

Some Important Supplementary Food Plants and Wild Edible Fungi of Upper Hilly Region of District Shimla (Himachal Pradesh), India

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Abstract

An ethnobotanical survey of upper hilly region of Shimla was carried out in 2008 to enumerate some of the important plants used as supplementary food among the people of this area. Presence of twenty four plant species belonging to 20 genera and 14 families was documented under the present study along with 11 macrofungi belonging to 6 genera and 6 families. Generally fruits (51 %) and leaves (33%) of these plants were found to be used as supplementary food. Use of seeds, buds, stem and petiole of few plants was also observed. All the important plants and macrofungi used as supplementary food by the people of the locality are grouped on the basis of their mode of use.

Key words: Supplementary Food plants, mode of use, Shimla district.

Introduction

Himachal Pradesh, a state with diverse culture and tradition is located between 30⁰ 22' 40" north latitudes and 75⁰ 45' 55" to 79⁰ 04' 20" east longitude. The total area of the state is 55673 km² with mountains ranging from 350 to 6,975 meter and average rain fall 152 cm. A total of 13,082 Km² area is under thick forest cover which shelters 1200 species of birds, 359 species of animals and more than 3,400 plant species (Mishra, 2003). Major forest types are mixed coniferous, moist temperate deciduous, Himalayan alpine and rhododendron scrub forest. The state is divided into twelve districts, each having its own treasure of culture and traditions with number of communities, races and cultures intermingled together. Shimla is geographically divided in to upper and lower hilly regions. Upper hilly region of Shimla district is floristically undisturbed area, characterized by high mountains and heavy snow fall. Different parts of plants such as: fruits, leaves, seeds, buds, stem, petiole of large number of plant species are consumed by the people of the region as a supplementary food in their diet and knowledge regarding these plants is passed from one generation to another. However large variation is observed regarding ethnic uses of plants among people of Himachal Pradesh (Sharma and Rana, 2000; Kala and Manjrekar, 2000; Sihgh, 2000, 2004; Prasad *et al.* 2002; Badola *et al.* 2002; Uniyal *et al.* 2006; Bhalla *et al.* 2006). This is mainly due to variation in agro climatic surroundings, socio-culture ethos and beliefs. Therefore, the

present study is concerned with the documentation of the indigenous knowledge of people of the area regarding uses of wildy growing plants and macrofungi as supplementary food in their diet.

Methodology

The useful information's regarding uses of different parts of plant species as supplementary food, were collected through interviews and discussions with the residents of upper hilly region of district Shimla during the year 2008. Supplementary food plants of these areas were grouped on the basis of their mode of use, followed by local name, family and part used (Table-1).

Result and Discussion

A total of 24 plant species and 11 edible macrofungi were documented during survey, which are used as supplementary food by the peoples of this region. Out of 24 plant species two were cultivated whereas 22 plant species were wild. Occurrence of maximum angiosperms (21) belonging to 12 families; 2 gymnosperms and only one plant species of pteridophytes were noted during the study. These 24 plant species were represented by 14 families. Maximum plant species were recorded from family rosaceae (7). Presence of 2 plant species belonging to each of the following families i.e. utricaceae, moraceae and berberidaceae was also recorded, while family amaryllidaceae, chenopodiaceae, cucurbitaceae, elaeagnaceae, polygonaceae, cruciferae, araceae and phytolaccaceae were represented by only one plant species each. From family pinaceae (gymnosperm) 2 plant species and from dryopteridaceae (Pteridophyte) only one plant species was recorded.

After interviewing and discussing with the residents and elderly people of this area it was observed that maximum number of (14) plants are used in raw form where as remaining 10 plant species are being used in cooked or processed form. *Colocasia esculenta* (L.) Schott. and *Cucurbita pepo* Linn. are cultivated plant species, people make use of petiole of *Colocasia* and buds of *Cucurbita* for the preparation of vegetable and rest of the 22 plant species are wild which mainly grow around open areas of the villages and vicinity of village forests. All the plant species are seasonal which mainly grow and flourish during months of March to October except species of *Pinus* which are perennial.

Generally fruits of the plants are used as supplementary food. Data indicates that fruits of the 51 % plant species, leaves of 33% plant species, seeds of 8% plant species and buds , stem and petiole of 4% plant species, are used as supplementary food (Table1 & fig.1). Leaves of *Alium humile* Kunth., *Chenopodium album* Linn., *Fagopyrum tataricum* (L.) Garten., *Girardiana hererophylla* Decne., *Nasturtium officinale* R., *Phytolaca acinosa* Roxb., *Utrica dioca* Linn.; seeds of *Pinus longifolia* Roxb. Sans., *Pinus wallichiana* A.B. Jacks.; buds of *Cucurbita pepo* Linn.; stem of *Diplazium esculentum* Retz. and petiole of *Colocasia esculenta* (L.) Schott. are commonly used as supplementary food.

It is interesting to note that the people also make use of some wild macrofungi as supplementary

food. In present study total 11 edible macrofungal species belonging to six genera and six different families were recorded. Out of 11 macrofungal species fructifications of 8 species, i.e., *Helvella compressa* (Synder) N.S. Weber, *Lactarius deliciosus* (L. ex Fr.) S.F. Gray, *Lycoperdon sp.* Pers., *Morchella conica* Pers. ex. Fr., *Morchella deliciosa* Fries., *Ramaria botrytoides* (Pers:Fr.) Ricken, *Morchella semilebra* DC., *Morchella esculenta* (L.) Pers., are used in processed form whereas 3 species: *Rhizopogon rubescens* (Tal. & C. Tal.), *Rhizopogon luteolus* Fr., *Rhizopogon vulgaris* (Vittad.) M. Lange., are used in raw form. *Lactarius deliciosus* (L. ex Fr.) S.F. Gray., and species of *Morchella* and *Rhizopogon* are the most extensively used macrofungi. Among macrofungi, species of *Helvella*, *Lactarius*, *Lycoperdon* and *Ramaria* grows during rainy season, whereas species of *Morchella* and *Rhizopogon* grow during the month of March and April. People collect these macrofungi from the forest area and apple orchards. This shows the vast knowledge of people of the area regarding use of wild plant species and macrofungi as food.

During this survey it was found that some plants like *Diplazium esculentum* Retz. a pteridophyte, locally known as 'lingara' which is used for the preparation of delicious vegetable and pickle is facing threats due to improper collection and over exploitation, which need immediate attention towards its conservation. Some shrubs like *Berberis lyceum* Royle, *Berberis aristata* DC., *Rosa moschata* Mill., *Rosa canina* Linn. and species of *Rubus* are diminishing from the area due to deforestation and clearing of the lands for the plantation of the apple trees.

Conclusion

The present investigation indicates the significance of wild plants as supplementary food and these supplementary food plants may play an important role in future for insuring food security of people. Therefore, more attention should be paid towards the conservation of these wildy growing plants to cater the need of nutritional requirements of the future generation.

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Observations

Table 1. Supplementary food plants and wild edible macrofungi used by the people of upper hilly region of district Shimla.

Sr. No.	Botanical Name	Local Name	Family	Part Used	Mode of use
ANGIOSPERMS					
1.	<i>Berberis aristata</i> DC.	Kashmol	Berberidaceae	Fruits	Ripened fruits are eaten in raw form

2.	<i>Berberis lyceum</i> Royle	kashmol	Berberidaceae	Fruits	Ripened fruits are eaten in raw form
3.	<i>Elaeagnus umbellate</i> Thunb.	Ghayin	Elaeagnaceae	Fruits	Ripened fruits are eaten in raw form
4.	<i>Ficus palmata</i> Forss.	Feru	Moraceae	Fruits	Ripened fruits are eaten in raw form
5.	<i>Fragaria vesca</i> Linn.	Bhumle	Rosaceae	Fruits	Ripened fruits are eaten in raw form
6.	<i>Morus himaliana</i> Linn.	Kimu	Moraceae	Fruits	Ripened fruits are eaten in raw form
7.	<i>Pyrus pashia</i> Ham.	Shegul	Rosaceae	Fruits	Ripened fruits are eaten in raw form
8.	<i>Pyrus pyrifolia</i> Burm,	Beas	Rosaceae	Fruits	Ripened fruits are eaten in raw form
9.	<i>Rosa canina</i> Linn.	Kujin	Rosaceae	Fruits	Ripened fruits are eaten in raw form
10.	<i>Rosa moschata</i> Mill.	Kujin	Rosaceae	Fruits	Ripened fruits are eaten in raw form
11.	<i>Rubus niveus</i> Wall.	Kayalkha	Rosaceae	Fruits	Ripened fruits are eaten in raw form/Juice of fruits
12.	<i>Spiraea canescens</i> Don.	Chakuli	Rosaceae	Fruits	Ripened fruits are eaten in raw form
13.	<i>Alium humile</i> Kunth.	Duna	Amaryllidaceae	Leaves	Leaves are used for fragrances in food
14.	<i>Chenopodium album</i> Linn.	Bathu	Chenopodiaceae	Leaves	Leaves are used for the preparation of green vegetable.
15.	<i>Fagopyrum tataricum</i> (L.)Garten.	Phapata	Polygonaceae	Leaves	Salted paste of leave is used as chatani.
16.	<i>Girardiana hererophylla</i> Decne	karli	Utricaceae	Leaves	Leaves are used for the preparation of green vegetable.
17.	<i>Nasturtium officinale</i> R.	Chala	Cruciferae	Leaves	Leaves are used for the preparation of green vegetable.
18.	<i>Phytolaca acinosa</i> Roxb. *	Jalga	Phytolaccaceae	Young leaves	Very young leaves are used for the preparation of green vegetable.

19.	<i>Utrica dioica</i> Linn.	Kimshi	Utricaceae	Leaves	Leaves are used for the preparation of green vegetable.
20.	<i>Colocasia esculenta</i> (L.) Schott	Silly aalu/Gaaguli	Araceae	Petiole	Petiole is cooked with curd
21.	<i>Cucurbita pepo</i> Linn.	Petha	Cucurbitaceae	Buds	Buds are used for the preparation of green vegetable.
GYMNOSPERMS					
1.	<i>Pinus longifolia</i> Roxb. Sans	Cheeltu	Pinaceae	Seeds	Seeds are eaten in raw form.
2.	<i>Pinus wallichiana</i> A.B. Jacks	Cheeltu	Pinaceae	Seeds / sweet Resin	Seeds/ sweet latex secreted during October and November are eaten in raw form.
PTERIDOPHYTES					
1.	<i>Diplazium esculentum</i> Retz. #	Lingra	Dryopteridaceae	Stem/Leaves	Stem and leaves of very young plant is cooked and then fried/ used for the preparation of pickle.
FUNGI					
1.	<i>Helvella compressa</i> (Synder) N.S. Weber	Kanchantu	Helvellaceae	Fructification	Delicate slimy fructification is boiled in water then fried.
2.	<i>Lactarius deliciosus</i> (L. ex Fr.) S.F. Gray	Chhatri	Russulaceae	Fructification	Fructification is boiled/cooked in water and then fried in oil with onion.
3.	<i>Lycoperdon sp.</i> Pers.	Buthu	Lycoperdaceae -	Fructification	Fleshy puff balls are boiled/cooked in water and then fried in oil.
4.	<i>Morchella conica</i> Pers. ex. Fr.	Guchhi	Morchellaceae	Fructification	Fructification is boiled/cooked in water and then fried in oil with onion. To prepare very delicious dish
5.	<i>Morchella deliciosa</i> Fries.	Guchhi	Morchellaceae	Fructification	Fructification is boiled/cooked in water and then fried in oil with onion. To prepare very delicious dish
6.	<i>Morchella esculenta</i> (L.) Pers.	Guchhi	Morchellaceae	Fructification	Fructification is boiled/cooked in water and then fried in oil with onion. To prepare very delicious dish
7.	<i>Morchella semilebra</i> DC.	Guchhi	Morchellaceae	Fructification	Fructification is boiled/cooked in water and then fried in oil with onion. To prepare very delicious dish

8.	<i>Ramaria botrytoides</i> (Pers:Fr.) Ricken	Shuntu	Gomphaceae -	Fructification	Brooms like appendages are cooked/boiled in water and then fried in oil with onion.
9.	<i>Rhizopogon vulgaris</i> (Vittad.) M. Lange.	Zhanda	Rhizopogonaceae -	Fructification	Tough rounded mycelial mass is eaten in raw form.
10.	<i>Rhizopogon luteolus</i> Fr.	Zhanda	Rhizopogonaceae -	Fructification	Tough rounded mycelial mass is eaten in raw form.
11.	<i>Rhizopogon rubescens</i> (Tal. & C. Tal.)	Zhanda	Rhizopogonaceae -	Fructification	Tough rounded mycelial mass is eaten in raw form.

* Old leaves of *Phytolacca acinosa* are very poisonous, only very young leaves are used as vegetable.

Whole above ground plant part is used for the preparation of vegetable due to which it is facing threats.

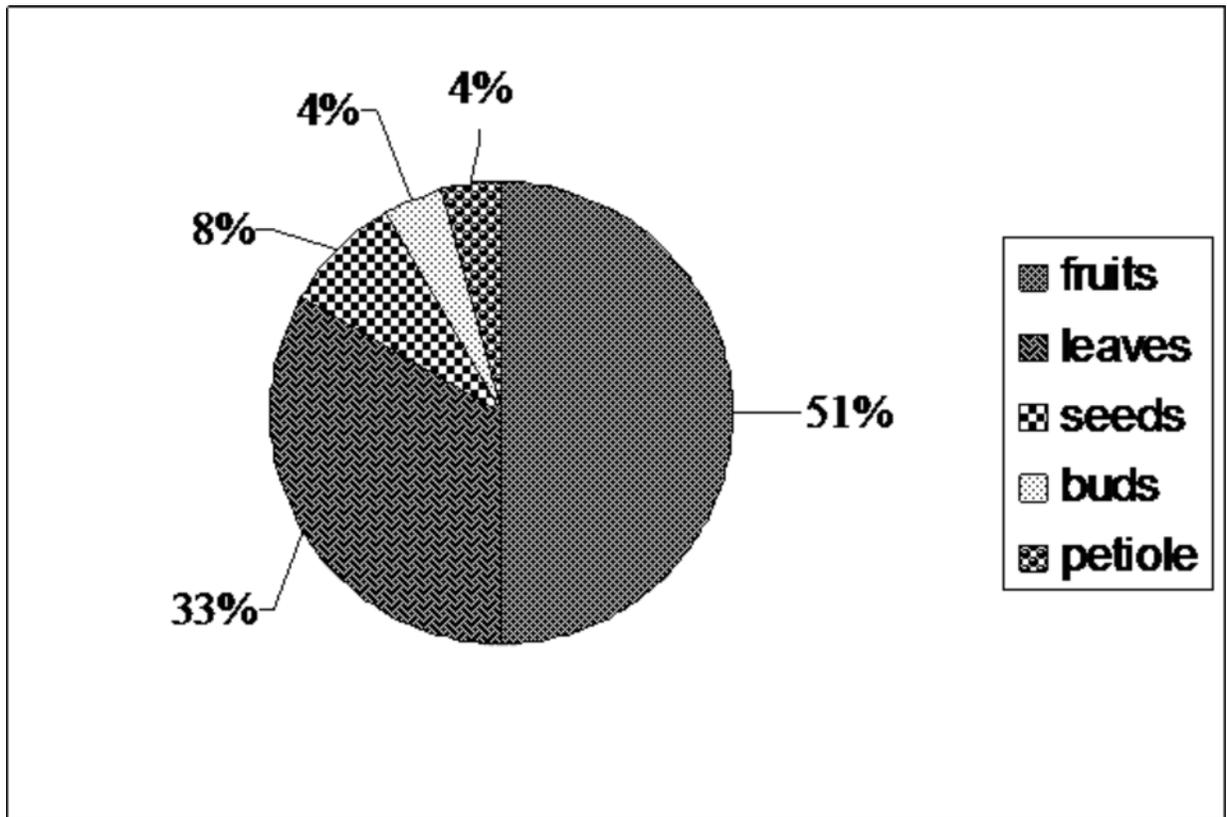


Figure 1. Statistics of plant parts used.

References

- Badola, H. K. and Pal, M. 2002. Endangered medicinal plant species in Himachal Pradesh, *Current Science* 83 (7): 797-798.
- Bhalla, S. and Bhalla, T.C. 2006. Traditional food and beverages of Himachal Pradesh, *Indian J. Traditional knowledge* 6(1): 17-24.
- Kala, C. P. and Manjrekar, N. 2000. Ethnomedicobotanical study of Indian Trans-Himalaya: A case study from Spiti. In Maheshwari, J. K. (ed.), *Ethnobotany and Medicinal Plants of Indian Subcontinent*, pp.177-183. Scientific Publisher, Jodhpur
- Mishra, M. K. and Gokhale, S.S 2003. Base Line Information on Medicinal Plants Conservation and sustainable Utilization (Himachal Pradesh). A project sponsored by UNDP/GEF, MoEF, Government of India.
- Prasad, P., Chauhan, K., Kandari, L.S., Maikhuri, R.K., Purohit, A., Bhatt, R.P. and Rao, K.S. 2002. *Morchella esculenta* (Guchhi): Need for scientific intervention for its cultivation in central Himalaya, *Current Science* 82 (9): 1098-1100.
- Sharma, B.D. and Rana, J.C. 2000. Traditional medicinal uses of plants of Himachal Hills. In Maheshwari, J. K. (ed.), *Ethnobotany and Medicinal Plants of Indian Subcontinent*, pp.173-176. Scientific Publisher, Jodhpur.
- Singh, G. S. 2004. Indigenous Knowledge and Conservation Practices in Tribal Society of Western Himalaya: A case study of Sangala valley, *Stud. Tribes Tribals* 2(1): 29-35.
- Singh, G. S. 2000. Ethnobotanical study of useful plants of kullu district in north western Himalaya, India. In Maheshwari, J. K. (ed.), *Ethnobotany and Medicinal Plants of Indian Subcontinent*, pp. 185-198. Scientific Publisher, Jodhpur.
- Uniyal, S. K., Singh, K. N., Jamwal, P. and Lal, B. 2006. Traditional use of medicinal plants among the tribal communities of Chhota Bhangal, Western Himalaya, *J. Ethnobiol. & Ethnomed.* 2(14): 1-8.