

DIVERSITY OF WILD EDIBLE PLANTS AND FLOWERING PHENOLOGY OF DISTRICT POONCH (J&K) IN THE NORTHWEST HIMALAYA

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ABSTRACT

The food habit of people has developed on the basis of experience and survival through successive generation. Although humans know that certain nuts, fruits, berries, leaves, roots, grains, mushrooms etc. could cause many ailments and even death but by experience they become thoroughly acquainted with the methods of excluding the harmful floristic elements growing in the wild. This process still continues in inaccessible and hilly terrains and particularly during the hostile climatic conditions, it has resulted in the evolution of dietary food habits of people in such terrains. Consequently the wild biodiversity still provides sustenance. In view of the population in general and remote, hilly and inaccessible terrain in particular, wild edible plants of the District Poonch have been surveyed. Extensive field survey has brought to light that more than ninety plant species are used as edible. The paper discusses various categories of wild edible plants used by local inhabitants in different climatic regions of area.

KEYWORDS: Wild edible plants, Northwest Himalaya, Conservation

Himalayas are known to provide life support system to human beings, particularly due to the fact that on account of remoteness and inaccessible terrain, the local populace has largely depended on local plants. Ethno botanical assessment of this region has been made by several workers (Clarke,1880; Hope,1899-1904; Steward, 1945,51,1957 and 72; Bir, 1964; Javeid,1965; Bir and Trikha, 1976; Bir *et al.*,1979-1980; Kapoor,1985; Khullar, 1984-1988 and 1994; Kaul, *et al.*, 1985,1986,1989, 1990; Gurung, 1988; Khullar, *et al.*,1988; Kapur,1989; Sharma and Singh,1989; Amatya,1996; Kiran, *et al.*,1999; Kiran, 2000; Kiran and Kapahi,2001b; Beigh, *et al.*,2004; Borthakur, *et al.*,2004; Gupta, *et al.*, 2004; Kant and Dutt,2004)

Himalaya is known as an abode of wild edible plants. Climatic and topographic diversity of the District Poonch provides a variety of habitats for the luxuriant growth of potential medicinal plant species. Many of these are used by locals in remote and inaccessible areas. This has necessitated the assessment of the wild edible plants species of District Poonch.

STUDY AREA

The prominent physiographic feature of the area is rugged, snow covered mountain ranges, cut into precipitous ridges and defiles. Poonch area is spread over 1674 Km² located between latitude 33^o 25' N to 34^o 01' N and longitude 73^o 58' E to 74^o 35' E forming a part of the Northwest Himalaya in Jammu and Kashmir state of India. Altitudinal gradient of the catchment varies from 600m at Balnoi to 4300m at Pir Panjal Peak. The climate varies from sub-tropical to temperate

and extremely cold at higher attitudes. Depending upon the altitude, summer temperature varies from 18^o-40^oC and winter temperature oscillates between 1^o-15^oC.

MATERIALS AND METHODS

Exploration of the study area was made fortnightly, during 2010-2013. Plant identification was done from floras and subsequently confirmed from B.S.1. Northern circle, Dehradun. Wild edible information was obtained by interacting with the local populace during exploration trips and also from published literature on the plants inhabiting the study area.

RESULTS AND DISCUSSION

Extensive field survey has brought to light 97 plant species which are used by local populace.

Altitudinal distribution of the Sewa flora has revealed that 41 plant species exclusively inhabit areas below 1500m, 33 species between 1500-2500 m, 17 species between 2500-3500 m and 6 species grow in areas above 3500 m, indicating that maximum plant species are distributed in the temperate region. The richness of the species in this zone seems to be on account of the fact that most part of the Sewa catchment experiences temperate climate besides heterogeneity in physiognomy, aspect and other temporal or spatial factors. The areas above 3500 m support mostly those species having underground perenating organs during unfavorable winter. Utilization of leaves, roots, whole plants, bark, latex, tubers, fruits, seed, flowers, gums and resins, rhizome etc. of various plant species indicated a high degree of threat to these wild edible

plants. These species are used in the plant based pharmaceutical industries in traditional systems of medicine and most are extracted from natural habitats. If the over exploitation of entire medicinal plant and their various parts continues, many species may decrease in, and ultimately disappear from their natural habitats. Besides, wild edible purposes these plants are also used as medicines against cuts, cough, fever, gout, rheumatism, stomach ailments, sinusitis, boils, headache and as antihelminthic etc. Thus, the area serves as a primary source of extraction and people need to be encouraged to cultivate all these species which form ingredients of many medicinal products. Moreover, diverse climatic as well as altitudinal variation in the area, provide suitability for their cultivation, which in turn will be fruitful in maintaining the phytodiversity of the region, besides improving economy and lifestyle of the people. A list of these plants along with their family, local names, habit, extent of use, part used and mode of usage have been provided.

Aconitum heterophyllum Linn. (Ranunculaceae) Atis, Ponkar.

Uses: Young leaves are used by the locals for edible purposes.

Habit: Herb Fl.Fr.: Aug.-Nov.

Acorus calamus Wall. (Araceae), Bach.

Uses: Rhizomes are used for stomach and bronchial troubles. In addition young leaves are presently flavored and are edible.

Habit: Herb Fl.Fr.: Apr.-Aug.

Achyranthes aspera Linn. (Amaranthaceae), Puthkanda

Uses: Young leaves are cooked and used as vegetable/saag.

Habit: Herb Fl.Fr.: Apr.-Sept.

Aegle marmelos (L.) Corr. (Rutaceae), Bael

Uses: Ripe fruits eaten and used in preparation of sweet drink.

Habit: Tree Fl.Fr.: Apr.-Aug.

Aesculus indica Colebr. ex Camb. (Hippocastanaceae), Khanor, Bunkhori

Uses: Seed soaked in water for about 12 hours, washed thoroughly, dried and made into flour which is used for making 'halwa'.

Habit: Tree Fl.Fr.: Apr.-Aug.

Allium roylei Stern. (Liliaceae), Jungli Piyaz.

Uses: Bulbs and leaves used as vegetables or spices.

Habit: Herb Fl.Fr.: Jun.-Sept.

Alternanthera sessilis Linn. (Amaranthaceae), Kanchuri

Uses: Young shoots and leaves are cooked as pot herb.

Habit: Shrub Fl.Fr.: Round the year

Amaranthus spinosus Linn. (Amaranthaceae), Kanteli Chauli

Uses: Tender shoots and leaves eaten as vegetable.

Habit: Herb Fl.Fr.: Round the year

Amaranthus viridis Linn. (Amaranthaceae), Chauli

Uses: Tender shoots and leaves eaten as vegetable.

Habit: Herb Fl.Fr.: Round the year

Asplenium trichomanes Linn. (Asplenaceae), Kandai

Uses: Tender Shoots and leaves eaten as vegetable.

Habit: Herb Fl.Fr.: Jul.- Oct.

Phanera vahlii Wt. and Arn. (Caesalpinaceae), Taur

Uses: Seeds roasted and eaten.

Habit: Woody climber Fl.Fr.: Jun.- Oct.

Bauhenia variegata Linn. (Caesalpinaceae), Kerale, Kachnar

Uses: Flower buds eaten as vegetable, petal used in a curd preparation.

Habit: Tree Fl.Fr.: Feb.- Jun.

Berberis aristata DC. (Berberidaceae), Kashmal, Simlu

Uses: Ripe fruits eaten, roots used in medicine.

Habit: Shrub Fl.Fr.: Mar.- Jul.

Berberis lycium Royle (Berberidaceae), Simlu, Kashmal

Uses: Ripe fruits eaten, roots used in medicine.

Habit: Shrub Fl.Fr.: Mar.- Jul.

Bergenia ciliata Haw. Sternb. (Saxifragaceae) Zakhme hayat.

Uses: Rhizomes are boiled to yield a decoction which after addition of sugar and milk is taken as tea substitute.

Habit: Herb Fl.Fr.: Mar.: Sept.

Bombax ceiba Linn. (Bombacaceae), Simbal

Uses: Young flower buds cooked as vegetable, root used in medicine.

Habit: Tree Fl.Fr. : Dec.- Apr.

Capsella bursa pastoris Medik (Brassicaceae), Chamso

Uses: Young leaves and shoots used as vegetable.

Habit: Herb Fl.Fr. : Dec.- Apr.

Cardamine impatiens Linn. (Brassicaceae),

Uses: Young shoots including leaves and flower eaten as salad.

Habit: Herb Fl.Fr.: Apr.-Jun.

Carissa opaca Linn. (Apocynaceae), Garna

Uses: Ripe fruits eaten.

Habit: Shrub Fl.Fr.:Jun.- Dec.

Chenopodium album Linn. (Chenopodiaceae), Bettu

Uses: Tender shoot eaten as vegetable.

Habit: Herb Fl.Fr.:Mar. –Sept.

Cinnamomum tamala (Lauraceae), Tegpatra

Uses: Leaves used as a spice and in medicine.

Habit: Tree Fl.Fr.: Mar. –Sept.

Codonopsis ovata Benth. ex Royle (Campanulaceae), Ludut

Uses: Roots are large and are used for making vegetables.

Habit: Herb Fl.Fr. : Jul. –Sept.

Commelina benghalensis Linn. (Commelinaceae), Chhura

Uses: Freshly leaves used as vegetables. Rhizomes are also known to cook for edible purposes.

Habit: Herb Fl.Fr.: Jul. –Nov.

Cordia dichotoma Forst. (Cordiaceae), Lasoor

Uses: Fruit used as vegetable or pickled, bark and fruits used in medicine.

Habit: Herb Fl.Fr.:Mar.-Jul.

Coriaria nepalensis Wallich. (Coronariaceae), Reekhni

Uses: Fruits are known to be edible.

Habit: Herb Fl.Fr.: Aug.- Sept.

Coronopsus didymus Linn. (Brassicaceae),Gangly Hallian

Uses: Young shoots are used as pot herb. The vegetables are cooked like a spinach after boiling to remove the bitter content.

Habit: Herb Fl.Fr.: Jan.-May.

Crotolaria medicaginea Lamk. (Fabaceae), Guglali

Uses: Young leaves are sometime used as pot herbs.

Habit: Herb Fl.Fr.:Jul-Oct.

Dendrocalamus strictus Bl. (Poaceae) , Bans

Uses: Mature stem is used for making pickle.

Habit: Shrub Fl.Fr.:Apr.- Jun.

Diplazium acrostichoides Bir. (Athyriaceae),

Uses: The young fronds are cooked and relished as vegetable.

Habit: Herb Fl.Fr.:Apr.-Sept.

Diplazium frondosum (Clarke) Christ (Athyriaceae), Khandhor, Kasror

Uses: Young circinate leaves are rubbed with a piece of cloth to remove scales and hairs before cooking it as vegetable, also used as pickled.

Habit: Herb Fl.Fr.:Apr.-Oct.

Dipsacus inermis Wall. (Dipsacaceae), Wupal hak

Uses: Shoots of young plants are cooked as spinach for consumption.

Habit: Herb Fl.Fr.:Aug.- Nov.

Dodonea viscosa Linn. (Sapindaceae), Senth

Uses: Seeds are known to be edible.

Habit: Shrub Fl.Fr.: Jan.-May

Elaeagnus umbellata Thunb. (Elaeagnaceae), Kunkholi

Uses: Ripe fruits eaten.

Habit: Tree Fl.Fr.: Mar. –Aug.

Euphorbia royleana Boiss. (Euphorbiaceae), Thor

Uses: Pith of young shoots cut into small pieces, washed thoroughly, boiled and cooked as a vegetable and used for preparing rayata .

Habit: Tree Fl.Fr.:Mar. – Jun.

Ficus auriculata Lour. (Moraceae), Triambal

Uses:Ripe figs eaten, young figs and tender leaves cooked as vegetable.

Habit: Tree Fl.Fr.: Mar. – Sept.

Ficus palmata Forssk. (Moraceae), Phagra

Uses: Ripe fruits eaten, young figs and tender leaves cooked as vegetable.

Habit: Tree Fl.Fr.: Mar. – Jul.

Flacourtia indica Merr. (Flacourtiaceae), Kangu

Uses: Ripe fruits eaten.

Habit: Tree Fl.Fr.: Apr.-Jun.

Foeniculum vulgare Gaertn. (Apiaceae), Saunf

Uses: Dried fruits are used as spice and carminative.

Habit: Herb Fl.Fr.: Mar.-Apr.

Fragaria indica Andr. (Rosaceae), Punjakha

Uses : Ripe fruits eaten.

Habit: Herb Fl.Fr.: Apr.-Jun.

Fragaria nubicola indl. (Rosaceae), Jal bunonoo

Uses: Rhizome used as a substitute for tea.

Habit: Herb Fl.Fr.: Apr.- Jun.

Gagea elegans Wall. Ex Royle (Liliaceae), Jardu

Uses: Young fleshy leaves of this species are cooked are pot herb.

Habit: Herb Fl.Fr.: Feb.-Apr.

Galinsago parviflora Cav. (Asteraceae) Peeplo

Uses: The plant is reported to be used as a vegetable.

Habit: Herb Fl.Fr.: Apr.- Aug.

Galium aparine Linn. (Rubiaceae), Khorti

Uses: Shoots and leaves are cooked as pot herb.

Habit: Herb Fl.Fr.: Mar.- Sept.

Gnaphalium leutoalbum Linn. (Compositae), Sukhree

Uses: Leaves and young shoots are cooked as vegetable.

Habit: Herb Fl.Fr.: Apr.- Jun.

Grewia optiva J. R. Drumm. (Tiliaceae), Dhaman

Uses: Ripe fruit eaten.

Habit: Tree Fl.Fr.: May – Jan.

Gymnosporia royleana Lawson (Celastraceae), Patrau

Uses: Ripe fruits are edible at the time of scarcity.

Habit: Shrub Fl.Fr.: Dec.- Jul.

Infigofera heterantha Wall ex Brandi (Fabaceae), Kathi

Uses: Flowers are boiled in milk and are used for curing ulcers.

Habit: Shrub Fl.Fr.: May- Jul.

Juglans regia Linn. (Juglandaceae), Akhrot

Uses: Fruit kernels edible.

Habit: Tree Fl.Fr.: Apr.- Aug.

Lamium album Linn. (Lamiaceae), Nealuhak

Uses: Young leaves used as pot herb.

Habit: Herb Fl.Fr.: Apr.- Oct.

Lamium amplexicaule Linn. (Lamiaceae), Henbit

Uses: Leaves are boiled after that cooked like spinach.

Habit: Herb Fl.Fr.: Mar.- Jun.

Lathyrus aphaca Linn. (Fabaceae), Gangli mattor

Uses: Seeds are known to be eaten during scarcity.

Habit: Herb Fl.Fr.: Jan..

Lathyrus sativus Linn. (Fabaceae), Khesri

Uses: It is eaten as Dal and Chapatti

Habit: Herb Fl.Fr.: Jan.- Jun.

Malva parviflora Linn. (Malvaceae), Sonchal

Uses: Eaten as vegetable.

Habit: Herb Fl.Fr.: Dec.- Apr.

Medicago lupulina Linn. (Fabaceae) Ardkhkhd booti

Uses: Young shoots and leaves are cooked as vegetable.

Habit: Herb Fl.Fr.: Jan.-Apr.

Mentha arvensis (Lamiaceae), Pudina

Uses: Leaves are used as a spices and carminative.

Habit: Herb Fl.Fr.: Jun.-Sept.

Mentha longifolia (Linn.) Muds. (Lamiaceae), Pudina

Uses: Leaves are used for making chutney.

Habit: Herb Fl.Fr.: Jun.- Sept.

Momordica dioica Wall. (Cucurbitaceae), Kakora

Uses : Fruits eaten as vegetable.

Habit: Herbaceous climber Fl.Fr.: Jul.-Sept.

Morchella esculenta Pers. (Helvellaceae), Gugchi

Uses: Fruitification is used as vegetable.

Habit: Fungus Fl.Fr.: Apr.- Aug.

Moringa oleifera Lam. (Moringaceae), Sahjan

Uses: Pods cooked as vegetable and pickled.

Habit: Tree Fl.Fr.: Apr.- Jun.

Morus alba Linn. (Moraceae), Toot

Uses: Ripe fruits eaten.

Habit: Tree Fl.Fr.: Apr.- Jun.

Morus nigra Linn. (Moraceae), Shahtute

Uses: Dark red fruits are sour and eaten fresh.

Habit: Tree Fl.Fr.: Apr.- Jun.

Murraya koenigii Linn. (Rutaceae), Curry patta

Uses: Ripe fruits eaten leaves used as spices in preparation of curries.

Habit: Shrub Fl.Fr.: Dec.-Apr.

Myrica esculenta. Ham. (Myricaceae), Kaphal

Uses: Ripe fruits eaten, used in preparation of refreshing drink, bark and fruits used in medicine.

Habit: Tree Fl.Fr.: Jul.-Oct.

Oxalis corniculata Linn. (Oxalidaceae), Peeli Khatti booti

Uses: Its sour leaves are cooked or made into chutney.

Habit: Herb Fl.Fr.: Nov.-Jun.

Origanum vulgare Linn. (Lamiaceae), Sathra

Uses: Leaves of the young plants are cooked as vegetable.

Habit: Herb Fl.Fr.: Mar.- Sept.

Oxyria digyna Hill. Simthan (Polygonaceae), Kalashi

Uses: Leaves are sour, first boiled and then cooked as vegetable.

Habit: Herb Fl.Fr.: Jun.- Aug.

Portulaca oleracea Linn. (Portulacaceae), Nailiyara

Uses: Shoots used as vegetable.

Habit: Herb Fl.Fr.: Apr.- Nov.

Phoenix sylvestris (Roxb.) Linn. (Arecaceae), Khajur

Uses: Ripe fruits eaten.

Habit: Tree Fl.Fr.: Dec.- Jun..

Phyllanthus emblica Linn. (Euphorbiaceae), Amla

Uses : Fruit eaten raw, pickled and used for making preserve and medicine.

Habit: Tree Fl.Fr.: Apr.- Jun.

Phytolacca acinosa Roxb. (Phytolacaceae), Jharka

Uses : Leaves eaten as vegetable.

Habit: Shrub Fl.Fr.: Apr.- Sept.

Pinus roxburghii Roxb. (Pinaceae), Chirpine

Uses : Seeds are known to be edible by the locals during the scarcity of food.

Habit: Tree Fl.Fr.: Apr.- Aug.

Plantago major Linn. (Plantaginaceae), Isabgol

Uses : Soft fleshy leaves cooked as vegetable.

Habit: Herb Fl.Fr.: Jul.-Sept.

Platanus orientalis Linn. (Platanaceae), Chinar

Uses: Infusion of the roots is consumed as a beverage. It is said to have stimulating properties.

Habit: Tree Fl.Fr.: Jan.- Jun.

Podophyllum hexandrum Royle. (Podophyllaceae), Bunkakri

Uses : Mature fruits are pear like and sweet in taste.

Habit: Herb Fl.Fr.: Apr.- Jun.

Polygonum amplexicaule D. Don. (Polygonaceae),

Uses : Woody root stocks are boiled in water to yield decoction to which milk and sugar are added for consumption as a tea substitute by the hilly people.

Habit: Herb Fl.Fr.: Aug.- Oct.

Pteridium aquilibrum Linn. (Pteridiaceae), Kakaia

Uses : Boiled and roasted rhizome and young leaves eaten as vegetable and also for pickle preparation.

Habit: Fren Fl.Fr.: May-Oct.

Punica granatum Linn. (Punicaceae), Daar

Uses : Dried seeds (anardana) used as souring agent, spice and in medicine.

Habit: Tree Fl.Fr.: Apr.- Sept.

Pyrus pashia Buch. Ham. (Rosaceae), Kainth

Uses : Ripe fruits eaten.

Habit: Tree Fl.Fr.: Apr.- Dec.

Rhododendron arboreum Sm. (Ericaceae), Hardulli
 Uses : Fresh or dried flowers used for making chutney, squash and refreshing drink.
 Habit: Tree Fl.Fr.: Mar.- May

Ricinus communis Linn. (Euphorbiaceae), Arind
 Uses : Caster oil is produced which is edible.
 Habit: Shrub Fl.Fr.: Sept.-Apr.

Rosa brunonii Lindl. (Rosaceae), Panjali gulab
 Uses : Flowers used for preparation of rose water and taken internal as laxative.
 Habit: Shrubby climber Fl.Fr.: Apr.- Jul.

Rubus ellipticus Sm. (Rosaceae), Akhre
 Uses : Ripe fruits eaten.
 Habit: Shrub Fl.Fr.: Dec.- May.

Rubus hoffmeisterianus (Rosaceae), Akhre
 Uses : Ripe fruits are edible.
 Habit: Shrub Fl.Fr.: Feb.- Aug.

Rumex hastatus D.Don. (Polygonaceae), Aamy, Malori
 Uses : Leaves used as salad and making chutney.
 Habit: Herb Fl.Fr.:Feb.- Apr.

Rumex nepalensis Spring. (Polygonaceae), Malora
 Uses : Leaves as vegetable.
 Habit: Herb Fl.Fr.: Apr.-Aug.

Sapindus mukorossi Gaertn.(Sapindaceae), Ritha
 Uses : Kernels put under running water for about a week, dried and made into flour used for making halwa or bread.
 Habit: Tree Fl.Fr.: Apr.- Jun.

Solanum nigrum Linn. (Solanaceae), Makoy
 Uses : Ripe fruits eaten.
 Habit: Herb Fl.Fr.: Jun.-Oct.

Solanum xanhocarpum Schrad \$ Wend.(Solanaceae), Neeli Kandhiari
 Uses : Boiled seeds and bark is given to the woman after the delivery.
 Habit: Herb Fl.Fr.: Apr.- Jun.

Syzygium cumini Linn. (Myrtaceae), Jaman
 Uses : Ripe fruits eaten

Habit: Tree Fl.Fr.: Apr.- Jul.
Taxus baccata Linn. (Taxaceae), Barmi
 Uses : Bark is used as a substitute for tea by the local.
 Habit: Tree Fl.Fr.:May-Nov.

Thymus serculum Linn. (Lamiaceae), Merchari
 Uses : Seeds used in pickle.
 Habit: Herb Fl.Fr.: Mar.- Jun.

Viburnum grandiflorum Linn. (Caprifoliaceae), Guchh
 Uses : Ripe fruits edible.
 Habit: Shrub Fl.Fr.: Jul.- Oct.

Viola odorata Linn. (Violaceae), Banaksha
 Uses : Petals are dried and are used for making syrups.
 Habit: Herb Fl.Fr.: Aug.- Oct.

Vitis Jacquemontii Parker (Vitaceae), Dhak
 Uses : Ripe fruits edible.
 Habit: Woody climber Fl.Fr.: Jun.-Aug.

Xanthoxylum alatum Roxb. (Rutaceae), Timbru, Timber
 Uses : Young leaves and fruits used for making chutney, for flavoring the food.
 Habit: Tree Fl.Fr.: Apr.- Sept.

Ziziphus mauritiana Lamk. (Rhamnaceae), Ber
 Uses : Ripe fruit eaten.
 Habit: Tree Fl.Fr.: Sept.-Feb.

Ziziphus oxyphylla Edgrew (Rhamnaceae), Berry
 Uses : Ripe fruits edible.
 Habit: Shrub Fl.Fr.: Jun.-Sept.

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