

Edible Plants of Renuka Tehsil, Sirmaur District, Himachal Pradesh (India)

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Abstract: *Ethnobotany is the study of how people of a particular culture and region make use of indigenous plants. This field encompasses the traditional knowledge and customs related to plants, including their uses for food, medicine, shelter, clothing, and rituals. One important aspect of ethnobotany is the edibility of plants, which refers to their suitability for human consumption. The edibility of plants is closely tied to cultural practices and traditions. Many societies have specific rituals or ceremonies associated with the gathering and consumption of certain edible plants. Ethnobotany's exploration of edibility offers a rich tapestry of cultural heritage, ecological wisdom, and potential solutions to contemporary challenges. Overall, a total of 93 species belonging to 85 genera under 52 families been identified for edibility from Renuka tehsil of district Sirmaur. For edibility 41 species belonging to 40 genera under 28 families have been reported and mostly consumed as fruits (41 species under 32 genera and 22 families). 41 species under 40 genera and 28 families are consumed as vegetables and pot herbs. 22 genera under 18 families with 22 species are used in pickles and chutney preparation. 8 species under 5 families and 8 genera are used for flavouring and culinary preparations. Relatively, the most frequently used families for edible plants except vegetables and pot herbs are represented by Rosaceae (9 species) followed by Fabaceae, Rutaceae and Solanaceae (3 species each) etc.*

Keywords: Ethnobotany, Biodiversity, Renuka tehsil, Edibility

1. Introduction

The term ethnobotany, first coined by Harshberger (1895) and has been classified by Jain (1995), father of Indian ethnobotany, into two categories: (1) Abstract and (2) Concrete. The former aspect includes taboos, avoidance, sacred plants, worship and folklore, while the latter deals mainly with the material use and acts of domestication, conservation, improvement or destruction of plants. More importantly, this study of the plants in relation to people includes both wild and domesticated plants (Heiser, 1995).

The Himalayas are a rich repository of medicinal and aromatic plants, diverse cultures and traditions, and its vegetation is rich in Mediterranean, West Asian, Tibetan, Japanese and Burmese elements. For sustenance, the various inhabitants of Himalayan region use about 300 wild spp as subsidiary food (Kapoor, 1978; Arora, 1981); 37 spp for fibre; 35 tree spp as multipurpose socio-economically important spp and a large number as medicinal plants (Rao, 1996).

Ethnobotanical research faces challenges such as the erosion of traditional knowledge due to globalization, habitat destruction impacting plant diversity, ethical considerations when working with indigenous communities, and the need for collaboration between traditional knowledge holders and scientific researchers. Ethnobotany plays a crucial role in understanding the intricate relationship between humans and plants. By documenting traditional plant knowledge and practices, it contributes to biodiversity conservation, sustainable resource management, and the discovery of valuable medicinal compounds. This interdisciplinary field continues to provide insights into how different cultures utilize plant resources for various purposes.

Ethnobotany is the scientific study of the relationships between plants and people. It encompasses the traditional knowledge, practices, and beliefs concerning the use of plants for food, medicine, materials, and other purposes by various human cultures. This interdisciplinary field combines elements of botany, anthropology, ecology, and pharmacology to understand how different societies interact with their natural environment and utilize plant resources.

Himachal Pradesh is renowned for its rich biodiversity and is home to a vast array of medicinal and aromatic plants. Himachal Pradesh serves as a reservoir of valuable flora that has been traditionally used for edible, medicinal, aromatic, and therapeutic purposes. The current study was undertaken in Renuka Tehsil of district Sirmaur which is located in the Shivalik range of the Himalya is known for its scenic beauty and pleasant climate. Sirmaur district is Located on the southern most portion of the Himachal Pradesh, Sirmour district borders with Haryana State in the south and in the east with the Utrakhand. The district lies between 30° 22'30" to 31° 01'20" north latitude and 77° 01'12" to 77° 49'40" east longitude.

2. Literature Survey

Janaki Ammal, an Indian botanist, made significant contributions to ethnobotanical research, particularly in the study of food plants among tribal communities in South India (Janakiammal, 1955). Her work focused on exploring the potential uses of Dioscoreas. Her research delved into the intricate relationship between tribal communities and their surrounding plant biodiversity. Ethnobotanical surveys of Himachal Pradesh were carried out by Gupta (1981) and of Sirmaur district by Chauhan and Chauhan (1986). An account of edible plants used by Gujjars and Gaddis from Mandi district was given by Singh (1966) There are total

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675 edible wild plant species in Himachal Pradesh (Kala, 2007; Reddy et al., 2007).

3. Methods/ Approach

For the collection of information on edible plants, comprehensive ethnobotanical surveys were conducted during the period of 2017-2019 in Renuka tehsils of district Sirmaur. Structured questionnaire were used to document data about the traditional uses of plants from local healers and conversant people. The resultant information of medicinal plants related to animal healthcare was recorded following Phondani *et al.*, 2010. Standard herbarium methodology of Jain and Rao (1977) was followed and the voucher specimens were authenticated at Forest Research Institute, Dehradun.

4. Results and Discussion

The detailed information of edible plants of the study area has been enlisted in Table 1-IV.

Table I: Edible Plants of Renuka Tehsil of District Sirmaur

S. No	Botanical Names	Family	Parts Used
1	<i>Aegle marmelos</i>	Rutaceae	Fruit
2	<i>Asparagus racemosus</i>	Asparagaceae	Root
3	<i>Bauhinia vahlii</i>	Fabaceae	Seeds
4	<i>Berberisaristata</i>	Berberidaceae	Fruit
5	<i>Berberis lyceum</i>	Berberidaceae	Fruit
6	<i>Bombax ceiba</i>	Bombacaceae	Leaves
7	<i>Cannabis sativa</i>	Cannabaceae	Seed
8	<i>Capsicum annum</i>	Solanaceae	Fruit
9	<i>Carica papaya</i>	Caricaceae	Fruit
10	<i>Carissa spinarum</i>	Apocynaceae	Fruit
11	<i>Celtis australis</i>	Cannabaceae	Fruit
12	<i>Citrus limon</i>	Rutaceae	Fruit
13	<i>Colocasiaesculenta</i>	Araceae	Tuber
14	<i>Cotinus coggygia</i>	Anacardiaceae	Seeds
15	<i>Debregeasia saeneb</i>	Urticaceae	Fruit
16	<i>Dioscoreabulbifera</i>	Dioscoreaceae	Tuber
17	<i>Duchesneaindica</i>	Rosaceae	Fruit
18	<i>Ficusbengalensis</i>	Moraceae	Fruit
19	<i>Ficusreligiosa</i>	Moraceae	Fruit
20	<i>Flacourtiaindica</i>	Flacourtiaceae	Fruit
21	<i>Indigoferatinctoria</i>	Fabaceae	Flowers
22	<i>Juglans regia</i>	Juglandaceae.	Fruit
23	<i>Murraya koenigii</i>	Rutaceae	Fruit
24	<i>Musa × paradisiaca</i>	Musaceae	Fruit
25	<i>Myrica esculenta</i>	Casuarinaceae	Fruit
26	<i>Nelumbonucifera</i>	Nelumbonaceae	Seeds
27	<i>Opuntiastricta</i>	Cactaceae	Fruit
28	<i>Papaver somniferum</i>	Papaveraceae	Seeds
29	<i>Phoenix sylvestris</i>	Arecaceae	Fruit
30	<i>Physalisangulata</i>	Solanaceae	Fruit
31	<i>Pinuswallichiana</i>	Pinaceae	Seed
32	<i>Prunuscerasoides</i>	Rosaceae	Fruit
33	<i>Prunus pumila</i>	Rosaceae	Fruit
34	<i>Psidium guajava</i>	Myrtaceae	Fruit
35	<i>Punicagranatum</i>	Lythraceae	Fruit
36	<i>Pyracantha crenulata</i>	Rosaceae	Fruit
37	<i>Pyrus communis</i>	Rosaceae	Fruit
38	<i>Pyrus pashia</i>	Rosaceae	Fruit
39	<i>Quercussuber</i>	Fagaceae	Seeds
40	<i>Rhododendron arboreum</i>	Ericaceae	Flowers
41	<i>Rosa brunonii</i>	Rosaceae	Petals

42	<i>Rubusellipticus</i>	Rosaceae	Fruit
43	<i>Rubusniveus</i>	Rosaceae	Fruit
44	<i>Rumex hastatus</i>	Polygonaceae	Leaves
45	<i>Sesamum indicum</i>	Pedaliaceae	Seed
46	<i>Shoreaobusta</i>	Dipterocarpaceae	Fruit
47	<i>Solanumnigrum</i>	Solanaceae	Fruit
48	<i>Swertia chirayita</i>	Gentianaceae	Fruit
49	<i>Syzygium cumini</i>	Myrtaceae	Fruit
50	<i>Vicia sativa</i>	Fabaceae	Fruit
51	<i>Woodfordiafruiticosa</i>	Lythraceae	Flowers
52	<i>Ziziphusjujuba</i>	Rhamnaceae	Fruit

Table II: Important Vegetable and Pot Herbs of Renuka Tehsil of District Sirmaur

S. No.	Botanical Names	Family	Parts used
1.	<i>Agave americana</i>	Agavaceae	Inflorescence
2.	<i>Allium sativum</i>	Amaryllidaceae	Leaves
3.	<i>Aloe vera</i>	Liliaceae	Leaves
4.	<i>Amaranthus viridis</i>	Amaranthaceae	Leaves
5.	<i>Bambusanutans</i>	Poaceae	Shoot
6.	<i>Bauhinia variegata</i>	Fabaceae	Flowers
7.	<i>Bidenspilosa</i>	Asteraceae	Leaves
8.	<i>Bombax ceiba</i>	Bombacaceae	Flowers
9.	<i>Carica papaya</i>	Caricaceae	Fruit
10.	<i>Chenopodium album</i>	Chenopodiaceae	Leaves
11.	<i>Colocasiaesculenta</i>	Araceae	Tuber
12.	<i>Coriandrum sativum</i>	Apiaceae	Leaves
13.	<i>Cucumissativus</i>	Cucurbitaceae	Fruit
14.	<i>Dioscoreabulbifera</i>	Dioscoreaceae	Tubers
15.	<i>Diplazium esculentum</i>	Dryopteridaceae	Young frond
16.	<i>Eruca sativa</i>	Brassicaceae	Leaves
17.	<i>Euphorbia royleana</i>	Euphorbiaceae	Tender shoot
18.	<i>Fagopyrum esculentum</i>	Polygonaceae	Aerial parts
19.	<i>Ficus palmata</i>	Moraceae	Unripe fruit
20.	<i>Indigoferatinctoria</i>	Fabaceae	Flowers
21.	<i>Justiciaadhatoda</i>	Acanthaceae	Flowers
22.	<i>Lepidium virginicum</i>	Brassicaceae	Plant
23.	<i>Leucas lanata</i>	Lamiaceae	Aerial parts
24.	<i>Lycopersiconesculentum</i>	Solanaceae	Fruit
25.	<i>Maluspumila</i>	Rosaceae	Raw fruit
26.	<i>Mentha arvensis</i>	Lamiaceae	Leaves
27.	<i>Morchella esculenta</i>	Morchellaceae	Mushrooms
28.	<i>Morus alba</i>	Moraceae	Leaves
29.	<i>Musa × paradisiaca</i>	Musaceae	Fruit
30.	<i>Nasturtium officinale</i>	Brassicaceae	Leaves
31.	<i>Pisumsativum</i>	Fabaceae	Seeds
32.	<i>Plantago major</i>	Plantaginaceae	Aerial parts
33.	<i>Pteridiumaquilinum</i>	Dennstaedtiaceae	Aerial parts
34.	<i>Raphanussativus</i>	Brassicaceae	Leaves, fruits
35.	<i>Senna tora</i>	Fabaceae	Leaves, pods
36.	<i>Smilax aspera</i>	Smilacaceae	Fruits
37.	<i>Solanumnigrum</i>	Solanaceae	Leaves
38.	<i>Solanumtuberosum</i>	Solanaceae	Tubers
39.	<i>Sonchus asper</i>	Asteraceae	Tender shoots
40.	<i>Trigonella foenum-graecum</i>	Fabaceae	Leaves
41.	<i>Urtica dioica</i>	Urticaceae	Leaves

Table III: Plant Used for Pickles and Chutney by the Local Populace of Study Area

S. No.	Botanical Names	Family	Part used
1.	<i>Allium sativum</i>	Amaryllidaceae	Leaves, bulbs
2.	<i>Bambusanutans</i>	Poaceae	Young shoot
3.	<i>Bauhinia variegata</i>	Fabaceae	Dried flowers
4.	<i>Cannabis sativa</i>	Cannabaceae	Seeds
5.	<i>Capsicum annum</i>	Solanaceae	Fruits
6.	<i>Carissa spinarum</i>	Apocynaceae	Fruits

7.	<i>Citrus limon</i>	Rutaceae	Fruits
8.	<i>Coriandrum sativum</i>	Apiaceae	Leaves
9.	<i>Curcuma longa</i>	Zingiberaceae	rhizome
10.	<i>Diplazium esculentum</i>	Dryopteridaceae	Young frond
11.	<i>Lycopersicon esculentum</i>	Solanaceae	Fruit
12.	<i>Malus pumila</i>	Rosaceae	Fruit
13.	<i>Mentha arvensis</i>	Lamiaceae	Leaves
14.	<i>Morchella esculenta</i>	Morchellaceae	Mushrooms
15.	<i>Oxalis corniculata</i>	Oxalidaceae	Leaves
16.	<i>Phyllanthus emblica</i>	Euphorbiaceae	Fruits
17.	<i>Punicagranatum</i>	Lythraceae	Seeds
18.	<i>Rhododendron arboreum</i>	Ericaceae	Flowers
19.	<i>Senna tora</i>	Fabaceae	Leaves, pods
20.	<i>Zingiber officinale</i>	Zingiberaceae	Rhizome
21.	<i>Zea mays</i>	Poaceae	Grain
22.	<i>Ziziphus jujuba</i>	Rhamnaceae	Fruits

Table IV: Plants used for Flavouring and Culinary Preparation of Study Areas

Plant Species	Family	Part/s Used
<i>Coriandrum sativum</i>	Apiaceae	Leaves
<i>Curcuma longa</i>	Zingiberaceae	Rhizome
<i>Mentha arvensis</i>	Lamiaceae	Leaves
<i>Murraya koenigii</i>	Rutaceae	Leaves
<i>Ocimum tenuiflorum</i>	Lamiaceae	Leaves
<i>Papaver somniferum</i>	Papaveraceae	Whole Plant
<i>Zanthoxylum armatum</i>	Rutaceae	Leaves
<i>Zingiber officinale</i>	Zingiberaceae	Rhizome

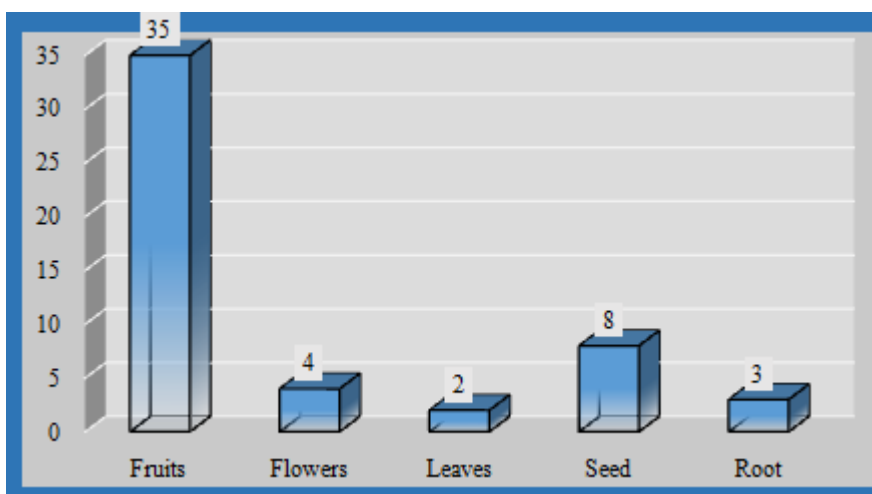


Figure 1: Relative Disposition of Plant Parts Used for Edible Purposes in Study Area

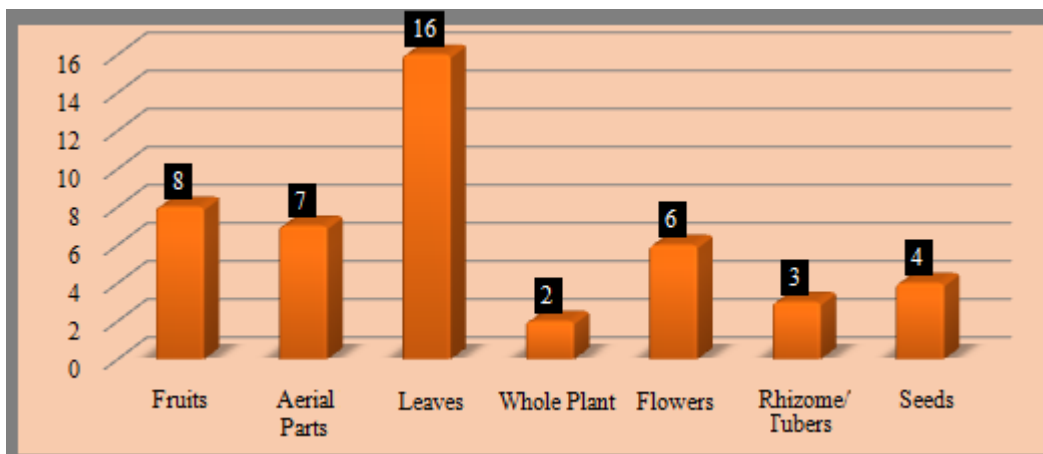


Figure 2: Relative Disposition of Plant Parts Used as Vegetable and Pot Herb in Study Area

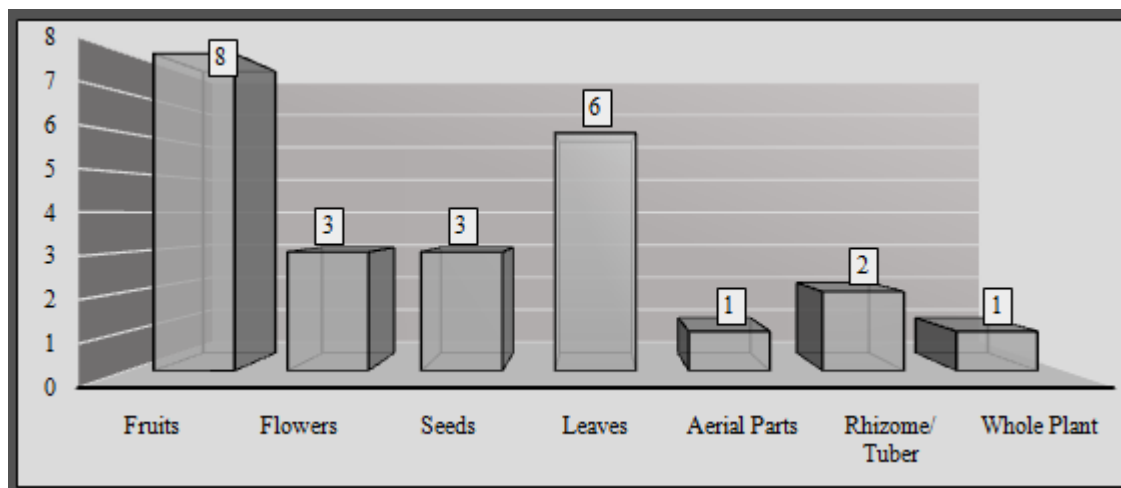


Figure 3: Relative Disposition of Plant Parts Used in Pickles and Chutney

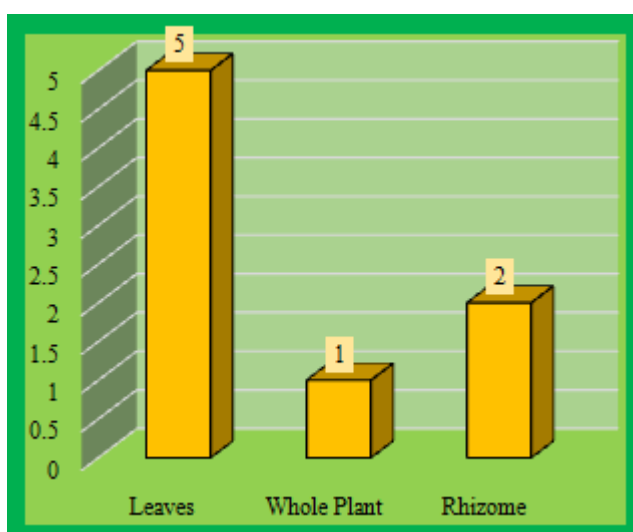


Figure 4: Relative Disposition of Plant Parts Used for Flavouring and Culinary Purpose

In current study, a total of 93 species belonging to 85 genera under 52 families been identified for edibility from the regions (Table I-IV; Fig. 1-4). For edibility except plant species used as vegetables and pot herbs, 41 species belonging to 40 genera under 28 families have been reported (Table I) and mostly the plant species under this category are consumed as fruits (41 species under 32 genera and 22 families). In other category of edibles (Vegetables and Pot herbs – Table II) 41 species under 40 genera and 28 families are consumed as vegetables and pot herbs. 22 genera under 18 families with 22 species are used in pickles and chutney preparation (Table III) while 8 species under 5 families and 8 genera are used for flavouring and culinary preparations. Relatively, the most frequently used families for edible plants except vegetables and pot herbs are represented by Rosaceae (9 species) followed by Fabaceae, Rutaceae and Solanaceae (3 species each), Berberidaceae, Cannabaceae, Lythraceae, Moraceae and Myrtaceae (2 species each) and rest of the families are represented by 1 species. Similarly, top six predominant families for plants used as vegetables and pot herbs are Fabaceae (5 species), followed by Brassicaceae (4 species), Solanaceae (3 species) and Asteraceae, Moraceae, Solanaceae (2 species each). On comparing upon the present data with earlier Indian works, it is indicated that usage of edible species like *Celtis australis*,

Rosa brunonii, *Senna tora* as fruit/flowers/pods; *Euphorbia royleana*, *Indigoferatinctoria* and *Pteridiumaquilinum* as vegetable and pot herb; *Eriobotrya japonica*, *Oxalis corniculata*, *Punicagranatum* and as pickles and chutney *Zanthoxylum armatum* in culinary and flavouring preparations are unique to the study area and have not been hitherto reported. Undeniably, the documented information extends the base of our food security system and also at the same time enhances our chance of survival in the events of any crisis like famine and war.

5. Conclusion

The traditional knowledge of edible plants held by the local populace in the study area is indeed valuable and worth preserving. This knowledge passed down from generation to generation, provides insights into the diverse range of plants that can be used for food, medicine, and other purposes. However, it is evident that this traditional knowledge is at risk of being lost due to the rapid changes brought about by modern lifestyles. Preserving traditional knowledge of edible plants is crucial for several reasons. Firstly, it contributes to the conservation of biodiversity as indigenous communities often possess extensive knowledge about local flora and fauna. Documenting this knowledge can aid in identifying and protecting plant species that may be at risk due to environmental changes or overexploitation.

In conclusion, documenting the traditional knowledge of edible plants held by local communities is essential for preserving biodiversity, cultural heritage, and advancing scientific understanding. By addressing the challenges through respectful collaboration and employing appropriate methods, this valuable knowledge can be safeguarded for the benefit of present and future generations.

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