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## Wild Edible Plant Resources of Tehsil Hiranagar, District Kathua, J &K, India

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### Abstract

The present study was carried out to document the wild edible plant resources of tehsil Hiranagar (J and K). This investigation was based on the extensive field survey and discussion with local inhabitants during the years 2018-19. A total 50 wild edible plants species belonging to 45 genera and 35 families have been reported from the area. Cucurbitaceae, was the dominant family that represented by 5 taxa and Moraceae and Rutaceae were represented with 3 taxa each, Leguminose, Myrtaceae, Papilionaceae and Combretaceae were represented with 2 taxa each whereas rest 28 families have only one taxa. Trees were found the highest source of food and represented by 25 species followed by herbs (14 species), climbers (7 species) shrubs (3 species). Based on their edibility 17 plants species are being commonly used as fruit, 14 serve as vegetables, 6 species are used to make pickle, 3 species acts as flavouring agents (spices), 3 species are used to make special seasonal drinks, 2 species are used to make flavouring chaat and 2 species are used to make sweet while other three are used to make chutney. The area is rich in wild edible plant diversity and being threatened by the over exploitation by the local inhabitants. Thus, there is an urgent to conserve and manage these plant resources in their natural habitats by awaring the local peoples by training programmes and other activities. Therefore, the findings of the present study will be helpful in managing and conserving these valuable plant resources in the area.

**Keywords:** Wild edible plants, traditional knowledge, diversity, habitat Jammu and Kashmir.

## Introduction

Wild edible plants are those plants which are wildly grown in their natural habitat and are used to eat. These plants are not cultivated and domesticated. Wild edible plants play an important role for the poor people and schedule tribe of the various natural habitat in the form of food availability, source of nutrition, vitamins, proteins and source of income too. Except edible purpose these plants are also acts as medicine for various diseases. The present status of these plants is not as such as compare to last few decades. The knowledge of use of wild edible plants is passed from one generation to another and because of this tradition there is fear that indigenous knowledge about these plants is slowly being lost. Older people have knowledge about the local vegetation, their use, their mode of utility and the plant part which is used. Today's generation lack knowledge about the local vegetation which flourish in their native habitat, for them they are non-functional to mankind. Documentation of such knowledge will lead to its conservation and facilitate future research on wild edible plants safety and efficacy to validate traditional use (Bunalema et al., 2014) as well as prevent the destructive changes in the knowledge of these plants during transmission between generations. The population of this region especially kandi and border area depends upon the locally available plant resources for fuelwood, food, fodder, fibre and timber. In the absence of modern food mandis, they have their own food resources by using various plants or plant products present in their vicinity. Wild edible plants contribute toward food security of poor people of the area and are important source of their earning.

## Material and Method

An ethno-botanical survey was carried out in different villages of the Hiranagar tehsil during 2018 - 19 for collection of information on wild edible plant species being used by the locals in the study area. Information about these plants was gathered by conducting interviews and group discussions with local inhabitants on the indigenous uses of plant species as food resources. The discussions were made with the local people in Dogri or Hindi language for their ease. To collect information we visit Sanyal, Suba Chack, Jandi, Dunga, Sherpur, Banachack, Panjgrai, Londi, Pathwal, Karyara, Kootah and many more area of tehsil Hiranagar (J&K) several time and collect the important information regarding the usage of various creepers, herbs, shrubs, and trees by the local people included local name of plant species, habit, plant part used and mode of use. Most of the information was obtained from the older people (having age more than 55 yrs) only and they are well aware with the parts of the plants which are to be eaten and recipe of preparing them.

## Study Area

Hiranagar is a town and tehsil headquarter in district Kathua of Jammu and Kashmir. It is located at  $32.45^{\circ}$  N  $75.27^{\circ}$  E. The average elevation of this tehsil is 308 metres (1010 feet) above mean sea level. It lies in the southern circle of the Jammu division and is bounded by the tehsil Billawar in the North East, Gaghwal in the West, Kathua in the East and Pakistan in the South. Hiranagar is named after Raja Hari Singh, the nephew of Maharaja Gulab Singh. It is one of the tehsil of J&K having various plant diversity with plain topography. The average annual temperature in Hiranagar is  $23.3^{\circ}$  C. The climate of tehsil Hiranagar is hot in summer and tolerably cold in winter. The days between May and June are extremely hot summer and the rainy season may reaches upto middle of September. July and August mostly contain the rainy days and Autumn spell in the area follows from september. In a year, the average rainfall is 1295 mm. The vegetation of the study area is sub-tropical type. The dominant species include *Dalbergia sisoo*, *Mangifera indica*, *Acacia nelotica*, *Lantana camara*, *Adathoda vasica*, *Ficus racemosa*, *Mallotus phillipinensis*, *Butea monosperma* etc.

Table 1 :- List of Ethnobotanically Wild Edible Plants of Tehsil Hiranagar, District Kathua, J&amp;K

S.No	Scientific Name	Local Name	Family	Habit	Plant Part Used	Edible Usage
1.	<i>Acacia modesta</i>	Falai	Mimosaceae	Tree	Gum	The gum is eaten after frying in oil. The fried gum is mixed with dry fruits to make 'Bast/Sund Paniri'.
2.	<i>Aegle marmelos</i>	Bil	Rutaceae	Tree	Fruit	The pulp of ripen fruit is use to make 'Sharbat'.
3.	<i>Adathoda vasica</i>	Brenkad	Acanthaceae	Herb	Nectar	Nectar is suck directly by the children.
4.	<i>Amaranthus viridis</i>	Chleri	Amaranthaceae	Herb	Leaves, Tender shoots	Leaves and tender shoots are cooked as vegetable.
5.	<i>Artocarpus lakoocha</i>	Teau	Moraceae	Tree	Fruit	The fruit is use to make pickle.
6.	<i>Azadirachta indica</i>	Neem	Meliaceae	Tree	Leaves	The sap is extracted from the leaves, mixed with water and drink during the season of Holi.
7.	<i>Bauhinia varigeata</i>	Kraal	Leguminose	Tree	Flower	Unopen flower (Pod) are used to make pickle. Flower are used to make raita after mixing with curd.
8.	<i>Benincasa hispida</i>	Petha	Cucurbitaceae	Climber	Fruit	The pulp is grated and mix with daal (grinded pulses) to make Badiya. The pulp is also boiled with sugar syrup to make sweet called 'Petha'.
9.	<i>Cannabis sativa</i>	Paang	Cannabinaceae	Herb	Leaves	The sap is extracted from the leaves mixed with milk, this drink is usually drink on the occasion of Maha Shivratri. The fritters (pakora) are made by its leaves are eaten on the same occasion.
10.	<i>Carica papaya</i>	Papita	Cariacaceae	Tree	Fruit	The fruit is edible after ripen.
11.	<i>Carissa spinarum</i>	Garne	Apocynaceae	Shrub	Fruit	The fruit is edible after ripen.

12.	<i>Cassia occidentalis</i>	Hedma	Papilionaceae	Herb	Leaves, Tender shoots	The leaves and young shoots are cooked as vegetable.
13.	<i>Centella asiatica</i>	Bhrami	Apiaceae	Herb	Leaves	The leaves are either edible raw or after crushed and mixed with sugar.
14.	<i>Chenopodium album</i>	Bathu / Kanna	Chenopodiaceae	Herb	Leaves, Tender Shoots	The young leaves and tender shoots are cooked as vegetable.
15.	<i>Citrus aurantiifolia</i>	Jamiri	Rutaceae	Tree	Fruit	The fruit is edible after ripen.
16.	<i>Citrus medica</i>	Kimb	Rutaceae	Tree	Fruit	The rind is seasoned with fresh coriander leaves, chillies and sesame is eaten in winter season.
17.	<i>Citrus pseudolimon</i>	Gargal	Rutaceae	Tree	Fruit	The fruit is used to make pickle.
18.	<i>Coccinia grandis</i>	Kandoori	Cucurbitaceae	Climber	Fruit	fruit is The cooked as vegetable.
19.	<i>Colocasia esculenta</i>	Kachaloo	Araceae	Herb	Tuber	The tubers are boiled, seasoned with spiced chutney or spices is edible as 'Chaat'. The tubers are cooked as vegetable.
20.	<i>Cordia dichotoma</i>	Lasooda	Boraginaceae	Tree	Fruit	The fruit is used to make pickle.
21.	<i>Dioscorea bulbifolia</i>	Trad	Dioscoriaceae	Climber	Tuber	The tubers are used to make pickle. The boiled tubers are cooked as vegetable.
22.	<i>Emblica officinalis</i>	Aamla	Euphorbiaceae	Tree	Fruit	The fruit is edible after ripen.
23.	<i>Ficus auriculanta</i>	Trimbal	Moraceae	Tree	Fruit	The fruit is edible after ripen.
24.	<i>Ficus palmate</i>	Phagwara	Moraceae	Tree	Fruit	The fruit is edible after ripen.
25.	<i>Ficus racemosa</i>	Rumbal	Moraceae	Tree	Fruit	The fruit is edible after ripen.
26.	<i>Flacourtia indica</i>	Kakoah	Salicaceae	Tree	Fruit	The fruit is edible after ripen.
27.	<i>Lathyrus aphaca</i>	Mithu saag	Leguminose	Herb	Leaves, Tender shoots	The leaves and tender shoots are cooked as vegetable.
28.	<i>Luffa acutangula</i>	Jangli kandoli	Cucurbitaceae	Climber	Fruit	The Fruit is cooked as vegetable.
29.	<i>Malva parviflora</i>	Sonchal	Malvaceae	Herb	Leaves, Tender shoots	The leaves and tender shoots are cooked as vegetable.

30.	<i>Mangifera indica</i>	Amb	Anacardiaceae	Tree	Fruit	The fruit is edible before or after ripen. The raw fruit is boiled in water which is to make ambal. The pulp of raw fruit is grinded with coriander, chilli, pudina and mixed with curd to make chutney locally known as 'Shasha'. The pulp of fruit is dried and then grind to make 'Amb Chur'. The unripe fruits locally known as 'Aunkadi / Maakadi' are used to make pickle.
31.	<i>Marsilia quardifolia</i>	Sun-suniya bhaji	Marsiliaceae	Fern	Leaves	The leaves cooked as vegetable.
32.	<i>Medicago polymorpha</i>	Sridi	Fabaceae	Herb	Leaves, Tender shoots	The leaves and young shoots are cooked as vegetable.
33.	<i>Mentha longifolia</i>	Jangli putna	Lamiaceae	Herb	Leaves	The fresh leaves are used to make chutney. It is also used toas food substitute as flavouring agent. The dried leaves is used to garnish the food like curd, raita.
34.	<i>Momordica dioica</i>	Kakodae	Cucurbitaceae	Climber	Fruit	The fruit is cooked as vegetable.
35.	<i>Moringa oleifera</i>	Soanjna	Moringaceae	Tree	Pod, Root	The roots are use to make pickle The pods are cooked as vegetable.
36.	<i>Morus alba</i>	Tut / Gulla	Moraceae	Tree	Fruit	The fruit is edible after ripen.
37.	<i>Murraya koenigii</i>	Dronkal	Rutaceae	Shrub	Leaves	The leaves are used as flavouring agent. It is acts as spices and use to make 'tadka'.
38.	<i>Nelumbo nucifera</i>	Nandroo	Nelumbonaceae	Herb	Stem	The stem is cooked as vegetable. The stem is used to make 'Yakhni' after cooking the stem in curd. The stem is also used to make pickle.

39.	<i>Opuntia elatior</i>	Trapad thor	Cactaceae	Herb	Fruit	The fruit is edible after ripen which is locally known as 'Ram Fal'
40.	<i>Oxalis corniculata</i>	Ammi khati	Oxalidaceae	Herb	Leaves	The leaves are used to made chutney or even eaten raw due to khatta meetha taste.
41.	<i>Psidium guajava</i>	Amrood	Myrtaceae	Tree	Fruit	The fruit is edible after ripen.
42.	<i>Punica granatum</i>	Darooni	Lythraceae	Tree	Fruit	The fruit is edible after ripen. The seeds are dried locally known as 'Anar Dana' is used to make chutney and as a flavouring agent in various food products.
43.	<i>Rosa acicularis</i>	Gulab	Rosaceae	Shrub	Petals	The petals are use to make 'Gulkand'.
44.	<i>Syzygium cumini</i>	Talle / Jamun	Myrtaceae	Tree	Fruit	The fruits are edible after ripen.
45.	<i>Tamarindus indica</i>	Imbli	Papilionaceae	Tree	Pod	The pulp is edible raw. The pulp is diluted with water and used to make sweet and sour chutney. The pulp is also used as flavouring agent in various food material like vegetable, daal etc.
46.	<i>Terminalia bellirica</i>	Bahera	Combretaceae	Tree	Fruit	Pulp of ripen fruit is edible.
47.	<i>Terminalia chebula</i>	Harad	Combretaceae	Tree	Fruit	The fruit is edible after ripen.
48.	<i>Telosma cordata</i>	Guaal mandae	Asclepiadaceae	Climber	Flower	The flowers are cooked as vegetable.
49.	<i>Trichosanthes dioica</i>	Ptole	Cucurbitaceae	Climber	Fruit	The fruit is edible after cooked.
50.	<i>Zizyphus vulgaris</i>	Ber	Rhamnaceae	Tree	Fruit	The fruits are edible after ripen.

**Result and Discussion**

A total of 50 plants from 35 families and 45 genera were used by the informants for the edible purposes. The most dominant families (Fig. 1) were Cucurbitaceae (5 genera and 4 species), Moraceae (3 genera and 5 species), Rutaceae (3 genera and 5 species), Leguminose, Myrtaceae, and Papilionaceae (2 genera and 2 species), Combretaceae (1 genera and 2 species) whereas rest other families have only one genera and one species each. Fruit (Fig. 2) were the most used (54%) plant part, followed by leaves (26%), tubers, flowers and pod (2% each) and others (2% each). The contribution of tree (Fig. 3) was the maximum (50%). Other important contributors were herbs (28%), climbers (14%), shrubs (6%) and fern (2%). The informants interviewed were between the age of 23 and 87 years. The knowledge about all these plants and their mode of usage was obtained from old age people. The inhabitants of the area were dependent on wild plants for food up to much extent in past decades but now it is declining day by day. The informants generally collect plants from the nearby locations, and sell them in the market as hawker as a source of income. The wild edible plants used in the present study were completely (100%) wild and collected from nearby forests or wastelands.

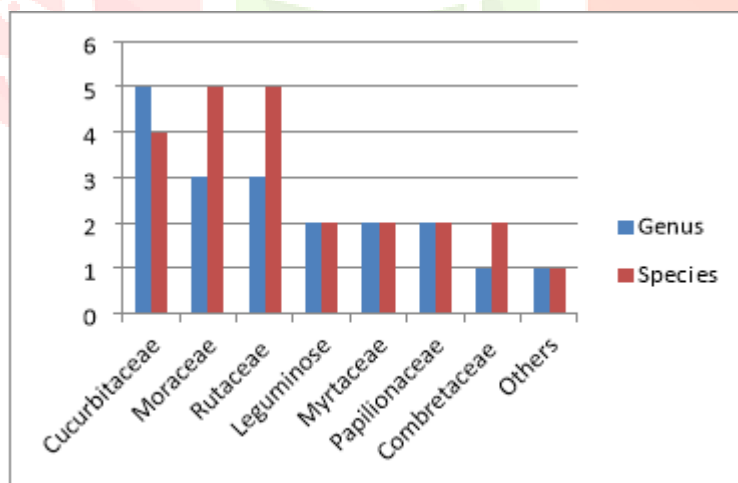
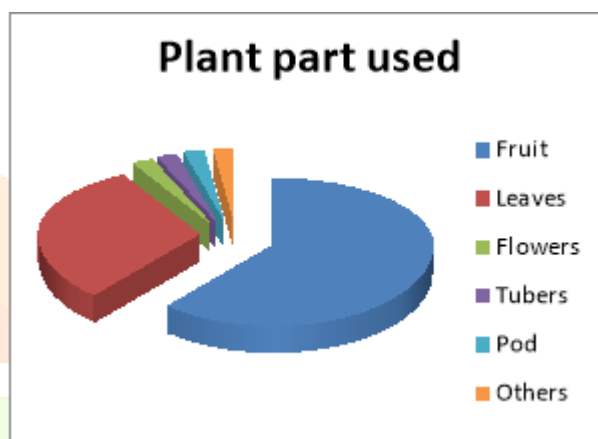
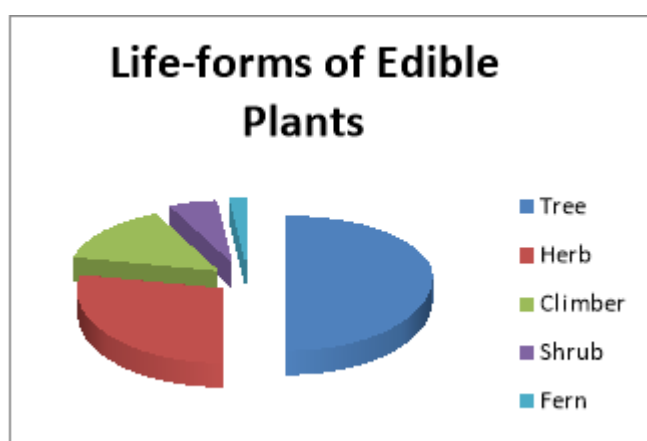


Fig . 2 Various life-forms of wild edible plants

Fig. 3 Contribution of plant parts use

*Amaranthus viridis**Artocarpus lakoocha**Bauhinia varigata*

## Conclusion

This research paper make us known that Hiranagar is rich in wild edible plants by which local people are using 50 plants from 35 families and 45 genera for the purposes of edible as well as income source. The knowledge of wild edible plants increased as the age increase in elder people but this knowledge is declining with the increase in modernisation. Thus, there is an urgent to conserve and manage these plant resources in their natural habitats by awaring the local peoples by training programmes and other activities.

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*Citrus pseudolimon**Coccinia grandis**Cordia dichotoma**Emblica officinalis**Ficus palmata**Lathyrus aphaca**Malva parviflora**Telosma cordata**Trichosanthes dioica*

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