Fever reduction, stomachaches, beneficial for the eyes, hair oils, herbal tea and juices, purification and protection.
13	*Lantana camara*	Chuderi Buti	Verbenaceae	Shrub	Insect bites, wound healing, fever, cough, digestive issue, salads, soups, spices, tea, and juice, bring spiritual growth and prosperity.
14	*Impomoea aquatica*	Kalmi sag	Convolvulaceae	Herb	Nosebleeds, piles, high blood pressure, jaundice, salads, cooked in dishes, cosmetics, dye, fodder, generate electricity,
15	*Tinospora cardifolia*	Giloy	Menispermaceae	Shrub	Reduce burning sensation, manage blood glucose level, relief pain, weight

					management, protection, good luck and prosperity.
16	*Toona*	Toon	Meliaceae	Tree	Diarrhea, skin itch, urinary tract infection, cancer, dishes, fruits, hardwoods, furniture, Havan and puja to purify the environment.
17	*Tectona grandis*	Teak	Lamiaceae	Tree	Diabetes, tumor, jaundice, relieve eyelids swelling, fever, respiratory infection, furniture, bridges, protection from evil spirit.and negative energies.
18	*Parthenium*	Carrot grass	Asteraceae	Herb	Fever, wound healing, digestive issue, fodder, make compost, insect repellent, dye, salads, soups, vegetables.
19	*Azadirachta indica*	Neem	Meliaceae	Tree	Headache, skin condition, mosquito repellent, ornamental, pest control, furniture, worshipped of goddess Durga.
20	*Catharanthus roseus*	Sadabhar	Apocynaceae	Shrub	Diabetes, cancer, high blood pressure, fever, wound healing, eye problem, menstrual problem, salads, flour, goddess Lakshmi.
21	*Cynodon dactylon*	Dhoob	Poaceae	Herb	Digestive issue, cough, snakebite, skin irritation, flour, fodder, prevent soil erosion, fuel sources, worship Ganesha, land's fertility.
22	*Hibiscus rosa sinesis*	China rosa	Malvaceae	Shrub	Hair loss, dandruff allergies, regulate blood flow, shoe polish, hair dye, cosmetic items, tea, food coloring, salad, fodder.
23	*Euphorbia milii*	Crown of thorns	Euphorbiaceae	Shrub	Digestive issue, wound healing, skin diseases, protection from evil spirits, associated with lord shiva, control pests and insects.
24	*Rosa indica*	Rose	Rosaceae	Shrub	Fever, digestive issue, healthy skin, deser, Gulab jamun ,rosewater, rice pudding, decoration, devotion and respect.
25	*Plectranthus scutellarioides*	Painted nettle	Lamiaceae	Shrub	Digestive issue, diarrhea, stomach ulcer, eczema, worship of lord Ganesha, purify the body andmind,

					spice, flavoring agent in cooking.
26	*Jasminum sambac*	Jasmine	Oleaceae	Shrub	Fever, dysentery, stomach ulcer, respiratory issue, high blood pressure, face creams, soaps and perfumes, deserts, tea, worship of lord Krishna.
27	*Yucca gloriosa*	Adam's needle	Asparagaceae	Shrub	Arthritis, skin irritations, wound healing, constipation, asthma, food, making of rope basket, good luck and protection.
28	*Nyctanthes arbortristis*	Harsingar	Oleaceae	Shrub	Skin irritation, antifertility in females, food, fiber production, goddess of Krishna, Havan, ancestor worship.
29	*Antirrhinum majus*	Dog flower	Plantaginaceae	Herb	Arthritis, skin irritation, digestive problem, asthma, bronchitis, wounds, food, fabrics, control pests, decoration during the festivals.
30	*Thevetia peruviana*	Kaner	Apocynaceae	Shrub	Heart problem, fever, snake bites, pain relief, food, worshipped the goddess Kali, symbol of protection, strength
31	*Tradescantia*	Spiderwort	Commelinaceae	Herb	Wounds, fever, respiratory problem, food, dye, skincareproducts, face crea, perfumes, Havan, Griha pravesh and in pooja of lord Shiva.
32	*Panicum antidotale*	Gobra ghas	Poaceae	Herb	Fodder, dry cough, control soil erosion, dishes, repel pests and improve soil health, sand binder, protect from negativity.
33	*Aerva lanata*	Gorakhganja	Amaranthaceae	Herb	Urinary tract infection, kidney stone, constipation, spice, purification rituals to cleanse the mind, body and spirit.
34	*Phyllanthus emblica*	Amla	Phyllanthaceae	Tree	Fever, asthma, diabetes, improve liver health, digestion, pickles, cosmetics, sacred as Trimurti (Brahma, Vishnu, Shiva), rich in vitamin 'C' and amino acids.

35	*Mangifera indica*	Mango tree	Anacardiaceae	Tree	Fever, cough, cold, syphilis, increases urine flow, stop bleeding, menstrual problems, absorbing CO2, prevent soil erosion, puja, havan, decorated houses and temples during festivals, it is home to the Gods.
36	*Carica papaya*	Papaya	Caricaceae	Tree	Dengue, asthma, beriberi, jaundice, digestive disorder, arthritis, ringworm, typhoid, malaria, diabetes, restore damaged skin, cooking, fruits, chutneys ,natural fertilizer, sacred fruit.
37	*Psidium guajava*	Guava	Myrtaceae	Tree	Diarrhea, dysentery, stomach aches, increases sperm quality, pain relief, natural mouth wash, toothache, gum inflammation, wound healing, cooking, fruit, worship to lord Ganesha and Shiva.
38	*Cucurbita pepo*	Pumpkin	Cucurbitaceae	Herb	Tapeworm removal, constipation, diarrhea, indigestion, skin allergies, nutritional power house of Ca, Zn, K, Na and fibers, soups, baked dishes, Ganesh Chaturthi, Diwali, to ward off evil spirit.
39	*Datura stramonium*	Moon flower, Thorn apple	Solanaceae	Herb	Pain relief, fever, asthma, coughs, skin irritation, heart diseases, offered to lord Shiva, tantric rituals to promotes meditation
40	*Luffa acutangula*	Turai	Cucurbitaceae	Climber	Nutritional value, rich in vitamins, minerals, fever, cough, dishes, soups, curries, ropes, crafts, makar Sankranti, offered to Sun God.

Table 4.1

Table 4.1 Includes S.No (1) Pteridophyta , S.No (2-6) Gymnosperms and S.No (7-40) Angiosperms

Tectona grandis

Zamia integrifolia

Toona

Euphorbia hirta

Plate 1

Datura stramonium

Bougainvillea glabra

Ipomoea aquatica

Caryota urens

Plate 2

Nephrolepis cordifolia

Luffa acutangula

Alovera

Tradescantia pallida

Plate 3

Ocimum basilium

Phyllanthus emblica

Lantana camara

Carica papaya

Plate 4

Plectranthus scutellarioides

Alternanthera sessilis

Mangifera indica

Psidium guajava

Plate 5

V. Discussion and Conclusion

Discussion

Ethnobotany is the scientific study of the traditional knowledge and culture of people concerning the various traditional uses of plants in their environment.

Overall, 40 plants are reported from the campus of S.G.R.R. (P.G) College, Dehradun. Among them 2.5% Pteridophytes, 12.5% Gymnosperms, and 85% Angiosperms. In angiosperms different life forms are reported, herbs are contributed by 14 (35%), shrubs 14(35%), trees 11(27.5%) and climber 1(2.5%).

Total dicots families are contributed by 72.5% and monocots are contributed by 17.5%. In angiosperms dominant family is Lamiaceae 8.8%, followed by Oleaceae, Cucurbitaceae, Amaranthaceae, Apocynaceae, Euphorbiaceae 5.8% each and remaining families e.g. Asparagaceae, Rosaceae, Solanaceae, Liliaceae, Poaceae, Nyctanginaceae, Arecaceae, Verbenaceae, Convolvulaceae, Menispermaceae, Mahogany, Asteraceae, Meliaceae, Gramineae, Malvaceae, Plantaginaceae, Commelinaceae, Phyllanthaceae, Anarcadiaceae, Caricaceae, Myrtacaeae are reported by single genus.

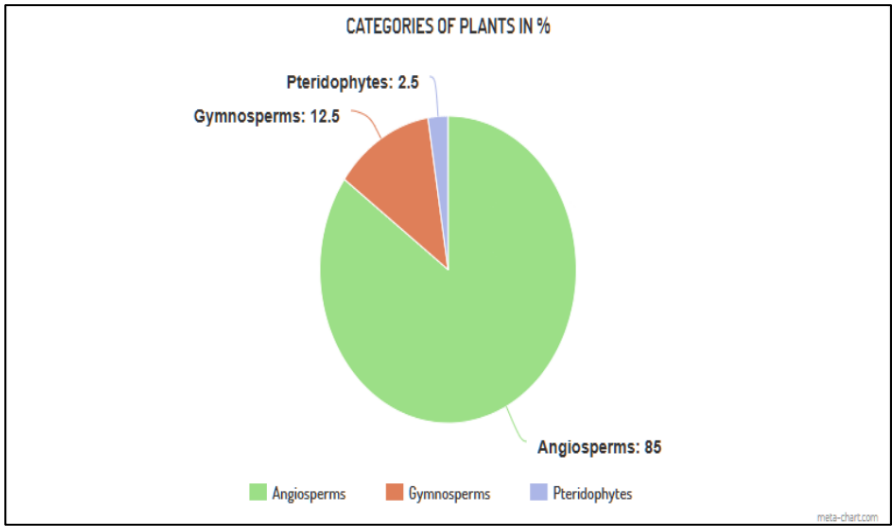


Fig 5.1 Plant categories

Conclusion

Ethnobotany is an interdisciplinary field that combines botany, anthropology, and ecology to study the cultural and ecological significance of plants.

Plants are incredibly useful to humans, and the environment and their importance extend to various aspects of biodiversity, ecology, and the environment. Plants are used in various way like as medicine to treat many ailments such as digestive issue, respiratory problem, toothache, cancer, skin problems etc. and plants are also used as food, furniture making, paper production, fiber and dye production, cosmetics, crafts making, ornamental purpose and cultural and spirituals.

Plants diversity and the many ecosystem services provide the key factor for determining human well-being. It also allows different regions to analyze the environment and evolution of the area. There are multiple factors that contribute to plant diversity, including both biotic (living) and abiotic (non-living) elements. That elements alter plant diversity include climate, weather, soil, and animals.

Plant diversity under threat from human activities, habitat loss, fragmentation, degradation, overgrazing, pollution, population growth, over exploitation of natural resources, modification homogenization of ecosystem and soil erosion are the important threats to biodiversity. The stress on plant diversity is far beyond the levels imposed according to the natural global climate changes occurring in the recent evolutionary past. This includes increased temperature, shift of climate zones, melting of snow, rise in sea level, droughts, floods and other extreme weather events, increased invasions. Plant diversity losses have a direct and indirect negative effect on living organisms.

This study has demonstrated the significance of ethnobotanical plants in maintaining cultural diversity, promoting sustainable development, and ensuring the continued well-being of local communities.

Governments play a vital role in this endeavor by establishing legislative and policy frameworks, supporting conservation efforts, funding research initiatives, engaging with local communities, and collaborating with international organizations. As we move forward, it is essential that we prioritize the conservation of these plants, their associated knowledge, recognizing them and inherent value and the benefits they provide to both humans and the environment. By working together, we can safeguard the future of ethnobotanical plants and their importance for human well-being.

A clean and healthy environment provides effective learning and provides an eco-friendly environment. The University Grants Commission (UGC) ordered that green campus is mandatory for all higher educational institutions. A green campus can create consciousness towards ecology.

VI. ACKNOWLEDGEMENT

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