

Diversity, Distribution and Indigenous uses of Wild edibles from Naina Devi Wildlife Sanctuary of District Bilaspur, Himachal Pradesh.

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ABSTRACT: The present study deals with the identification, documentation and indigenous uses of wild edible plants from Naina Devi Wildlife Sanctuary, district Bilaspur, Himachal Pradesh. The people are largely dependent on these wild edible plants. The wild edibles are consumed as raw, roasted, boiled, fried cooked or in form of spices and seasonal material i.e. jams and pickles. The local people have rich knowledge based on indigenous uses and traditional practices, but require proper documentation for their long time conservation. Total of 40 wild edible plants, representing 35 genera and 25 families were recorded. Of these, 17 species were represented by trees, 10 by herbs, 7 by shrubs, 5 by climbers and 1 grass. Various parts namely, whole plant, stem, rhizome, tuber, bark, aerial part, leaves, flowers, fruits seeds, roots etc. were used by local people in various forms. plants were surveyed. Wild edible plants are nature's gift to mankind which are not only the delicious but also the chief source of vitamins, minerals and proteins. The wild edible plants are the normal food of cattle grazers and local inhabitants.

KEYWORDS: Wild Edible, Diversity, Inhabitants, Indigenous.

I. INTRODUCTION

Indian Himalayan Region is one of the youngest mountains and identified biodiversity hotspot of the world (Nyaupane et al., 2014). It is the major repository of wild edible plant species. Out of 1532 wild edible plant species reported in India, over 65 species are known from Indian Himalayan Region (Pal et al., 2014). The state of Himachal Pradesh is located in Western Himalayan Region and forest cover of about 26.4% is endowed with rich biodiversity (Kumar, 2019). The state is

famous for cultivation of temperate fruits. Besides cultivated fruits, the practice of harvesting and consuming the seasonal wild fruits and vegetable is also common among rural peoples. Various studies have been carried out on ethnobotanical and ethnomedicinal uses of floristic diversity in Himachal Pradesh, but few attentions have been given towards wild edible plants. Literature survey reveals that there are few studies on wild edible plants of Himachal Pradesh (Bhardwaj and Seth, 2017). The main aim of the present study was to collect data regarding traditional knowledge, diversity and utilization pattern of wild edible plants from local inhabitants of Naina Devi Wildlife Sanctuary district Bilaspur.

Wild fruits reduces the risk of diseases and it has been found that the tribes who still having the traditional food habits, are found to be healthy and free from diseases (Madhukar et al., 2013). Wild edible plants plays an important role in boosting immunity to combat COVID-19 (Sen, 2021). Traditional indigenous communities conserve domestic and wild species through sustainable use, which ensure food security, improved livelihoods and incomes (Kumar, 2019).

II. MATERIALS AND METHODS


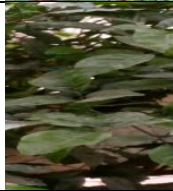



Study Area: District Bilaspur lies between 31° 12' 30" and 31° 35' 45" N latitude and between 76° 23' 45" and 76° 55' 40" E longitude with an altitude ranging from 300 - 1930 meter in Shivalik hills of the Himalayas in the basin of river Satluj. The district is one of the treasure houses of biodiversity due to its varied geographical, altitudinal, edaphic and climatic features. According to the classification of Champion and Seth, Bilaspur district have three types of forest namely, Northern Tropical Dry Deciduous Forests, Himalayan Sub-

Tropical Pine Forest, and Lower Western Himalayan Temperate Forests (Champion and Seth,1968).The 93% population of the district resides in rural areas, with agriculture, animal husbandry as their major occupation.

The indigenous knowledge of Bilaspur district has been documented by some workers during last few years, but for complete exploration still comprehensive efforts are required (Gautam and Bhatia,2011).To collect information on wild edible plant species and uses, the surveys had been carried in adjoining villages of Naina Devi Wildlife Sanctuary district Bilaspur, (H.P.) during 2021-2022. Information was recorded through

questionnaires, interviews and discussion among villagers. The informants included were men, women, youths and elders between the ages of 25 and 75 years and most of them were farmers and depend on agriculture for their livelihood. Information on botanical, local name, plant parts used, habit and mode of use were gathered. Fresh samples of the wild edible species were collected, photographed and identified with the help of local and regional floras, books and previous works (Kumar, 2017). The data on wild edible plant species including family, local name, habit, and mode of utilization is presented in Table 1.



Table 1. List of wild edible plants of Naina Devi Wildlife Sanctuary District Bilaspur Himachal Pradesh





S.N	Botanical name	Photographs	Family	Common name	Part used	Habit	Mode of Utilization
1.	<i>Acacia catchu</i> (L.f.) Willd.		Fabaceae	Khair	Bark	Tree	Inner bark is boiled to extract the resin and it is rolled in to balls and mixed with betal nuts and lime and chewed.
2.	<i>Aeglemarmelos</i> L.		Rutaceae	Bilpatri	Fruits	Tree	Fruit pulp is used to prepare murabba,puddings and juice.
3.	<i>Amaranthusviridis</i> L.		Amaranthaceae	Chaulayee	Leaves	Herb	Leaves are used to prepare saag or bhuju.
4.	<i>Asparagus adscendens</i> Roxb.		Asparagaceae	Sansarpali	Stem	Shrub	Young shoots are used to prepare sabji.
5.	<i>Bambusavulgaris</i> Schrad.ex J.C. Wendl.		Poaceae	Bans	Leaves	Grass	Young shoots are used to prepare sabji

s6.	<i>Bauhinia variegata</i> (L.) Benth.		Fabaceae	Kachnar	Flowers	Tree	Flowers are mixed with wheat flour to make prantha and flower buds are boiled ,squeezed and fried to make sabji.
7.	<i>Berberis vulgaris</i> L.		Berberidaceae	Kashmale	Fruits	Shrub	Ripe fruits are eaten.
8.	<i>Bombaxceiba</i> L.		Malvaceae	Simbal	Flowers	Tree	Flower buds are used to make vegetable.
9.	<i>Cassia fistula</i> L.		Fabaceae	Tahli	Fruits	Tree	Unripe pods are used to make vegetable.
10.	<i>Cassia tora</i> L.		Fabaceae	Alown	Seeds	Herb	Seeds are added in pickles.
11.	<i>Carissa spinarum</i> L.		Apocynaceae	Kharnu	Fruits	Shrub	Ripe fruits are eaten.
12.	<i>Cinnamomum maia</i> (Buch-Ham.)Nees&Eberrm		Lauraceae	Tejpatta	Leaves	Tree	Dried leaves are used as spices.
13.	<i>Dioscoreabilbi fera</i> L.		Dioscoreaceae	Tardi	Tubers	Climber	Tubers are fried to make vegetable.

14.	<i>Dioscoreadeltoidea</i> Wall. ex Griseb.		Dioscoreaceae	Singli-mingli	Tubers	Climber	Tubers are used to make vegetable.
15.	<i>Drymaria cordata</i> (L.)		Caryophyllaceae	Padyala	Leaves	Herb	Young leaves are used to make saag.
16.	<i>Diplocyclosipalmatus</i> (L.) C. Jeffrey		Cucurbitaceae	Sivalingi	Fruits	Climber	Unripe fruits are used to make vegetable.
17.	<i>Ficus benghalensis</i> L.		Moraceae	Bargad	Leaves	Tree	Ripe fruits are eaten.
18.	<i>Ficus carica</i> L.		Moraceae	Fegri	Fruits	Tree	Ripe fruits are edible.
19.	<i>Ficus auriculata</i> Lour.		Moraceae	Tryambal	Fruits	Tree	Ripe fruits are edible and Unripe fruits are boiled and delicious amla is prepared.
20.	<i>Fragaria indica</i> Jacks.		Rosaceae	Jungli strawberry	Fruits	Herb	Ripe fruits are edible.
21.	<i>Grewia optiva</i> J.R. Drumm. ex Burret.		Tiliaceae	Beul	Fruits	Tree	Ripe fruits are edible.

22.	<i>Morusnigra</i> L.		Moraceae	Kala chimbu	Leaves	Tree	Young leaves are used to prepare pakora.
23.	<i>Marsileaquadri folia</i> L.		Masileaceae	Chaarpatiyani	Leaves	Herb	Leaves are used to prepare saag.
24.	<i>Musa balbisiana</i> Colla		Musaceae	Junglikela	Fruits	Tree	Ripe fruits are eaten and unripe fruits are used to prepare chips and sabji.
25.	<i>Oxalis corniculata</i> L.		Oxalidaceae	Khatmalori	Leaves	Herb	Leaves are used to make chutney.
26.	<i>Oxalis latifolia</i> L.		Oxalidaceae	Maloragha	Leaves	Herb	Leaves are used to make sabji.
27.	<i>Phyllanthusemblica</i> L.		Euphorbiaceae	Ambla	Fruits	Tree	Fruits are used to make pickle, jam and juice.
28.	<i>Punicagranatm</i> L.		Lythraceae	Anardana	Seeds	Shrub	Seeds are edible and used to prepare chutney with pudina.
29.	<i>Phoenix sylvestris</i> (L.) Roxb.		Areaceae	Junglikhajoor	Fruits	Shrub	Ripe fruits are eaten.

30.	<i>Prunuspersica</i> (L.)Batsch.		Rosaceae	Aru	Fruits	Tree	Ripe fruits re edible.
31.	<i>Pyruspashia</i> Bu ch.Ham. ex. Don.		Rosaceae	Shegal	Fruits	Tree	Ripe fruits are eaten.
32.	<i>Pyruspyrifolia</i> (Burm.f.)		Rosaceae	Nashpati	Fruits	Tree	Ripe fruits are eaten.
33.	<i>Physalis</i> <i>minima</i> L.		Solanaceae	Ground cherry	Fruits	Herb	Ripe fruits are eaten.
34.	<i>Rubusellipticus</i> Smith.		Rosaceae	Akhe	Fruits	Shrub	Ripe fruits are eaten.
35.	<i>Rumexhastatus</i> D. don		Poligenaceae	Ambi	Leaves	Herb	Leaves are used to make chutney.
36.	<i>Rosa</i> <i>brunonii</i> Lindl		Rosaceae	Kuja	Flowers	Climber	Flowers are used to make squash.

37.	<i>Sidarhombifolia</i> L.		Malvaceae	Dride	Seeds	Herb	Seeds are added in panjiri.
38.	<i>Tinosporacordifolia</i> (Willd.) Miens.		Menispermaceae	Gulje	Stem	Climber	Shoots are used to prepare tea.
39.	<i>Terminaliacatapa</i> L.		Combretaceae	JungliBadam	Seeds	Tree	Seeds are edible.
40.	<i>Ziziphusmauritiana</i> Lam.		Rhamnaceae	Brari	Fruits	Shrub	Ripe fruits are eaten.

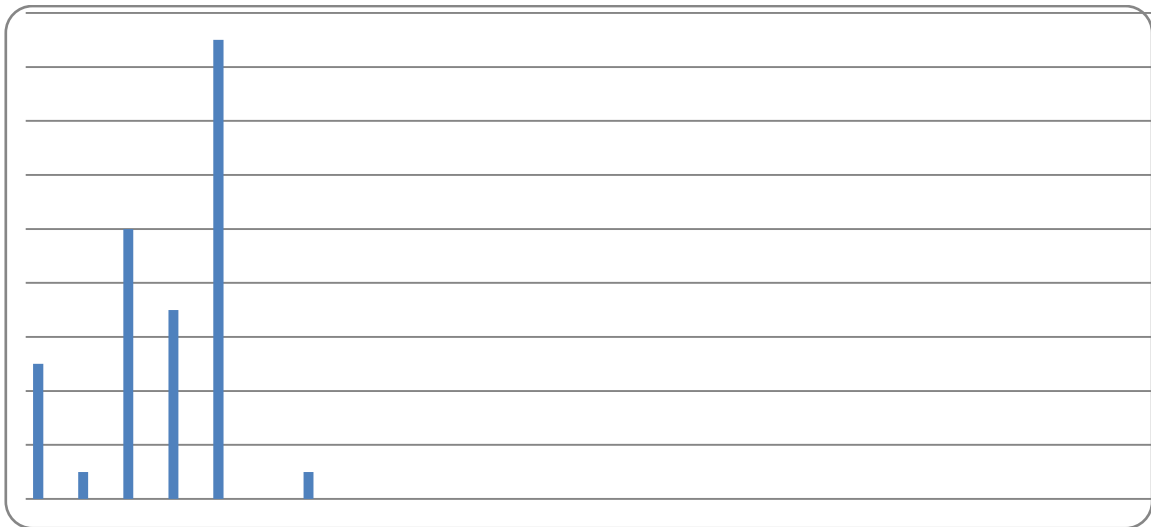
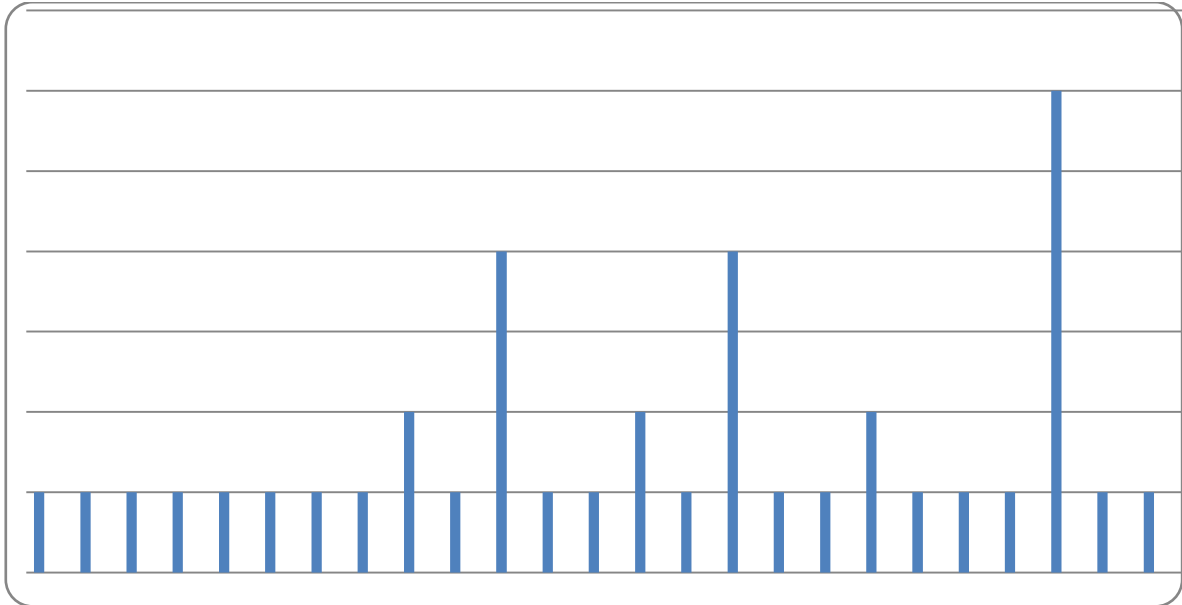
III. RESULTS AND DISCUSSION

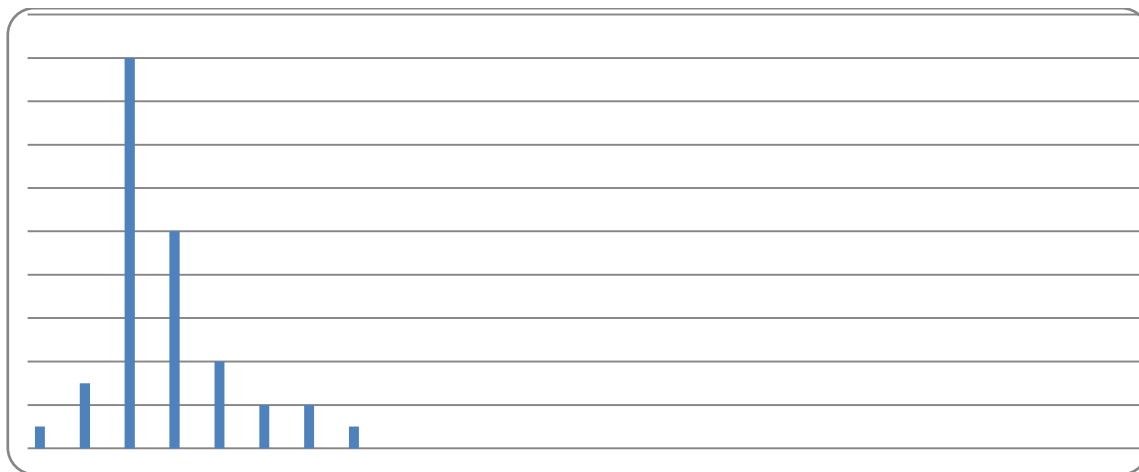
A total of 40 species of wild edible plants belonging to 35 genera and 25 families were recorded. Representation of families was as Rosaceae (6 species), Moraceae and Fabaceae (4 species each), Malvaceae, Oxilaceae, and Dioscoreaceae (2 species each), Amaranthaceae, Apocynaceae, Arecaceae, Aspargaceae, Berberidaceae, Caryophyllaceae, Cucurbitaceae, Combretaceae, Lythraceae, Lauraceae, Malvaceae, Marsilieaceae, Menispermaceae, Musaceae, Poligenaceae, Rutaceae, Rhamnaceae, Solanaceae and Tiliaceae (1 species each) in figure 1. According to habit 17 species were trees, 10 herbs, 7 shrubs, 5 climbers and 1 grass (Figure 2).

Among the plant parts, fruits of 18 species, leaves of 10 species, seeds of 4 species, flowers of 3 species, stem and tubers (2 species each) and bark of one species were consumed by local inhabitants of the study area (figure 3).

According to mode of utilization maximum wild edible plants eaten raw, assaag or bhuj, tea, sharvat, chutney, pakora, jam, pickle and as special dishes such as panjiri. The rural people collected these food resources during their visit to forest for fuel wood, fodder and grazing their livestock.

In the present study, it is observed that traditional knowledge of wild edible plants is present only with elder people while younger generations are ignorant of their tradition.





IV. CONCLUSION

The present study provides information on 40 wild edible plant species and their indigenous uses by rural people of adjoining villages of Naina Devi Wildlife Sanctuary district Bilaspur. Results shows that the area has high diversity of wild edible plant species and rich tradition of their use. Wild edible plants play important role in the nutrition of rural people as they are the excellent sources of carbohydrates, proteins, fibers, vitamins and minerals. The indigenous uses and availability of wild edible plants is reducing gradually due to socio-cultural transformations. Therefore, there is need to develop adequate strategy and action plan for the conservation and management of wild edible plants, so that sustainable utilization of these species could be ensured.

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