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Exploring Indigenous Plant Species of Jind District: Utilization, Characteristics and Cultural Significance in a Specific Region

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Abstract

Aim: The current investigation is aimed at comprehensive analyses of indigenous plant species of Jind district, focusing on their uses, characteristics and cultural importance in a specific region.

Method: Field visits spanned all 4 subdivisions of Jind district-Jind, Narwana, Safidon, and Uchana embracing diverse cultural and socioeconomic contexts. The methodology involved one-on-one interviews, employing structured questionnaires and open-ended queries, capturing varied insights on traditional practices, beliefs, seasonal plant reproduction and local challenges.

Results: Results showcase diverse plant families, with *Fabaceae* and *Poaceae* being the most prevalent (9 species each). *Solanaceae*, *Myrtaceae*, *Moraceae* and others feature prominently. Utilization patterns vary, including 20.5% as vegetables, 15.4% with medicinal properties, 16.7% for timber, 11.5% for nutrition, and 75.6% for religious/spiritual purposes. Botanical composition highlights dicotyledonous dominance of 93.6% and with 6.4% monocotyledonous. Crop cycles correlate with pre-monsoon and monsoon seasons, influencing pollination and resilience. Plants serve ornamental roles and cultural/spiritual functions.

Conclusions: Conservation and promotion benefit ecology and resource efficiency. This research underscores the need for awareness, conservation and sustainable use, securing their role in the community's fabric. Plants from various families, primarily *Fabaceae* and *Poaceae*, are significantly utilized for different purposes, emphasizing the multifaceted role of indigenous flora in the region's ecology, culture and economy. Conservation efforts are crucial to preserving these plants and their significance in the community.

Keywords: Biodiversity; Heritage; Culture; Economy

Introduction

Biodiversity's effects vary across different environments and systems, but global food trends can harm it. To fully integrate biodiversity into food production, we need a holistic approach that goes beyond just productivity. The World Health Organization (WHO) acknowledges the significant role of plant based traditional medicine in achieving its health objectives. In rural India, 65% of the population relies on traditional medicinal plants for primary healthcare. Ethnobotanical knowledge, derived from over 7,500 plant species, holds great promise in drug development for various human diseases. Cultural values strongly influence people's decisions, including in science. Quantifying qualitative data is vital for preserving diverse plant species. This requires using both qualitative and quantitative methods, like interviews and group discussions. Ethnobotanical research studies show how different ethnic groups interact with plants, revealing historical connections. Protecting this cultural knowledge is crucial for biodiversity and sustainable development. Herbal medicines too have been important for centuries, and they're making a comeback due to safety concerns. Combining indigenous knowledge and scientific research, community based participatory research involves collaboration between researchers and stakeholders. It aims to create actionable insights and involves those who can apply findings. This approach is valuable for social change, but bridging researchers and communities can be challenging. Ethnopharmacological heritage of the indigenous communities in Udhampur district, Jammu and Kashmir, India was studied through interviews with 182 local informants; it documents 166 medicinal plant species from diverse families and highlights their use in treating 78 ailments. The study identifies key medicinal plants. Because of their enduring connection with forests, ethnic communities possess a vast reservoir of plant lore and folklore, which they receive and transmit across generations solely through oral tradition.

The northern region of India boasts a wealth of medicinal flora, with 1,748 out of the 8,644 plant species documented in the Indian Himalaya recognized for their medicinal significance.

Modern plant taxonomy is built upon the system developed by the distinguished Swedish physician and botanist, Carl Von Linné, later known as Carlos Linnaeus. His approach centers on studying a plant's flowers and reproductive structures, which are less affected by changing environments, making his system highly reliable. Grouping plants based on similar botanical traits is key to understanding their relationships. Close relatives often face similar pest challenges. Botanical resemblances also provide insights into factors like a plant's lifespan and its reactions to specific environments.

Limited information exists regarding the seasonal variability of plant species within the Jind district. Prior investigations predominantly concentrate on the utilitarian aspects of plants, particularly their applications in food and medicinal contexts. In this study, our objective was to survey the Jind district and collect and record information about the months of reproductive activity, ascertain their utilization within religious or spiritual contexts, and elucidate the manner in which these plants are used by the natives. This information holds the potential to shed light on the indispensability of these plant species and subsequently develop conservation strategies [1].

Materials and Methods

Study area

The state of Haryana of India has 22 districts; Jind being one of them. The district's administrative centre is Jind town (Figure 1). Geographically, it lies between 29.03' and 29.51' North latitude and 75.53' and 76.47' East longitude (district administration, 2023a). The climate is dry with hot summers and cold winters. Rainfall averages 55 cm annually, with 70% during July to September. July and August bring over 50% of the yearly rainfall. In June, max temperature is about 41°C, and min temperature is about 27°C. Hot winds during the hot season can be tiring. The semi-arid, tropical climate sees temperatures exceeding 41°C in May-June and dropping to 6°C in winter. Rainfall averages 515 mm, mainly in July-September, with some in December-February. August gets the most rain. Jind shares borders with Patiala (North), Sangrur (Northeast), Kaithal (East), and Karnal (West) (Figure 2) [2].

Figure 1: Map of the study site.

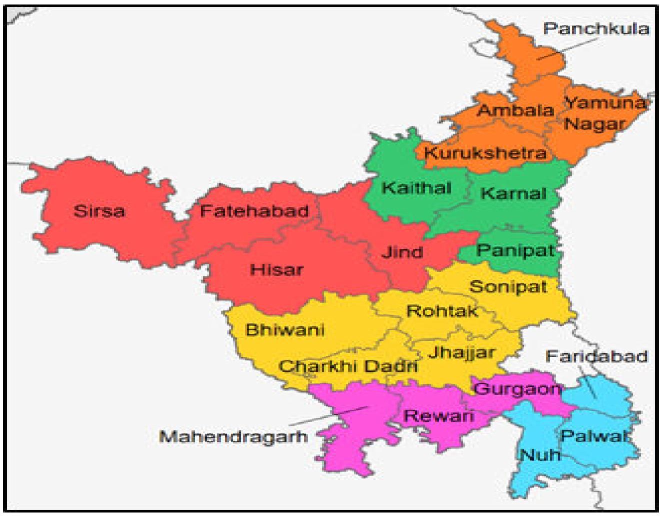

Figure 2: Borders of Jind.

In the demarcation of administrative regions, the district of Jind is systematically divided into four distinct sub-divisions, namely Jind, Narwana, Safidon, and Uchana (Figure 3). Furthermore, it is imperative to elucidate that Jind, as a district, is characterized by the presence of five Vidhan Sabha constituencies. These constituencies are known as Julana, Safidon, Jind, Uchana Kalan, and Narwana [3].

Figure 3: Divisions of Jind.

The survey was conducted in the Jind district of Haryana in the year 2021-2022. The field visits were conducted in all the 4 subdivisions of the districts individually Jind, Narwana, Safidon, and Uchana, covering a wide range of geographical, cultural, and socioeconomic contexts. The methodology involved engaging in one-on-one interviews with local individuals from different walks of life. These interactions aimed to explore their experiences, traditional practices, and beliefs, as well as to gain an understanding of their challenges and aspirations. During the interviews, a structured questionnaire was utilized as a guide, ensuring consistent data collection across different locations. Open-ended questions were also incorporated to encourage participants to share personal anecdotes and unique insights. The collected data encompassed a diverse range of topics, including traditional knowledge and cultural practices and seasons of reproduction of the plants [4].

In the course of this extensive survey, a cohort of 105 individuals was subjected to interviews. Approximately 26 individuals were judiciously selected from each of the subdivisions under investigation, with each participant contributing invaluable insights pertaining to 2 to 3 distinct plant species. To confer significance to the gathered data, a criterion was established where concurrence across more than 3 respondents, affirming identical information concerning a particular plant species, was deemed noteworthy. Data was systematically collected for a total of 78 distinct plant species as part of the comprehensive survey conducted. We identified the scientific names of each plant by using the book "A pictorial guide to common garden plants." This book contains basic information about more than 200 ornamental plant species and varieties grown in North Indian gardens. It presents the information in a way that is easy to understand for both beginners and experts in the field [5].

The assemblage of photographic materials, along with the accompanying herbarium (field notebook), which comprehensively documents the indigenous plant species identified and recommended by the study's respondents, has been formally deposited within the institutional archives of the university.

Results

The information collected by the survey has been presented in Table 1 where the local names of the plant along with its scientific names have been presented along with its family name. Additionally, the table records the indigenous applications of the plants, their categorization as observed within the local plant flora, usage of their ornamental nature, or their utilization for religious or spiritual purposes. Details, such as the reproductive months and the classification of seeds, have been noted as well. Furthermore, the Indian seasonal classification, derived from the data collected by the natives, has been incorporated into the presentation. Two families were found to be the most represented families in the area which were Fabaceae and Poaceae with 9 species each. They were followed by families *Solanaceae* (5 species), *Myrtaceae* (4 species), *Moraceae* (4 species), Caesalpiniaceae (3 species), *Amaranthaceae* (3 species), *Asteraceae* (3 species), *Lamiaceae* (3 species), *Cucurbitaceae* (3 species), *Bignoniaceae* (2 species), *Apocynaceae* (2 species), *Brassicaceae* (2 species), etc. (Figure 4) [6].

Table 1: Observed top 10 families in the area.

Family	No. of plants	Percentage	Rank
Fabaceae (Legume family)	9	19.6%	1
Poaceae (Grass family)	9	19.6%	2
Solanaceae (Nightshade family)	5	10.9%	3
Myrtaceae (Myrtle family)	4	8.7%	4
Moraceae (Mulberry family)	4	8.7%	5
Caesalpiniaceae (Senna family)	3	6.5%	6
Amaranthaceae (Amaranth family)	3	6.5%	7
Asteraceae (Aster family)	3	6.5%	8
Lamiaceae (Mint family)	3	6.5%	9
Cucurbitaceae (Cucumber family)	3	6.5%	10

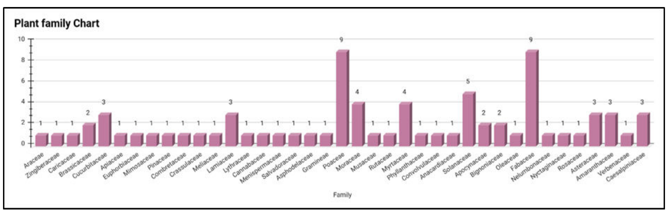

Figure 4: Plant family chart with species frequency.

The top 10 most prominent plant families found in the area are *Fabaceae*, commonly known as the legume family; *Poaceae*, representing the grass family; *Solanaceae*, recognized as the nightshade family; *Myrtaceae*, the myrtle family; *Moraceae*, which denotes the mulberry family; *Caesalpiniaceae*, pertaining to the Senna family; *Amaranthaceae*, associated with the amaranth family; *Asteraceae*, representing the aster family; *Lamiaceae*, known as the mint family; and inally, *Cucurbitaceae*, signifying the cucumber family (Table 1). The number of plants for each family is denoted in Figure 5 [7].

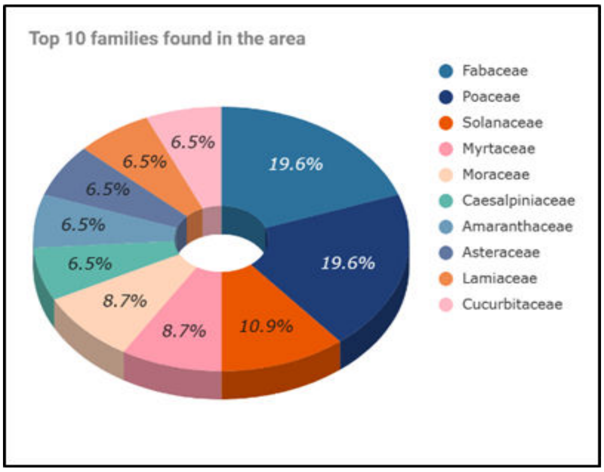

Figure 5: Chart representing the top 10 families.

In consideration of indigenous utilization patterns pertaining to the plants under investigation (Tables 2 and 3), it was observed that 20.5% of the documented flora was used as vegetables. A proportion of 19.2% comprised species categorized as flowering plants. Additionally, 16.7% of the catalogued plants exhibit characteristics conducive to timber production, thereby contributing to the local forestry sector. Notably, 15.4% of the plants were harnessed for their medicinal properties, serving therapeutic functions within the community. Intriguingly, 12.8% of the flora encompassed species designated as weeds, often regarded as undesirable due to their encroachment upon cultivated areas. Furthermore, 11.5% of the plants consisted of fruit bearing species, contributing to nutritional sustenance. Lastly, a minor percentage, 3.8%, pertains to plants utilized in the form of grains, accentuating their role in the local diet (Figure 6) [8].

Table 2: Data collected in botanical survey.

Sl. no	Local name	Botanical name	Family	Local usage	Observed plant flora	Ornamental?	Used for religious/ spiritual purpose?	Seed type	Reproductive months
1	Amaltash	*Cassia fistula*	Caesalpiniaceae	Flowering plant	Tree	Yes	No	Dicot	May-July
2	Bhangri	*Clerodendrum indicum*	Verbenaceae	Flowering plant	Shrub	Yes	No	Dicot	April-June
3	Lalmurga	*Celosia cristata*	Amaranthaceae	Flowering plant	Herb	Yes	No	Dicot	May-July
4	Gulbahar	*Bellis perennis*	Asteraceae	Flowering plant	Shrub	Yes	No	Dicot	April-July
5	Garden dahlia	*Dahlia pinnata*	Asteraceae	Flowering plant	Herb	Yes	No	Dicot	May-October
6	Gulaab	*Rosa damascene*	Rosaceae	Flowering plant	Shrub	Yes	Yes	Dicot	May-August
7	Kaagaj ka phool	*Bougainvillea spectabilis*	Nyctaginaceae	Flowering plant	Herb	Yes	No	Dicot	May-August
8	Kamal	*Nelumbo nucifera*	Nelumbonaceae	Flowering plant	Shrub	Yes	Yes	Dicot	April-June
9	Karanja/ Karanj	*Pongamia pinnata*	Fabaceae	Flowering plant	Tree	No	No	Dicot	April-June
10	Genda	*Tagetes erecta*	Asteraceae	Flowering plant	Shrub	Yes	Yes	Dicot	July-September
11	Mogra	*Jasminum sambac*	Oleaceae	Flowering plant	Shrub	Yes	Yes	Dicot	April-June

12	Neem chameli	*Millingtonia hortensis*	Bignoniaceae	Flowering plant	tree	No	No	Dicot	April-June
13	Tagar/ Chandni	*Tabernaemontana divaricate*	Apocynaceae	Flowering plant	Shrub	Yes	Yes	Dicot	July-September
14	Raat rani	*Cestrum nocturnum*	Solanaceae	Flowering plant	Shrub	Yes	No	Dicot	April-June
15	Sadabahar	*Catharanthus roseus*	Apocynaceae	Flowering plant	Shrub	Yes	Yes	Dicot	April-June
16	Aam	*Mangifera indica*	Anacardiaceae	Fruit	Tree	No	Yes	Dicot	March-June
17	Amarbel	*Cuscuta reflexa*	Convolvulaceae	Fruit	Herb	No	No	Dicot	April-September
18	Amla	*Phyllanthus emblica* L.	Phyllanthaceae	Fruit	Tree	No	No	Dicot	April-June
19	Amrood	*Psidium guajava*	Myrtaceae	Fruit	Tree	No	Yes	Dicot	April-August
20	Bael patthar	*Aegle marmelos*	Rutaceae	Fruit	Tree	No	Yes	Dicot	April-August
21	Kela	*Musa* sp	Musaceae	Fruit	Herb	No	Yes	Monocot	April-June
22	Bedu	*Ficus palmata*	Moraceae	Fruit	Tree	No	No	Dicot	March-May
23	Jamun	*Syzygium cumini* L.	Myrtaceae	Fruit	Tree	Yes	No	Dicot	March-May
24	Shahtoot	*Morus alba*	Moraceae	Fruit	Tree	No	No	Dicot	April-May
25	Bajra	*Pennisetum glaucum*	Poaceae	Grain	Shrub	No	No	Monocot	April-September
26	Khoi/Izkhar	*Cymbopogon jwarancusa* J.	Gramineae	Grain	Herb	No	No	Monocot	April-May
27	Makka	*Zea mays* L.	Poaceae	Grain	Herb	No	No	Monocot	April-May
28	Gwar Patha/Ghrit Kumari	*Aloe vera*	Asphodelaceae	Medicinal plant	Herb	No	No	Monocot	March-April
29	Ashwagandha	*Withania somnifera*	Solanaceae	Medicinal plant	Herb	No	No	Dicot	April-June
30	Bada peelu	*Salvadora oleoides*	Salvadoraceae	Medicinal plant	Shrub	No	No	Dicot	March-April
31	Datura	*Datura innoxia* Mill.	Solanaceae	Medicinal plant	Herb	No	Yes	Dicot	April-July

32	Giloy	*Tinospora* (L.) M.	Menispermaceae	Medicinal plant	Herb	No	No	Dicot	April-May
33	Bhang	*Cannabis sativa*	Cannabaceae	Medicinal plant	Herb	No	Yes	Dicot	April-July
34	Henna	*Lawsonia inermis*	Lythraceae	Medicinal plant	Shrub	No	Yes	Dicot	March-July
35	Kali tulsi	*Ocimum basilicum* L.	Lamiaceae	Medicinal plant	Herb	No	Yes	Dicot	April-June
36	Mulethi	*Glycyrrhiza glabra*	Fabaceae	Medicinal plant	Herb	No	No	Dicot	April-June
37	Neem	*Azadirachta indica*	Meliaceae	Medicinal plant	Tree	No	No	Dicot	April-May
38	Patharchatta	*Bryophyllum calycinum*	Crassulaceae	Medicinal plant	Herb	No	No	Dicot	April-June
39	Tulsi	*Ocimum tenuiflorum*	Lamiaceae	Medicinal plant	Shrub	No	Yes	Dicot	April-June
40	Arjun	*Terminalia arjuna*	Combretaceae	Timber	Tree	No	No	Dicot	April-June
41	Babool	*Acacia arabica*	Fabaceae	Timber	Tree	No	No	Dicot	April-May
42	Bargad	*Ficus benghalensis*	Moraceae	Timber	Tree	No	Yes	Dicot	April-May
43	Devdaru	*Cedrus deodara*	Pinaceae	Timber	Tree	No	No	Dicot	April-May
44	Gulmohar	*Delonix regia*	Caesalpiniaceae	Timber	Tree	Yes	No	Dicot	April-May
45	Bruhat	*Cenchrus biflorus*	Poaceae	Timber	Herb	Yes	No	Dicot	April-May
46	Khejri	*Prosopis cineraria*	Mimosaceae	Timber	Tree	Yes	No	Dicot	April-May
47	Kikar	*Vachellia nilotica*	Fabaceae	Timber	Herb	Yes	No	Dicot	April-May
48	Pipal	*Ficus religiosa*	Moraceae	Timber	Tree	Yes	Yes	Dicot	April-May
49	Roheda/ Marwar Teak	*Tecomella undulata*	Bignoniaceae	Timber	Tree	Yes	No	Dicot	April-May
50	Safeda/ Eucalyptus	*Eucalyptus globulus*	Myrtaceae	Timber	Herb	Yes	No	Dicot	April-May

51	Shisham	*Dalbergia sissoo*	Fabaceae	Timber	Tree	Yes	No	Dicot	April-May
52	Siris	*Albizia lebbeck* (L.) Benth.	Fabaceae	Timber	Tree	Yes	No	Dicot	April-May
53	Badi Dudhi	*Euphorbia hirta*	Euphorbiaceae	Vegetable	Herb	No	No	Dicot	April-August
54	Baingan	*Solanum melongena*	Solanaceae	Vegetable	Herb	No	No	Dicot	April-June
55	Bathua	*Chenopodium album* L.	Amaranthaceae	Vegetable	Herb	No	No	Dicot	April-May
56	Dhaniya	*Coriandrum sativum*	Apiaceae	Vegetable	Herb	No	No	Dicot	April-May
57	Imli	*Tamarindus indica*	Caesalpiniaceae	Vegetable	Tree	No	No	Dicot	April-June
58	Kharbuja	*Cucumis melo* L.	Cucurbitaceae	Vegetable	Herb	No	No	Dicot	April-June
59	Kundru	*Coccinia grandis*	Cucurbitaceae	Vegetable	Herb	No	No	Dicot	April-August
60	Methi	*Trigonella foenum-graecum*	Fabaceae	Vegetable	Herb	No	No	Dicot	April-May
61	Muli	*Raphanus sativus*	Brassicaceae	Vegetable	Herb	No	No	Dicot	April-June
62	Palak	*Spinacea oleracea* L.	Amaranthaceae	Vegetable	Herb	No	No	Dicot	April-May
63	Papita	*Carica papaya*	Caricaceae	Vegetable	Shrub	No	No	Dicot	April-May
64	Pudina	*Mentha piperita* L.	Lamiaceae	Vegetable	Herb	No	No	Dicot	April-May
65	Sarson	*Brassica juncea*	Brassicaceae	Vegetable	Herb	No	No	Dicot	April-May
66	Tamatar	*Solanum lycopersicum*	Solanaceae	Vegetable	Herb	No	No	Dicot	April-June
67	Tori	*Luffa acutangula*	Cucurbitaceae	Vegetable	Herb	No	No	Dicot	April-August
68	Kacchi haldi	*Curcuma longa* Linn	Zingiberaceae	Vegetable	Herb	No	Yes	Dicot	April-June
69	Kans grass	*Saccharum spontaneum*	Poaceae	Weed	Herb	No	No	Dicot	April-May

70	Bottlebrush	*Callistemon lanceolatus*	Myrtaceae	Weed	Shrub	Yes	No	Dicot	April-June
71	Chui-Mui	*Mimosa pudica* L	Fabaceae	Weed	Herb	Yes	No	Dicot	April-May
72	Dhoob	*Cynodon dactylon*	Poaceae	Weed	Herb	Yes	Yes	Dicot	April-May
73	Dhaman ghass	*Cenchrus ciliaris* L.	Poaceae	Weed	Herb	Yes	No	Dicot	April-May
74	Money plant	*Epipremnum aureum*	Araceae	Weed	Herb	Yes	No	Dicot	April-May
75	Baruwa ghass	*Erianthus munja* R.	Poaceae	Weed	Herb	Yes	No	Dicot	April-May
76	Guria Ghass	*Chrysopogon fulvus*	Poaceae	Weed	Herb	Yes	No	Dicot	April-May
77	Rigid Needle Grass	*Aristida hystrix*	Poaceae	Weed	Herb	Yes	No	Dicot	April-May
78	Sarphonk/ Sharpunkh a/Masa	*Tephrosia* spp (L.) P.	Fabaceae	Weed	Shrub	Yes	No	Dicot	April-May

Table 3: Local importance of plants.

No.	Local importance of the plant	No. of plants
1	Flowering plant	15
2	Fruit	9
3	Grain	3
4	Medicinal plant	12
5	Timber	13
6	Vegetable	16
7	Weed	10

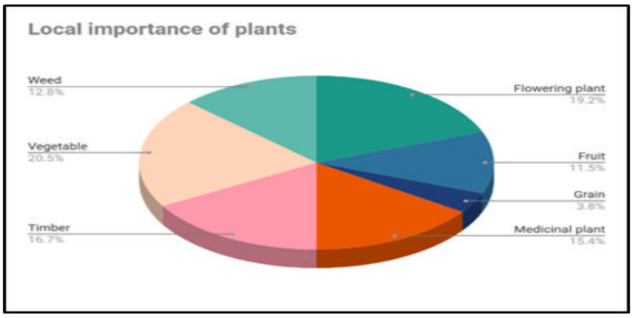

Figure 6: Chart representing local importance of plant.

Amongst the sampled plant flora, a dominant proportion of 51.3% exhibited the growth habit of herbs, constituting the highest frequency. Subsequently, 28.2% of the observed flora displayed arboreal characteristics, representing the category of trees. Lastly, a portion of 20.5% was identified as shrubs, forming the least prevalent group within the studied plant population (Figure 7) [9].

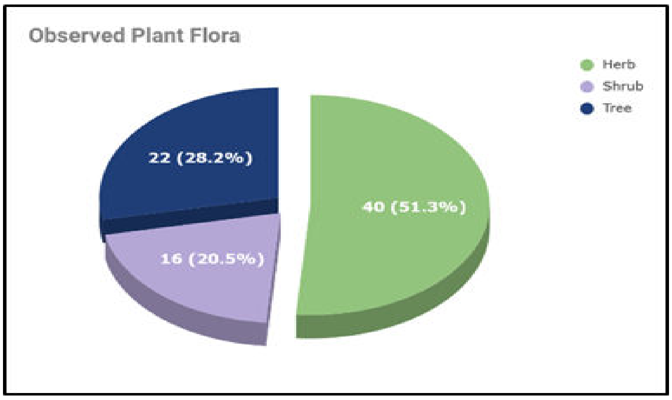

Figure 7: Chart representing observed plants as herbs, shrubs and trees.

In the recorded data set, it was ascertained that approximately 59% of the recorded plant species were identified by the indigenous people as being employed for ornamental objectives (Figure 8) [10].

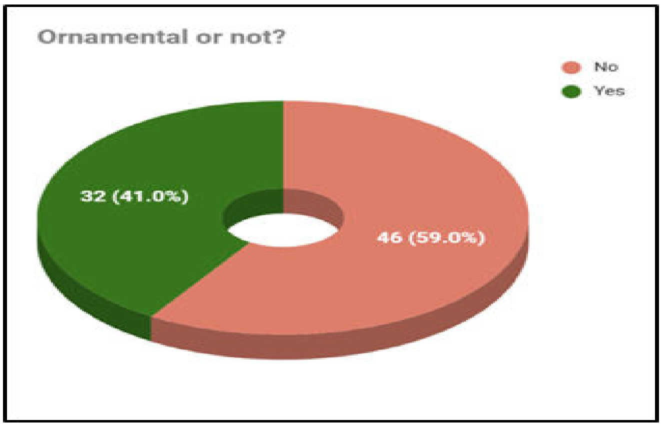

Figure 8: Chart representing ornamental usage of recorded plants.

The observation that emerged from this study is indeed intriguing. It reveals a significant connection between plant utilization and religious or spiritual intentions. Specifically, the data illustrates that approximately three-quarters, or 75.6%, of the catalogued plant species were found to have a distinct association with religious or spiritual practices. These plants likely play a role in various rituals, ceremonies, or belief systems, signifying their cultural and spiritual significance. Conversely, the remaining 24.4% of the plant species under scrutiny did not exhibit any apparent links to religious or spiritual usage. This discrepancy in plant utility implies that there exists a considerable diversity in the ways in which different plant species are integrated into human practices and belief systems. This observation underscores the complexity of the relationship between humans and the plant kingdom, shedding light on how cultural and spiritual factors can profoundly influence the utilization of different plant species (Figure 9).

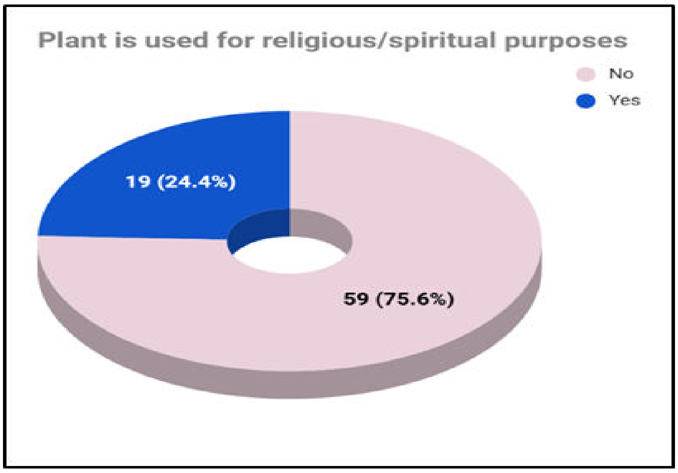

Figure 9: Chart representing religious or spiritual use of documented plants.

The dataset further elucidates that the predominant botanical composition within the surveyed region has dicotyledonous plant species. Evidently, a substantial majority of the recorded flora, comprised 73 instances (constituting 93.6% of the total sample), of dicotyledonous seeds. In contrast, a markedly smaller proportion of the flora, which is a mere 5 instances (equating to 6.4% of the total sample), were monocotyledonous (Figure 10).

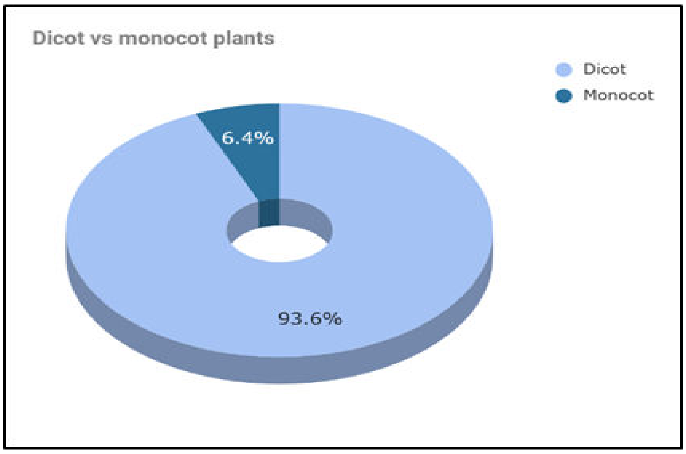

Figure 10: Chart representing monocot and dicot variation among documented plants.

The dataset pertaining to the reproductive months underwent subsequent in-depth investigation. As a result, these months were classified and associated with specific seasons of the district based on the seasons mentioned in the district administration page (Table 4).

Table 4: Reference table used for season assignment based on seasons of the district.

Month	**Season**
January	Pre-monsoon
February	Pre-monsoon
March	Pre-monsoon
April	Pre-monsoon
May	Pre-monsoon
June	Monsoon
July	Monsoon
August	Monsoon
September	Monsoon
October	Post-monsoon
November	Post-monsoon
December	Post-monsoon

Using the Table 4, each span of reproductive month was assigned seasons as represented below in Table 5.

Table 5: Distribution of months to seasons.

Month span	**Assigned seasons**
May-July	Pre-monsoon, Monsoon
April-June	Pre-monsoon, Monsoon
April-July	Pre-monsoon, Monsoon
May-October	Pre-monsoon, Monsoon, Post-monsoon
May-August	Pre-monsoon, Monsoon
July-September	Monsoon
March-June	Pre-monsoon, Monsoon
April-September	Pre-monsoon, Monsoon
April-August	Pre-monsoon, Monsoon
March-May	Pre-monsoon
April-May	Pre-monsoon
March-April	Pre-monsoon
March-July	Pre-monsoon, Monsoon

The prevailing trend observed during the study indicated that a substantial majority of the cultivated crops were found to flourish predominantly during the pre-monsoon and monsoon seasons. In a more granular breakdown, a total of 38 crops from the collected dataset, accounting for 48.7% of the sample, exhibited their reproductive phase during the combined span of the pre-monsoon and monsoon months, 37 crops (constituting 47.4% of the dataset) displayed a distinctive preference for growth solely within the confines of the pre-monsoon months. The residual subset, comprising a marginal proportion of 2 crops (equivalent to 2.6% of the dataset), exhibited an exclusive reproductive cycle during the monsoon season (Figure 11).

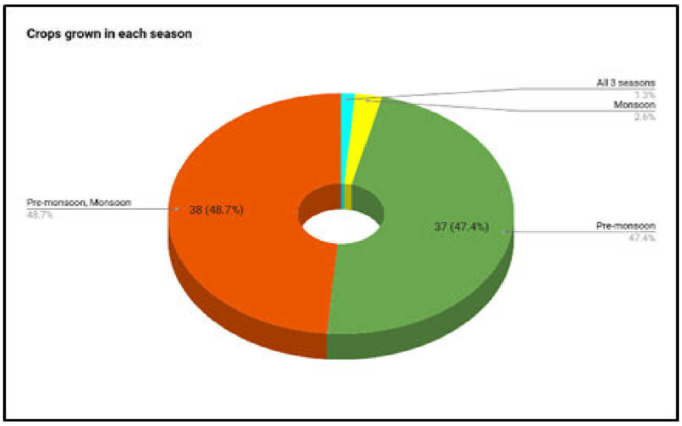

Figure 11: Chart representing growth seasons of the documented plants.

Discussion

Based on the data, most local crops in the region reproduce during pre-monsoon and monsoon months. Many locally cultivated crops have dicotyledonous seeds, indicating their adaptability. This has implications for preserving native plants, enhancing pollination, and promoting resilience to environmental changes.

Native plants are often ornamental, enriching the landscape and supporting local fauna. They offer shelter and food for smaller animals, fostering a balanced ecosystem. Additionally, these plants hold medicinal potential rooted in traditional knowledge, warranting further research into their modern applications. Conserving and promoting native plants go beyond ecology; they require less water due to their adaptation. Integrating them into landscaping and agriculture benefits the community by saving water, time, and money. A notable finding is that many local plants hold dual significance, serving cultural and spiritual roles beyond botanical value. They're interwoven into rituals, ceremonies, and practices, highlighting their importance in the community's fabric.

Approximately 80% of interviewees learned about plant species from their parents, grandparents, and neighbours. Older individuals exhibit a deeper understanding of plant usage compared to younger ones. Rapid industrialization, intensive agriculture, and forest exploitation threaten invaluable biodiversity and resources. Urgent awareness is needed to conserve and responsibly use native plants. This research's findings are preliminary, requiring further validation. Efforts are necessary to protect these species within the study area and nationwide, ensuring their survival for current and future generations. In conclusion, the reliance on ancestral knowledge by interviewees emphasizes the need to preserve indigenous plants. Addressing imminent threats through awareness and protection is crucial. This study establishes a foundation for safeguarding botanical heritage locally and nationally.

Conclusion

The convergence of ancestral wisdom, ecological insights, and cultural significance calls for a collaborative approach to preserve and cherish indigenous plants. This study's findings underscore the crucial role these plants play in maintaining the delicate balance of ecosystems and traditions, advocating for a future where nature and culture thrive in harmony.

The findings of this study shed light on several critical aspects of the local plant ecosystem. The data demonstrates that a majority of indigenous crops in the region synchronize their reproductive cycles with the summer and monsoon months, while many locally cultivated crops possess dicotyledonous seeds, reflecting their adaptability and resilience to changing environmental conditions. These insights carry significant implications for the preservation of native plants, facilitating pollination, and bolstering their ability to withstand ecological shifts.

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