

Ethnobotanical Observations in the Mornaula Reserve Forest of Kumoun, West Himalaya, India

Shreekar Pant* and S.S. Samant

Centre for Biodiversity Studies, School of Biosciences and Biotechnology,
Baba Ghulam Shah Badshah University, Rajouri-185 131, J&K; and
G.B. Pant Institute of Himalayan Environment and Development,
Himachal Unit, Mohal-Kullu- 175 126, Himachal Pradesh, India

* Corresponding author E-mail: shreekarpant.2@rediffmail.com

Issued: February 01, 2010

Abstract

A field trip was undertaken in the Mornaula Reserve Forest of Kumaun, West Himalaya, India. A collection of plants was made from this reserve forest at an altitude ranging from 1500-2200m amsl. Local people were contacted for the local names and uses of plants growing there. They are used as medicine, edible, fuel, fodder, timber, fiber, making agricultural implements and religious ceremonies.

Key words: Ethnobotany, Mornaula Reserve Forest, Indigenous Knowledge, Utilization Pattern.

Introduction

India is one of the leading countries in Asia in terms of the wealth of traditional knowledge systems related to the use of plant species and blessed with rich and diverse heritage of cultural traditions. The diverse natural habitats all over the Himalayan Region are rich repositories of plant diversity that are used for a variety of purposes *i.e.*, food, fiber, fodder, medicine, spices, dyes, making agriculture implements etc. A large number of plants from the wild/cultivated are widely used in traditional systems of medicine and a few of them having trade values. More than 43% of the total flowering plants are reported to be of medicinal importance (Pushpangadan, 1995) and a large number of them are used in Ayurveda, Homeopathy and Unani systems of medicine. In the Indian Himalayan Region (IHR) the use of medicinal plants is still a tradition continued by local people or ethnic communities. Even today the traditional health care practices hold much potential or most of the people depend upon the nearby plant species (Farooquee, 1994 and Maikhuri et al., 2000).

The Indian Himalayan Region (IHR) harbours 18,440 species of the flora (Singh and Hajra, 1996). The rich plant diversity of the region is used for the various purposes such as medicinal, wild edible, fuel, fodder, religious, timber, making agricultural implements, etc. by the inhabitants. This is the fact that 1,748 medicinal plants, 675 wild edibles, 155 plants of sacred belief, 118 essential oil yielding medicinal plants and 279 fodder plants have been recorded from the IHR (Samant et al., 1998; Samant and Dhar, 1997; Samant and Pant, 2003; Samant and Palni, 2000 and Samant, 1998).

Several studies have been carried out on the use of the medicinal plants in the IHR in general and Uttarakhand State in particular (Samant et al., 1998; Joshi et al., 1999; Gaur, 1999; Pande and Joshi, 2001; Samant et al., 2001; Tripathi, 2001; Samant et al., 2002; Dhar et al., 2002; Samant and Pal, 2003; Kala et al., 2004; Kala, 2005 and Pant, 2005). But, most of the studies have given focused on inventorisation of the wild plants. Such kinds of studies have not been attempted by any of the workers in Reserve Forests of the Uttarakhand. Therefore, present study has been conducted in the surrounding villages of the Mornaula Reserve Forest (29°24'-29°30'N to 79°49'-79°52'E) of the Uttarakhand State to document the ethnobotany of the reserve forest in particular and in general.

Materials and Methodology

The present study is based on the extensive and intensive surveys conducted in 9 villages i.e., Khakar, Bhetuania, Dole, Damar, Tarani, Bercheula, Lohanigaon, Harinagar, and Nartola surrounding the MRF from 2002-2004. The old knowledgeable persons including village *vaidhyas* from each village were interviewed and information was generated on the local names, indigenous uses and traditional practices of the species(Photo 1, 2, and 3) and in some cases we used secondary sources (Jain, 1991). The fresh samples of the species were collected and brought to the Institute for identification with the help of research papers and local floras (Gaur, 1999; Osmaston, 1978; Babu, 1977; Naithani, 1985 and 85; Samant, 1987 and Pangtey et al., 1988). The nativity and endemism of the species have been identified based on the distribution of the species (Anonymous, 1883-1970; Samant, 1993; Samant et al., 2001 and Samant et al., 2002). The species restricted to the IHR have been identified as endemic and those extended to neighbouring countries and States, considered as near endemic.

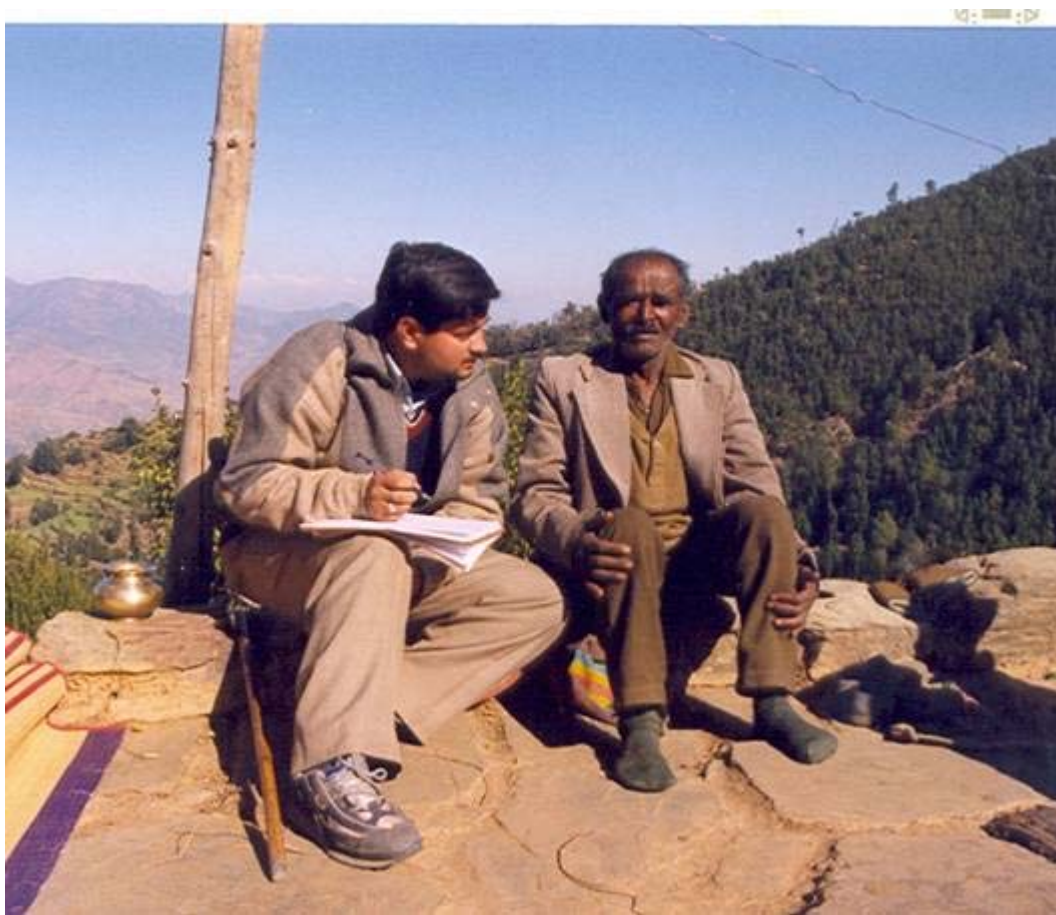


Photo 1. Information generation on various aspects of resource utilization pattern (author and village *vaidhyas*).



Photo2. Traditional practice of thread preparation from the fibers of *Cannabis sativa*.



Photo 3. Indigenous use of plants as medicine by the inhabitants.

Results

Species Diversity and Utilization Pattern

The present study recorded 337 economically important species (trees: 75 spp.; shrubs: 69 spp.; and herbs: 193 spp. including pteridophytes: 07 spp.) belonging to 111 families and 260 genera from the MRF. These species have been used as medicine (221 spp.), wild edible/food (114 spp.), fodder (94 spp.), fuel (40 spp.), religious (12 spp.), making agricultural implements (11 spp.), timber (09 spp.), and various other uses (25 spp.). Among the useful species, 144 species had multipurpose utility and 193 species had single utility. The use pattern indicated that leaves of 117 species, whole plants of 79 species, fruits of 68 species, roots of 55 species, aerial parts of 28 species, barks of 27 species, seeds of 21 species, flowers of 18 species, and bulbs/tubers of 16 species were used, while the other parts such as latex, inflorescence, seed oil, bark oil and fronds were widely used for various purposes (Table 1).

DISTRIBUTION PATTERN

Altitudinal distribution

The altitudinal distribution of the economically important species indicated that relatively maximum species were distributed between 1500-1800m amsl zone and minimum species in the zone >1801m. Altitudinal distribution of the economically important species within different use categories has been presented (Fig. 1).

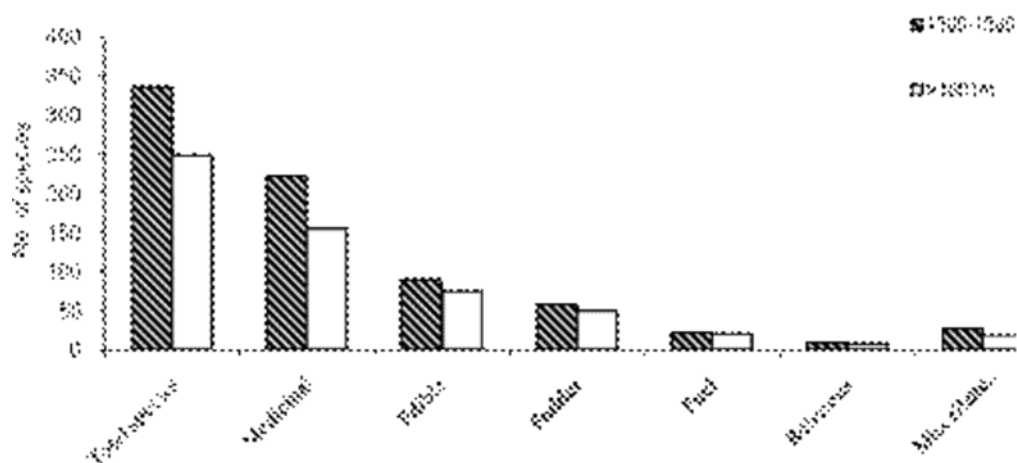


Fig. 1. Altitudinal distribution of economically important species in MRF.

NATIVITY AND ENDEMISM

Among the economically important species (*i.e.*, 337), 44.80 % species were native, 9.19 % species having Indian Origin and 45.99 % species were distributed to other biogeographic regions.

INDIGENOUS USES

Of the total 337 economically important species, 221 species were used for curing various diseases/ailments. For example, fronds of *Adiantum venustum* were used in fever; roots of *Acorus calamus* were used for curing bronchitis, toothache, headache, and pain in neck; and *Asparagus racemosus* in rheumatism, bleeding from nose, blood from urine, cough, diarrhoea, dysentery, gastric complaints, snake bite, menstrual complaints, ulcer on tongue, urinary complaints; whole plant of *Artemisia nilagarica* in asthma, ear complaints, epilepsy, menstrual complaints, nervous disease, skin disease, stomachache, and as tonic; roots of *Bergenia ligulata* in kidney stone; roots and leaves of *Melothria heterophylla* in antifertility, cuts, diabetes, fever, stomatache; roots of *Malva verticillata* in cough, emollient pectoral complaints, piles, ulcer, and urine complaints. The remaining species are used for the treatment of various diseases/ailments (Table 1).

Among all the species, 144 species had multipurpose utility (Table 1), for example, *Pistacia integerrima* was used for medicine, edible (food), fodder, tannin, timber, and dye; *Cornus capitata* was used for edible fruits (food), fuel, and animal bedding; *Quercus leucotrichophora* was used for fuel, fodder and timber; *Polygonatum verticillatum* was used for medicine, edible (food) and other purposes; *Cynodon dactylon* was used for medicine, religious and ornamental purposes in lawns; *Myrica esculenta* as medicinal, edible, fuel, *etc.*; *Grewia oppositifolia* for medicine, fodder, fuel, and fibre; and *Pyrus pashia* as medicine, edible, fuel, fodder, and religious purpose.

Table 1. Economically important plants of the MRF, Kumaun, West Himalaya, India.

Family/Taxa	Local name	Altitudinal range (m)	Life form	Part/s used	Indigenous uses
Angiosperms					
Acanthaceae					
<i>Aechmanthera gossypina</i> (Nees) Nees	-	1500-1800	Sh	AP	Fodder

<i>Barlaria cristata</i> L.	-	1500-1600	H	WP	Medicinal (Anaemia, body pain, headache, swelling legs, toothache); edible
<i>Dicliptera roxburghiana</i> Nees	Kathmul	1500-2200	H	WP	Medicinal (Tonic)
<i>Goldfussia dalhoussiana</i> Nees	-	1500-2200	H	AP	Fodder; Making Dye
<i>Justicia adhatoda</i> L.	Adasthodalam	1500-1800	Sh	Rt, Fl, Fr, Lf, Wd	Medicinal (Antipyretic, anthelmintic, antiseptic, antispasmodic, asthma, bronchitis, child birth, cold, consumption cough, dislocation of joints, eczema except febrifuge, malaria, pulmonary affect, rheumatism, swelling, venereal complaints); edible
Aceraceae					
<i>Acer cappadocicum</i> Gledt.	Duthkhamia	1800-2200	T	Lf	Fodder
<i>A. oblongum</i> Wall.	Safed putli	1500-2000	T	Lf, St	Fodder; Agricultural tool; Timber; Fuel
Agavaceae					
<i>Agave americana</i> L	Rambas	1500-1700	Sh	Lf, Rt	Medicinal (Purgative, emmenagogue, diuretic)
Alliaceae					
<i>Allium cepa</i> L.	Lashun	1800-2000	H	Lf, Rt	Medicinal (Anti anthelmintic, blisters, boils, bronchitis, piles, ring worm); used as spices
<i>A. sativum</i> L.	Jaubus	1800-2200	H	Lf, Rt	Medicinal (Eczema, piles, rheumatic pain, whooping cough); Used as spices
Achyranthaceae					
<i>Achyranthes aspera</i> L.	Ultisah ji	1500-2200	H	WP	Medicinal (Abortifacient, antifertility in women, asthma, bleeding in delivery, boils, bronchitis, child birth, cold, cough, debility, dropsy, dog bite, dysentery, ear complaint, eye complaints, febrifuge, germicide, headache, hydrophobia, insect bite, laxative leucoderma, liver complaints, pain in ribs, body, piles, pneumonia, reduces hunger, renal complaints, rheumatism, scabies, scorpion bite, skin disease, sore, stomachache, syphilis, tonic, toothache, whooping cough, wounds, veterinary medicinal to expel placenta, eye complaints) ; Edible
<i>A. bidentata</i> Bl.	Adhajhar	1500-1800	H	WP	Medicinal (Blisters in mouth, cholera hermicrania, scrofula, scorpion sting, swelling, whooping cough)
Amaranthaceae					

<i>Amaranthus spinosus</i> L.	Kanta-bhanji	1500-1700	H	WP	Medicinal (Abortifacient, antiemetic, blood purifier, cold, cough, colic, eczema, gonorrhoea, heat in body, laxative, piles, purgative, scorpion sting, snake bite); Edible
<i>Cyathula tomentosa</i> (Roth) Moq.	-	1500-1800	H	Rt, Lf, Px	Medicinal (Skin disease); Fodder
Anacardiaceae					
<i>Pistacia integerrima</i> Sw.	Kakrasingi	1500-1800	T	Kr	Medicinal (Tonic, expectorant, cough, phthisis, asthma, fever, appetite, irritability of the stomach, chronic pulmonary affection, dyspeptic vomiting and diarrhoea); Edible; Fodder; Tanning; Timber; Dye
<i>Rhus cotinus</i> L.	-	1500-1800	Sh	Fr, Fl	Tanning, dye yellow
<i>R. javanica</i> L.	-	1500-1600	Sh	Lf	Fodder
<i>R. parviflora</i> Roxb.	Murthi	1500-2000	Sh	Rt, Fr, Bk	Medicinal (Sun burn); Edible
<i>R. wallichii</i> Hk. f.	-	1500-1800	T	St	Agricultural tool
Apiaceae					
<i>Bupleurum longicaule</i> Wall. ex DC.	Kala-ajwain	1600-2200	H	Rt	Medicinal (Liver complaints)
<i>Centella asiatica</i> (L.) Urban	Bramhi	1500-2000	H	WP	Medicinal (Anthelmintic, blood disease, blood dysentery, brain tonic, cholera, cooling, cough, diarrhoea, diuretic, dysentery, eczema, eye complaints, fever, gastric disease, headache, insanity, leprosy, liver complaints, nervine disease, post natal tonic, respiratory disease, skin disease, stomachache, syphilis tonic tubercular, tumor, boil, urine complaints, wounds); Edible
<i>Heracleum candicans</i> Wall. ex DC.	Gandharajan	1700-2200	H	WP	Medicinal (Leucoderma, menstrual complaints); Edible
<i>Hydrocotyle javanica</i> Thunb.	Aulijhar	1500-1800	H	WP	Medicinal (Dysentery, indigestion, fever)
<i>Selinum tenuifolium</i> Wall.	Bhutkesh	1800-2200	H	WP	Medicinal (Incense, insecticidal, nervine, sedative)
Apocynaceae					
<i>Trachelospermum lucidum</i> (Don) K. Schum	-	1500-1800	Sh	Bk, Lf	Medicinal (Malarial fever); Fodder
Aquifoliaceae					
<i>Ilex dipyrrena</i> Wall.	Bhasikaral	1600-2200	T	Lf, Wd	Fodder; Fuel
Araceae					
<i>Acorus calamus</i> L.	Bach	1500-2200	H	Px, Rt, Rh	Medicinal (Bronchitis, Tooth problem, headache, pain in neck)
<i>Arisaema tortuosum</i> (Wall.) Schott	Bibanka	1500-2200	H	WP	Medicinal (Veterinary); Edible
<i>A. flavum</i> (Forsk.) Schott.	Bang	1600-2200	H	Bb	Medicinal (Skin disease)
<i>A. jacquemontii</i> Bl.	Bang	1700-2200	H	Bb	Medicinal (Ring worm, Skin disease); Edible
Araliaceae					

<i>Hedera nepalensis</i> Koch.	-	1500-2200	Sh	Fr, Lf	Medicinal (Cold, cough, Stimulant, diaphoretic, cathartic, rheumatism); Edible
Arecaceae					
<i>Phoenix humilis</i> Royle	Khajoor	1500-1700	T	Fr	Edible
Asclepiadaceae					
<i>Cryptolepis buchanani</i> Roem. and Schultes	Audita	1500-1800	Sh	WP	Medicinal (Rickets, milk supply); Fiber
Asparagaceae					
<i>Asparagus racemosus</i> Willd.	Keruva	1500-2200	Sh	Fr, Rt	Medicinal (Anthlemintic, aphrodisiac, rheumatism, bleeding from nose, blood from urine, cough, diarrhoea, dysentery, febrifuge, gastric complaints, gonorrhoea, headache, importance, leucorrhoea, menstrual complaints, snake bite, stomachache, tonic, ulcer on tongue, urine complaints, wounds); Edible
Asteraceae					
<i>Ageratum conyzoides</i> L.	Ajgandha	1500-1800	H	Lf	Medicinal (Antilithic for kidney stone, antiseptic, boils, burns, cancer, cuts, diarrhoea, flatul in colic, headache, haemostate, leprosy, muscular pain, piles, prolapsus anus, ringworm, scabies, skin disease, snake bite, sores, swell body, tumor, uterine disorder); Edible
<i>Ainsliaea aptera</i> DC.	Karu-buti	1500-2200	H	Rt	Medicinal (Stomachache)
<i>Anaphalis contorta</i> (D.Don) Hk.f.	Poth	1500-2200	H	Fl	Medicinal (Antibacterial, stop bleeding)
<i>A. triplinervis</i> (Sims.) Cl.	Bukki	1800-2200	H	WP	Medicinal (Diuretic)
<i>Artemisia nilagarica</i> (Cl.) Pamp.	Pati	1500-2200	Sh	WP	Medicinal (Abscess, analgesic, anthelmintic, antiseptic, antispasmodic, asthma, ear complaints, epilepsy, febrifuge haemostatic, headache, menstrual complaints, nervous disease, peptic ulcer, skin disease, sores, stomachache, tonic, vermifuge, wounds); Edible
<i>Bidens pilosa</i> L.	-	1500-2000	H	WP	Medicinal (cough, cuts, diarrhoea, ear and eye complaints, headache, inflammation, leprosy, skin disease, snake bite, sores, wounds); Edible
<i>Blumea lanciniata</i> (Roxb.) DC.	-	1500-2200	H	WP	Medicinal (Blood purification)
<i>Conyza stricta</i> Willd.	-	1500-1600	H	WP	Medicinal (Bone fracture)
<i>Eupatorium adenophorum</i> Spreng.	Pookiduva	1500-2000	H	Lf	Medicinal (Cuts, injuries, wounds as haemostat, stomachache)
<i>Galinsonga parviflora</i> Cav.	-	1500-2100	H	Lf	Medicinal (Stop bleeding)
<i>Gerbera gossypina</i> (Royle) Beauv.	Kapasi	1800-2200	H	Rt	Medicinal (Blood pressure, gastric disorder)
<i>Inula cappa</i> DC.	-	1500-2000	Sh	Lf	Fodder

<i>Senecio nudicaulis</i> Buch.-Ham. ex Don	-	1500-2200	H	Rt	Medicinal (Cough, cold)
<i>S. rufinervis</i> DC.	-	1600-2100	Sh	Lf	Fodder
<i>Sonchus oleraceus</i> L.	Chakor patti	1800-2200	H	AP	Medicinal (Jaundice, gout; liver complaints; tonic)
<i>Tegetes minuta</i> L.	Ban Hajari	1500-2200	H	WP	Oil (Aromatic)
<i>Taraxacum officinalis</i> Webber	Kanphul	1500-2200	H	WP	Medicinal (Blister blood purifier, bowel complaints, diuretic, dysentery, gastric, ulcer, headache, kidney disease, liver complaints, tonic, vertigo wounds); Edible
<i>Youngia japonica</i> (L.) DC.	-	2000-2200	H	WP	Medicinal (Urine complaints)
Begoniaceae					
<i>Begonia picta</i> Sm.	-	1500-2000	H	Lf	Medicinal (Bristles on tongue, ulcer on mouth)
Berberidaceae					
<i>Berberis aristata</i> DC.	Kilmora	1500-2200	Sh	Rt, Bk, Fr	Medicinal (Bite of rat, snakes, boils, eye complaints); Edible
<i>B. asiatica</i> Roxb.	Kilmora, Chutar	1500-2200	Sh	WP	Medicinal (Antidote to snake bite complaints, malaria, piles); Edible; Fuel
Betulaceae					
<i>Alnus nepalensis</i> Don	Utish	1500-2200	T	Lf, St	Fodder; Fuel; Agricultural tools,
<i>Betula alnoides</i> Buch.-Ham. ex Don	Kat bhoj	1700-2200	T	St	Fuel; Timber
Brassicaceae					
<i>Arabidopsis thaliana</i> (L.) Heynh.	-	1500-2200	H	WP	Medicinal (Treatment of sores in mouth)
<i>Brassica campestris</i> L.	Sarsoo	1500-2200	H	WP, Sd	Edible; Religious
<i>Capsella bursa-pastoris</i> (L.) Medik	-	1500-2000	H	WP	Medicinal (Blood pressure, iarrhea, dropsy)
<i>Cardamine impatiens</i> L.	-	1600-2000	H	WP	Medicinal (Stimulant, diuretic)
<i>Rorippa indica</i> (L.) Hiern.	-	1500-1600	H	Sd	Medicinal (Asthma, bronchitis)
<i>Thlaspi arvense</i> L.	-	1500-2000	H	WP	Medicinal (Wounds, cuts. Pulmonary infection, swelling)
Buxaceae					
<i>Sarcococa saligna</i> (Don) Muell.-Arg.	Chamlohat	1500-2200	Sh	Lf, Fi	Fodder; Fibre (making fiber)
Caesalpiniaceae					
<i>Bauhinia variegata</i> L.	Guiral	1500-1800	T	Bk, Fl, Rt, Lf	Medicinal (Diarrhoea, dysentery, fatness, indigestion, laxative, leprosy, malaria, piles (bleed), scrofula, skin disease, snake bite, syphilis, tumors, ulcers, worms); Edible
Cannabaceae					
<i>Cannabis sativa</i> L.	Bhang	1500-2200	H	Bk, Lf, Sd, Fr, Fl	Medicinal (Anthelmintic, appetite, bowel complaints, bronchitis, cold, cough, convulsion, cramp, eye disease, gonorrhoea, laxative, narcotic, nervine stimulant, paralysis of tongue, piles, skin disease, skin eruption); Edible

Caprifoliaceae <i>Lonicera quinquilocularis</i> Hardw.	Badkukra	1600-2200	Sh	Lf	Fodder
<i>Viburnum cotinifolium</i> Don	Titmolia	1600-2200	Sh	Bk, Fr, St	Medicinal (Menorrhoea); Edible; Fodder; Fuel
<i>V. mullaha</i> Buch.-Ham. ex Don	Titmuya	1600-2200	T	Fr	Edible; Fodder; Fuel
Caryophyllaceae <i>Cerastium cerastioides</i> (L.) Britt.	Pangein	1700-2200	H	WP	Medicinal (Backache, bodyache, headache, renal pain, cough)
<i>Drymaria cordata</i> (L.) Willd.	-	1500-1600	H	WP	Medicinal (Asthma, burn, cold, diarrhoea, dysentery, food poison, heavy fever, headache, insect bite, laxative, mouth and tongue sores, pneumonia, skin disease, snake bite, stomachache, vomiting, wounds)
<i>Stellaria media</i> (L.) Vill.	-	1500-2200	H	WP	Medicinal (Bone fracture); Edible
Celastraceae <i>Euonymus pendulus</i> Wall.	Kanki	1700-2100	T	Lf	Fodder
<i>Maytenus rufa</i> (Wall. ex Roxb.) Raju and Babu	-	1500-1800	T	Fr	Edible
Chenopodiaceae <i>Chenopodium album</i> L.	Bathua	1500-2000	H	Lf, Sd	Medicinal (To revive taste, skin disease, urine complaints); Edible
<i>C. ambrosioides</i> L.	Chisikbol	1500-2000	H	Lf	Medicinal (Anthelmintic, influenza, pneumonia, typhoid, vermifuge)
Combretaceae <i>Terminalia chebula</i> Retz.	Harar	1600-1800	T	Fr, Bk	Medicinal (Bronchitis, cold, colic, constipation, cough, diabetes, diarrhoea, disuria, dysentery, eczema, eye disease, haematuria, indigestion, measles, menstrual complaints, pneumonia, purgative, sores in throat, spleen complaints,); Edible
Commelinaceae <i>Commelina benghalensis</i> L.	Kankaua	1500-1600	H	Lf, Rt	Medicinal (Diarrhoea, fever, irritation by bristles of caterpillar, laxative, liver complaints refrigerent, scorpion bite, snake bite, sores, wounds); Edible
<i>C. paludosa</i> Bl.	Patugia	1500-1600	H	WP	Medicinal (on insect stings)
Coriariaceae <i>Coriaria nepalensis</i> Wall.	-	1500-2000	T	Fr	Edible
Cornaceae <i>Cornus capitata</i> Wall.	Bamor	1500-2000	T	Fr, St	Edible; Fuel; Agricultural tools
<i>C. macrophylla</i> Wall.	Khagsoo	1500-2000	T	Fr, St	Edible; Fuel
<i>C. oblonga</i> Wall.	-	1800-2200	T	St	Fuel
Corylaceae <i>Carpinus viminea</i> Lindl.	Chamkharik	1500-2200	T	Lf, St, Bk	Medicinal (Stomachache, liver complaints); Fodder; Fuel
Crassulaceae					

<i>Kalanchoe pennata</i> (Lamk.) Pers.	Patherchut	1500-1800	H	Lf	Medicinal (Amoebic dysentery, body heat, boils, sores, wounds, gastric complaints, headache, influenza, insect bite, kidney stone)
Cucurbitaceae					
<i>Cucurbita maxima</i> Duch. ex Lam.	Kaddu	1500-2200	H	Fr, Sd	Medicinal (Intestinal Worms), Edible
<i>Melothria heterophylla</i> (Lour.) Cong.	Bankakri	1700-2200	H	Rt, Lf, Fr	Medicinal (Antifertility, cuts, diabetes, fever, stomachache); Edible
<i>Trichosanthes tricuspidata</i>	Indraini	1500-2000	H	Lf, Rt, Sd	Medicinal (Burns, diarrhoea, dysentery, fever, pneumonia, rheumatism, snake bite, vomiting); Edible
Cyperaceae					
<i>Carex cruciata</i> Wallenb.	-	1500-2200	H	WP	Fodder
<i>Cyperus compressus</i> L.	-	1500-1800	H	WP	Fodder
<i>C. difformis</i> L.	-	1500-1800	H	WP	Fodder
<i>C. niveus</i> L.	-	1500-2000	H	WP	Fodder
<i>C. squarrosus</i> L.	-	1500-1800	H	WP	Fodder
<i>C. triceps</i> Lindl.	-	1500-1800	H	WP	Fodder
Dioscoriaceae					
<i>Dioscorea belophylla</i> Voigt.	Tarar-ki-bel	1500-1900	H	Tu	Medicinal (boils, jaundice); Edible
<i>D. bulbifera</i> L.	Dhankanda	1500-1800	H	Tu	Medicinal (Abdominal pain, boils, bone fracture, dysentery, piles, jaundice)
<i>D. deltoidea</i> Wall. ex Kunth	Gun	1500-2200	H	Tu	Medicinal (Dysentery, piles); Edible
Droseraceae					
<i>Drosera peltata</i> Sm.	Bachizhar	1700-2200	H	WP	Medicinal (Curious, insectivorous); Fodder; Dye
Ehretiaceae					
<i>Cordia wallichii</i> G. Don	-	1600-2200	T	Fr, Bk	Edible
Elaeagnaceae					
<i>Elaeagnus conferta</i> Roxb.	Palaga	1500-2000	Sh	Fl, Fr	Medicinal (Sores, ulcer); Edible
Ericaceae					
<i>Lyonia ovalifolia</i> (Wall.) Drude	Angyar	1500-2200	T	WP	Medicinal (Boils, pimples, skin eruption, worms, wounds); Fuel
<i>Rhododendron arboreum</i> Sm.	Burans	1500-2200	T	Fl, Lf	Medicinal (Dysentery, fever, headache, rheumatism, wounds); Edible; Fuel
Euphorbiaceae					
<i>Daphniphyllum himalayense</i> Muell.-Arg.	Ragarchhanan	1700-2200	T	Lf	Fodder
<i>Emblica officinalis</i> Gaertn.	Amla	1500-1600	T	Fr, Sd, Bk, Lf	Medicinal (Antiemetic, asthma, bronchitis, burns, cold, constipation, cooling, diabetes, diuretic, dysentery, eye complaints, fever, headache, laxative, liver complaints, madness, purgative, revive taste, scorpion bite, stomach complaints, thirst vaginal complaints, wounds, veterinary stomach disease); Edible

<i>Euphorbia hirta</i> L.	Dudhi	1600-1800	H	WP	Medicinal (Abscess, antidote in snake bite, asthma, boils of mouth, breast pain, bronchitis infection, burns, colic, cough, cuts, diarrhoea, dysentery, eczema, excess lactation, eye complains, gonorrhoea, kidney disease, lactation-complaints, pain, postanal complaints, rickets, ring worm, scabies, scorpion bite, skin disease sores on breast, toothache, vomiting); Edible Fuel; Tanning
<i>Glochidion velutinum</i> Wt.	-	1500-1700	T	Lf, St	
<i>Phyllanthus virgatus</i> Frost.	Bhui-amla	1500-1800	H	WP	Medicinal (Abscess, cold and fever, dysentery, gonorrhoea, itch, piles, stomachache); Edible Medicinal (Germicidal)
<i>Sapium insigne</i> Trim.	Chiran	1500-1600	T	La	
Fabaceae					
<i>Crotalaria albida</i> Heyne ex Roth	Ban methi	1500-2200	H	WP	Medicinal (Purgative)
<i>Dalbergia sericea</i> G. Don	-	1500-1600	T	Lf	Fodder
<i>Desmodium concinnum</i> DC.	-	1500-1800	Sh	AP	Fodder
<i>D. elegans</i> DC.	Bhatul	1500-2200	Sh	St, Lf	Fodder; Fuel
<i>D. gangeticum</i> (L.) DC.	Salpan	1500-2000	Sh	WP	Medicinal (Antidote to snake venom, asthma, bronchitis, cough, dysentery, eye infection, fever, tonic, vomiting); Fodder
<i>D. heterocarpon</i> (L.) DC.	Sarivan	1500-1600	Sh	Rt	Medicinal (Cough, fever, tonic)
<i>D. microphyllum</i> (Thunb.) DC.	Chattomara	1500-1600	H	Rt	Medicinal (abortifacient)
<i>Flemingia fruticosa</i> Wall. ex Benth.	-	1600-2200	Sh	Lf	Fodder
<i>F. strobilifera</i> (L.) Ait.	Chauranga	1500-1600	H	Rt, Lf	Medicinal (Epilepsy); Fodder
<i>F. semialata</i> Roxb.	-	1500-1800	Sh	Rt, Lf	Medicinal (Ulcer, neck swelling, external use); Dye
<i>F. vestita</i> Benth. ex Baker	Ajher	1500-2200	H	Rt, Fr, Tu	Edible
<i>Indigofera atropurpurea</i> Buch.-Ham.ex Roxb.	Sakena	1500-2200	Sh	Lf, Fl	Fodder; Dye
<i>I. cylindrica</i> Wall. ex Baker	Sakena	1500-1900	Sh	Lf, Fl	Fodder; Dye
<i>I. heterantha</i> Wall. ex Brandis	Sakena	1800-2100	Sh	Lf	Fodder
<i>I. pulchella</i> Roxb.	Sakena	1500-1800	Sh	Lf, Fl, Infl	Medicinal (Cough, epilepsy, menorrhagea, swelling face in labour); Edible Fodder
<i>Lespedeza gerardiana</i> Grah. ex Baker	-	1500-2000	Sh	Lf	
<i>Medicago lupulina</i> L.	-	1500-2200	H	WP	Fodder
<i>Melilotus indica</i> (L.) All.	Senj	1500-2200	H	WP	Medicinal (Plaster for swelling, bowel complaints, infantile, diarrhoea)

<i>Pueraria tuberosa</i> (Roxb. ex Wild.) DC.	Ghora-bel, Bilaikand	1500-1800	Sh	Tu, Rt	Medicinal (Abdominal pain, antiemetic, asthma, bodyache, chest pain, cholera, diarrhoea, fever, lactation, menorrhoea, rheumatism, skin disease, swelling, syphilis, tonic, ulcer, veterinary lactation); Edible
<i>Trifolium repens</i> L.	-	1500-2200	H	WP	Medicinal (Dandruff)
<i>Vicia sativa</i> L.	-	1500-1800	H	Fr, AP	Edible; Fodder
<i>Zornia gibbosa</i> Span.	Hirankurni	1600-1900	H	WP	Medicinal (Cramps, dysentery, sedative, sores, wounds, spermatorrhoea)
Fagaceae					
<i>Quercus floribunda</i> Thunb.	Kharsu	1500-2200	T	Lf, St	Fodder; Agricultural tools
<i>Q. leucotrichophora</i> A. Camus	Banj	1500-2200	T	St, Lf	Fodder; Fuel; Timber
Gentianaceae					
<i>Swertia angustifolia</i> Buch.-Ham.ex D.Don	Chiraitu	1800-2200	H	WP	Medicinal (Malarial fever)
<i>S. cordata</i> Wall. ex Cl.	Chiraita	1800-2200	H	WP	Medicinal (Anthelmintic, antiperiodic, Appetite, laxative)
<i>S. paniculata</i> Wall.	Chiraita	1700-2000	H	WP	Medicinal (Fever)
Geraniaceae					
<i>Geranium nepalense</i> Sw.	Lajari	1500-2200	H	Rt	Medicinal (Cuts, jaundice, toothache, ulcer, wounds, stomach complaints); Dye
<i>G. wallichianum</i> Don ex Sw.	-	2000-2200	H	Lf, Rt	Medicinal (Astringent, ear and eye disease, toothache)
Gesneriaceae					
<i>Didymocarpus</i> <i>pedicellata</i> R.Br.	-	1600-2200	H	Lf, Fl, Sd	Medicinal (Stone in kidney, bladder)
Haemodoraceae					
<i>Mondo intermedium</i> (Don) Bailey	-	1600-2200	H	WP	Fodder
Hippocastanaceae					
<i>Aesculus indica</i> Colebr.	Panger	1500-2100	T	Fr, Bk, Rt, Sd oil, Kr	Medicinal (Anthelmintic, dislocated joints, diuretic, leucorrhoea, skin fissures, cracks, veterinary medicine, wounds); Edible
Hydrangeaceae					
<i>Hydrangea anomala</i> Don	-	1500-2000	Sh	WP	Fodder
Hypericaceae					
<i>Hypericum elodeoides</i> Choisy.	-	1500-2200	Sh	WP	Fodder
<i>H. javanica</i> Thunb.	-	1500-2000	Sh	Lf	Fodder
<i>H. oblongifolium</i> Choisy.	Gophal	1800-2200	Sh	Lf, Fl	Medicinal (Wounds, boils); Fodder
<i>H. uralum</i> Buch.-Ham.	-	1800-2200	Sh	Lf	Fodder
Hypoxidaceae					
<i>Curculigo orchioides</i> Gaertn.	Kali-musli	1800-2200	H	WP	Medicinal (Abortifacient antidote to poison, asthma, blindness, cough, cuts, dysentery, ear complaints, epilepsy, eye complaints like white spots on ball, filaria, fever, galactagogue, itching, leucoderma, nose bleed, piles, bleed, scorpion bite, skin disease, snake bite, tonic, venereal complaints,

<i>Hypoxis aurea</i> Lour.	-	1500-2000	H	Tu	wounds veterinary, eye disease); Edible Medicinal (Injuries, swelling); Edible
Juglandaceae					
<i>Engelhardtia spicata</i> Bl.	Ripekam	1500-1600	T	Lf	Fish poison
<i>Juglans regia</i> L.	Akhrot	1500-2200	T	Bk, Lf, Fr	Medicinal (Anthelmintic, astringent, frost bite, rheumatism, sores of toes, toothache); Edible, fuel
Lamiaceae					
<i>Ajuga brachystemon</i> Maxim.	-	1500-2200	H	Lf	Medicinal (Ascariasis)
<i>A. parviflora</i> Benth.	Tipati	1500-2200	H	Lf, Sd	Medicinal (Ascariasis)
<i>Anisomeles indica</i> (L.) Ktze.	Ramtulsi	1500-1800	H	WP	Medicinal (Antidote to poisonous bite, antipyretic, astringent, carminative, fever, muscles pain, nervous complaints, refrigerant, uterine infection)
<i>Colebrookia oppositifolia</i> Sm.	-	1500-1800	H	Px, Lf	Medicinal (Cough, sores, wounds)
<i>Coleus forskohlii</i> (Willd.) Bri.	Badda-jari	1500-1900	H	Rt	Medicinal (Blood pressure, constipation, tonic)
<i>Mentha arvensis</i> L.	Podina	1500-2200	H	WP	Medicinal (Stomach ache, liver disorder, vomiting)
<i>Ocimum canum</i> Sm.	Tulsi	1500-2200	H	WP	Medicinal (Bronchitis, itching, ear complaints, leprosy, fever, ring worm); Edible (As Tea); Religious
<i>Origanum vulgare</i> L.	Bantulsi	1500-2200	H	WP	Medicinal (Cold, diarrhoea, fever, hysteria, influenza, menstrual complaints, stimulant, tonic); Edible, Religious
<i>Salvia lanata</i> Roxb.	Gania	1500-2200	H	Rt	Medicinal (Adulterant)
<i>Thymus linearis</i> Benth.	Banajwain	1500-2200	H	WP	Medicinal (Anthelmintic, eye disorder, heating effect, labour, postnatal, liver complaints, skin disease, stomach ache, vermicidal); Edible
Lardizabalaceae					
<i>Hoelboelia latifolia</i> Wall.	-	1500- 2200	Sh	Fr	Edible
Lauraceae					
<i>Cinnamoum tamala</i> Nees and Ebern	Tajpat	1500-1600	T	Bk, Lf	Medicinal (Heart and throat complaints); Spices
<i>Litsea umbrosa</i> Nees	Putli	1600-2200	T	Lf	Fodder; Fuel
<i>Persea duthiei</i> (King, ex Hk.f.) Kostern.	Kaul	1500-2200	T	Lf	Fuel; Fodder
<i>P. odoratissima</i> Nees	Kaul	1800-2200	T	Lf	Fuel; Fodder
Leeaceae					
<i>Leea asiatica</i> (L.) Ridsdale	Kumali	1500-1700	H	Fl, Rt, Fr	Medicinal (Cuts, wounds, rheumatism, snake bite, urine complaints); Edible
Liliaceae					
<i>Gloriosa superba</i> L.	-	1500-1600	H	Rh, Px, Rt	Medicinal (Rheumatic pain, leprosy, piles, gout)
<i>Lilium polyphyllum</i> Don ex Royle	Kandmool	1600-2200	H	Bb	Medicinal (Tonic)
<i>Paris polyphylla</i> Sm.	Satwa	1600-2000	H	Rh	Medicinal (Diarrhoea, fever)

<i>Polygonatum verticillatum</i> Wall.	Khol	1500-2000	H	Rh, Bb	Medicinal (Aphrodisiac, appetite, nervine tonic, tonic); Edible
<i>Smilacina purpurea</i> Wall.	-	1700-2200	H	WP	Edible
<i>Trillidium govanianum</i> (Don.) Kunth	Satwa	1800-2200	H	Tu	Medicinal (Dysentery)
<i>Tulipa stellata</i> Hk. f.	-	1500-1600	H	Fr	Edible
Loranthaceae					
<i>Dendrophthoe subfalcata</i> (L.f.) Etting	-	1500-1700	Sh	Fr	Edible
<i>Taxillus vestitus</i> (Wall.) Danser	-	1500-2200	Sh	Fr	Edible
<i>Viscum album</i> L.	Raghumola	1500-1800	Sh	WP	Medicinal (Abortifacient, antifertility bodyache, spleen complaints)
Lythraceae					
<i>Woodfordia fruticosa</i> (L.) Kurz.	Dhai	1500-1600	Sh	St, Fl, Rt, Infl	Medicinal (Bleed in pregnancy, bone fracture, burns, cancer, carbuncle, cholera, cooling, cough, diarrhoea, dropsy, dysentery, fever, haemorrhage, injuries, loss of appetite in pregnancy, menorrhoea, muscle pain, nausea, night blindness, fever, rheumatism, skin disease, small pox, sores, spleen complaints, sprain, tonic, ulcer wounds, veterinary sores); Edible
agnoliaceae					
<i>Michelia kisopa</i> Buch.-Ham.	Chafa	1700-1800	T	Wd	Fuel; Agricultural tools
Malvaceae					
<i>Gossypium arboreum</i> L.	Kapas	1600-1800	H	Fi (Fiber)	Religious
<i>Hibiscus rosa-sinensis</i> L.	Gurhal	1500-1900	H	Fl	Medicinal (Kidney disease, Urine complaints); Religious
<i>Malva verticillata</i> L.	Chiroti	1700-2000	H	Sd, Lf, Rt, Sh	Medicinal (Cough, emollient pectoral complaints, piles, ulcer, urine complaints); Edible
Melastomaceae					
<i>Osbeckia stellata</i> Buch.-Ham. ex Don	Handisamba	1500-2000	Sh	Rt, Lf	Medicinal (Cough, digestion, dysentery, nose bleed, snake bite, wounds, stomachache, toothache)
Meliaceae					
<i>Melia azedarach</i> L.	Bakain	1500-1600	T	Fr, Lf, Bk, Sh	Medicinal (Anthelmintic, antiseptic, blood purification, hair fall, headache, insecticidal, promote conception, rheumatism, gout, skin disease, vermifuge, wounds); Edible
<i>Toona ciliata</i> Roem.	Toon	1500-1600	T	Bk, Fr, Lf	Medicinal (Antiseptic, dysentery, bronchitis, fever, gastric trouble); Fodder
<i>T. serrata</i> (Royle) Roem.	Dalla	1500-1600	T	St	Agricultural tools
Menispermaceae					
<i>Cissampelos pariera</i> L.	-	1500-1600	H	WP	Medicinal (Stomachic, tonic, diuretic and antilithic, astringent, diarrhoea, dropsy, urinary problem)

<i>Stephania glabra</i> (Roxb.) Miers.	Ganjaroo	1500-1800	H	Tu, Rt	Medicinal (Asthma, body pain, headache, eye and skin diseases, tumor in stomach)
<i>Tinospora cordifolia</i> (Willd.) Miers.	Giloe, Gurch	1500-1600	Sh	WP	Medicinal (Antipyretic, aphrodisiac, asthma, bone fracture, cough, debile, diarrhoea, diphtheria, dysentery, fever, headache, stomachache, toothache); Edible
Mimosaceae					
<i>Acacia dealbata</i> Link.	Acacia	1500-1800	T	Bk, St	Timber; Fuel; Tanning
<i>Albizia julibrissin</i> Duraz	Siris	1700-2110	T	Lf	Medicinal (Astringent, leprosy, piles, diarrhoea, gonorrhoea); Fodder; Timber
Moraceae					
<i>Ficus nemoralis</i> Wall. ex Mir	Chil	1500-2200	T	Lf, Fr	Edible; Fodder; Fuel
<i>F. palmata</i> Forsk.	Bedu	1500-2000	T	Fr, La	Medicinal (Dysentery, indigestion, laxative); Edible; Fodder
<i>F. religiosa</i> L.	Pipal	1500-1800	T	Lf, Fr, Px, Bk	Medicinal (Abortifacient, asthma, blisters, boils, ulcer, carbuncle, cholera, dysentery, fever, gonorrhoea, haematuria, laxative, rheumatism, scabies, skin disease, small pox, snake bite, sores, sores in mouth, spermatorrhoea, tonic, toothache, urinary complaints, whooping cough); Edible
<i>F. roxburghii</i> Wall.	Timala	1500-2000	T	Lf, Rt, Sh	Edible; Fodder
<i>F. rumphii</i> Bijdr.	Pilik	1500-1600	T	Fr	Edible; Fodder
<i>F. scandens</i> Lam.	Bedhuli	1500-1800	Sh	Lf	Fodder
<i>Morus serrata</i> Roxb.	Keemu	1500-2000	T	Fr, Lf	Edible; Fodder
Musaceae					
<i>Musa paradisiaca</i> L.	Kela	1500-2200	H	Fr, WP	Edible; Religious
Myricaceae					
<i>Myrica esculenta</i> Buch.-Ham. ex Don	Kaphal	1500-2200	T	Bk, Fr	Medicinal (Asthma, cholera, cough, diarrhoea, dysentery, fever, indigestion, malaria menorrhoea, rheumatism); Edible; Fuel
Myrsinaceae					
<i>Myrsine africana</i> L.	Darimkunji	1500-2200	Sh	AP	Medicinal (Cathartic, colic pain, vermifuge); Broom making
Myrtaceae					
<i>Psidium guajava</i> L.	Amrud	1500-1600	T	Fr	Edible
<i>Syzygium cumini</i> (L.) Skeels	Jamun	1500-1600	T	Bk, Lf, St, Sd	Medicinal (Anemia, astringent, blisters in mouth, cancer, colic, diabetes, diarrhoea, digestion complaints, dysentery, piles, pimples, stomachache, tonic); Edible
Oleaceae					
<i>Fraxinus micrantha</i> L.	Angua	1500-2000	T	St	Agricultural tool; Fuel
<i>Jasminum dispermum</i> Wall.	Chameli	1500-1800	Sh	Lf	Fodder
<i>J. grandiflorum</i> L.		1600-1800	Sh	Lf, Fl	Fodder, Essential oil

<i>J. humile</i> L.	Sungli	1500-2000	Sh	Rt, Bk	Medicinal (Skin disorder, sinus)
Orchidaceae					
<i>Habenaria edgeworthii</i> Hk.f. ex Collett	-	1800-2100	H	Tu	Medicinal (Blood purifier, rejuvenator)
<i>H. intermedia</i> Don	-	1500-2000	H	Tu	Medicinal (Tonic); Edible
<i>Malaxis acuminata</i> Don	Lasania	1500-2200	H	Lf, Rt	Medicinal (Tonic)
<i>M. cylindrostachya</i> (Lindl.) O.Ktze	-	1500-2000	H	Pseudo bulb	Medicinal (Tonic)
<i>Satyrium nepalense</i> Don	-	1500-2200	H	Rt	Medicinal (Malaria, dysentery and tonic)
Oxalidaceae					
<i>Oxalis corniculata</i> L.	Kahtta-mitha	1500-2200	H	WP	Medicinal (Appetite, cooling, corn, cough, cuts, diarrhoea, digestive, dysentery, epilepsy, eye complaints, fever, insect bite, jaundice, refrigerant, scurvy, skin disease, snake bite, stomachache, swelling, wart); Edible
Parnassiaceae					
<i>Parnassia nubicola</i> Wall. ex Royle	Nibris	1800-2200	H	Tu	Medicinal (Food poisoning, snakebite)
Plantaginaceae					
<i>Plantago himalaica</i> Pingler	Isabgol	1600-2200	H	Sd	Medicinal (Catarrhoea, gonorrhoea, nephritic, dysentery, diarrhoea, chronic diarrhoea, fever, rheumatism, gouty swelling, cough, cold)
<i>P. lanceolata</i> L.	Isabgol	1600-2200	H	Lf	Medicinal (Blood purifier)
<i>P. ovata</i> L.	Isabgol	1600-2200	H	Sd	Medicinal (Catarrhoea, gonorrhoea, nephritic, dysentery, diarrhoea, chronic diarrhoea, fever, rheumatism, gouty swelling, cough, cold)
Poaceae					
<i>Apluda mutica</i> L.	-	1500-1800	H	AP	Medicinal (Mouth sores); Fodder
<i>Arundinella nepalensis</i> (Trin.) Hochr.	-	1500-2200	H	AP	Medicinal (Making lotion for washing wounds)
<i>A. pumila</i> (Hochst. ex A. Rich.) Steud.	-	1800-2200	H	AP	Fodder
<i>Avena sativa</i> L.	-	1500-2000	H	AP	Edible; Fodder
<i>Arthraxon lanceolatus</i> (Steud.) Dandy	-	1700-2200	H	AP	Fodder
<i>A. lancifolius</i> (Trin.) Hochst.	-	1700-2200	H	AP	Fodder
<i>A. nudus</i> (Steudr.) Hochst.	-	1500-2000	H	AP	Fodder
<i>Bothriochola intermedia</i> (R.Br.) A. Camus	-	1500-2200	H	AP	Fodder
<i>B. pertusa</i> (L.) A. Camus	-	1700-2200	H	AP	Fodder
<i>Brachiaria ramosa</i> (L.) Stapf.	-	1500-1800	H	AP	Fodder
<i>Chrysopogon gryllus</i> (L.) Trin.	-	1500-2200	H	AP	Fodder
<i>C. serrulatus</i> Trin.	-	1500-2000	H	AP	Fodder
<i>Cynodon dactylon</i> (L.) Pers.	Doob	1500-2000	H	WP	Medicinal (Antifertility, carbuncle, cramps, cooling cramps, dropsy, dysentery, hysteria, headache, menstrual complaints, ophthalmia, piles, snake bite, sores, stop bleed tonic, ulcers in stomach, urinary complaints, vomiting,

<i>Cymbopogon distans</i> (Nees) Wats.	-	1500-1800	H	Sd	wounds); Religious Essential oil
<i>C. martinii</i> (Roxb.) Wats.	Rosha	1800-2200	H	Lf	Medicinal (Biliousness, rheumatism, skin disease)
<i>Dendrocalamus strictus</i> (Roxb.) Nees	Mat, Karil	1500-1700	T	Lf, Rt, Sh, Sd	Medicinal (Antifertility, cough, fever on injuries, tonic, veterinary); Edible Fodder
<i>Dichanthium annulatum</i> (Forsk.) Stapf.	-	1500-1800	H	AP	
<i>Digitaria cruciata</i> (Nees ex Steud.) A. Camus	-	1600-2000	H	AP	Fodder
<i>Drepanostachyum falcatum</i> (Nees) Keng.f.	-	1500-2200	Sh	Lf	Fodder
<i>Eleusine indica</i> (L.) Gaertn.	Anamandia	1500-2000	H	WP	Medicinal (Fever)
<i>Eragrostis pilosa</i> (L.) Beauv.	-	1500-1800	H	AP	Fodder
<i>Erianthus rufipilus</i> (Steud.) Griseb	Kans ghas	1500-1600	H	AP	Fodder; Religious
<i>Eulaliopsis binata</i> (Retz.) Hubb.	-	1500-1800	H	AP	Fibre; Cordage; Matting
<i>Heteropogon contortus</i> (L.) Beauv.	Kher	1500-2000	H	WP	Medicinal (Asthma, atrophy, dysentery, emaciation, fever, muscle pain, piles, rabies, dog, jackal bite, scorpion sting, snake bite, toothache)
<i>Isachne albens</i> Trin	-	1500-1800	H	AP	Fodder
<i>Setaria glauca</i> (L.) Beauv.	Kangua	1500-2200	H	Sd	Edible
<i>Themeda anathera</i> (Nees ex Steud.) Hack.	-	1500-2200	H	AP	Fodder
<i>Poa annua</i> L.	-	1800-2200	H	AP	Fodder
<i>P. lpine</i> L.	-	1600-2200	H	AP	Fodder
<i>Thysanolaena maxima</i> (Roxb) Ktze.	Aous	1500-1700	Sh	Sd, Fl, Rt, Px, St, Infl	Fodder; Broom
Polygonaceae	-				
<i>Fagopyrum debotrys</i> (Don) Hara	Jahnkara	1500-2200	H	Rt, Lf, Sd, St	Medicinal (Vermicide); Edible
<i>F. esculentum</i> (L.) Moench.	Ugal	1500-2200	H	Rt, Fr, Lf	Medicinal (Lung disorder, rheumatism, typhoid, urine complaints); Edible
<i>Polygonum amplexicaule</i> Don	Ban-madua	1500-2200	H	Lf, Rh	Medicinal (Cough, dysentery, haemostat, tonic); Edible
<i>P. capitatum</i> Buch.-Ham. ex Don	-	1500-1800	H	WP	Medicinal (Antidote in snake bite, boils, insect stings)
<i>P. hydropiper</i> L.	Jiyanti	1500-2000	H	Infl, Lf	Medicinal (Ringworm, skin disease)
<i>P. nepalense</i> Meissn.	Birsai	1500-2200	H	Lf	Medicinal (Swelling); Edible
<i>P. recumbens</i> Royle ex Bab.	Vishalaya	1600-2200	H	WP	Medicinal (Abscess, blood purification, boil, skin disease, nodule formation)
<i>Rumex nepalensis</i> Spr.	Khuldia	1500-2200	H	Lf, Tw, Rt	Medicinal (Boil, colic, cooling, diuretic, purgative, scurvy, swelling of muscles)
<i>R. hastatus</i> Don	Chalmora	1500-2200	H	WP	Edible
Primulaceae					
<i>Lysimachia lobelioides</i> Wall. ex Hk.	-	1500-2200	H	Lf	Medicinal (Snake bite)
<i>Primula denticulata</i> Sm.	-	1600-2200	H	Lf	Religious
Punicaceae					

<i>Punica granatum</i> L.	Anar	1500-2200	T	Rt, St, Fr, Lf	Medicinal (Anthelmintic, stop bleeding, child birth, miscarriage, cholera, cooling, cough, diarrhoea, dysentery, eye complaints, pimples, stomachache); Edible
Ranunculaceae					
<i>Clematis buchananiana</i> DC.	Veraphul	1500-2200	H	Lf, Rt, St	Medicinal (Skin disease, sores, tumors)
<i>Delphinium denudatum</i> Royle	Nirbishi	1800-2200	H	Rt	Medicinal (abdominal pain, anthelmintic, respiratory complaint, toothache, ulcer, vetlice, ticks)
<i>Ranunculus diffusus</i> DC.	Ranunculus	1500-2200	H	WP	Medicinal (Boils)
<i>Thalictrum foliolosum</i> DC.	Mamiri	1600-2200	H	Rt	Medicinal (Abdominal pain, blood purification, boils, earache, eczema, eye disease, fever luecoderma, piles, rheumatism, gout, tonic, toothache)
Rhamnaceae					
<i>Rhamnus purpurea</i> Edgew.	Bakauro	1600-2200	Sh	Fr	Medicinal (Purgative)
<i>R. virgatus</i> Roxb.	Chato	1500-2200	Sh	Fr	Medicinal (Emetic, purgative, affection of spleen)
Rosaceae					
<i>Cotoneaster microphylla</i> Wall. ex Lindl.	Bakari Chara	1500-2200	Sh	Rh, Lf	Medicinal (Astering); Fodder; Edible
<i>Duchesnea indica</i> (Andr.) Focks.	Jangli-haldier	1500-1600	H	WP	Medicinal (Cuts, eye disease, swelling, ulcer on tongue, veterinary); Edible
<i>Fragaria nubicola</i> L.	Bankahal	1500-2200	H	Fr	Edible
<i>Potentilla fulgens</i> Wall. ex Hk.f.	Bajrdanti	1500-2000	H	Rt	Medicinal (Astering, gum, tooth complaints, tonic)
<i>Prinsepia utilis</i> Royle	Bhainkal	1800-2200	Sh	Sd, Fr	Medicinal (Burns, cuts, rheumatism, wounds); Edible
<i>Prunus armeniaca</i> L.	Khubani	1500-2000	T	Fr	Edible; Fuel
<i>P. cerasoides</i> Don	Paya, Padam	1500-2000	T	Lf, Fr	Fodder; Edible; Fuel; Religious
<i>Pyracantha crenulata</i> (Don) Roem.	Ghingaru	1500-2200	Sh	Fr, St	Edible; Fuel; Agricultural tool
<i>Pyrus pashia</i> Buch.-Ham. ex Don	Mehal	1500-2200	T	Lf, Fr	Medicinal (Eye complaints); Edible; Fuel; Fodder; Religious
<i>Rosa moschata</i> L.	Rosa	1500-2200	Sh	Fr	Edible; Fuel; Fodder
<i>Rubus biflorus</i> Buch.-Ham. ex Sm.	Hisalu	1500-2200	Sh	Fr	Edible
<i>R. ellipticus</i> Don	Hisalu	1500-2000	Sh	Fr, Rt	Medicinal (Dysentery, malaria, stomachache, worms); Edible
<i>R. paniculatus</i> Sm.	Jogi-hisalu	1500-2200	Sh	Lf, Fr	Medicinal (Diarrhoea, stomach disorder); Edible
<i>Stranvaesia naussia</i> (Don) Dcne.	Garmehal	1500-2200	T	Lf, St	Fodder; Fuel
Rubiaceae					
<i>Leptodermis lanceolata</i> Wall.	Baramujara	1500-2200	Sh	Rt	Medicinal (Boils, blisters in mouth)
<i>Randia tetrasperma</i> (Roxb.) Benth.	-	1500-1900	Sh	Fr	Edible
<i>Rubia manjith</i> Roxb. ex Flem.	Manjith	1500-2200	H	St, Rt, Lf	Medicinal (Antidote to scorpion bite, snake bite, astringent, chest complaints, lecuoderma,

						inflammation, jaundice, liver complaints, paralysis, menorrhoea, urine complaints, ulcer, stomachache); Dye
Rutaceae						
<i>Boeninghausenia albiflora</i> (Hk.) Reichb	Nukmman	1800-2200	H	Rt		Medicinal (Toothache, wounds, kill flea, lice, other insects)
<i>Citrus limon</i> (L.) Burm.	Nibu	1500-2000	T	Fr		Medicinal (Digestive disorder; headache)
<i>C. medica</i> L.	Nibu	1500-1800	T	Fr		Medicinal (Digestive disorder, headache, liver complaints, gastric complaints)
<i>Skimmia laureola</i> (DC.) Zucc.	Naraya patti	1700-2200	Sh	Lf		Medicinal (Incense); Religious (making dhoop)
<i>Zanthoxylum armatum</i> DC.	Timur	1500-1800	T	Fr, Sd		Medicinal (Anthelmintic, carminative, cough, cholera, fever, eczema, itching, leucoderma, piles, rheumatism, small pox, snake bite, stomachache, indigestion, tonic, tooth complaints); Edible
Sabiaceae						
<i>Meliosma pungens</i> Walp.	Ghosa	1500-2000	T	Lf		Fodder; Fuel
Salicaceae						
<i>Populus ciliata</i> Wall. ex Royle	Makal	1600-2000	T	Bk, Wd		Medicinal (Bone fracture)
Saxifragaceae						
<i>Astible rivularis</i> Buch.-Ham. ex Don	Padum	1500-2200	H	Lf		Medicinal (Blood purification, toothache); Edible
<i>Bergenia ligulata</i> (Wall.) Engl.	Silphor, Pashanbhed	1500-2200	H	Lf, Rh		Medicinal (Asthma, boils, cuts, wounds, burns, fever, liver complaints, piles, kidney stone, urine complaints); Edible
Scrophulariaceae						
<i>Lindenbergia indica</i> (L.) Ktze.	-	1500-2000	H	Lf		Medicinal (Bronchitis, skin disease, eruption, throat sore, toothache)
<i>Pedicularis bicornuta</i> Klotz. ex Klotz. and Garcke	-	2000-2200	H	Lf		Medicinal (Bodyache, sedative)
<i>Verbascum thapsus</i> L.	Akalveer	1500-2200	H	Sd		Medicinal (Asthma, cough, diarrhoea, inflammation, leucoderma, veterinary)
Smilacaceae						
<i>Smilax aspera</i> L.	Kukaradara	1500-2200	Sh	Rt, Lf, St		Medicinal (Skin eruption, sores, wounds); Fuel
Solanaceae						
<i>Cestrum nocturnum</i> L.	-	1500-2000	Sh	WP		Medicinal (Antispasmodic, epilepsy)
<i>Datura stramonium</i> L.	Datura	1500-1600	H	Lf, Px, Sd, Fr		Medicinal (Asthma, dislocation of joints, jaundice, rheumatism, stomach complaints, toothache, veterinary lactation)
<i>Solanum indicum</i> L.	Banbhantawa	1500-2200	H	Fr, Rt		Medicinal (Bodyache, fever, toothache, wounds, veterinary, bleeding from nostrils); Edible

<i>S. nigrum</i> L.	Makoi, Ninini	1500-2000	H	WP	Medicinal (Boils, cough, diarrhoea, dysentery, ear complaints, eye complaints, fever, goiter, inflame of scrotum, testile kidney bladder, jaundice, liver complaints, nostril complaints, piles, rheumatism, skin disease, sores, stomachache, swelling, throat trouble, ulcer in mouth, urine complaints); Edible
Symplococaceae					
<i>Symplocos chinensis</i> (Lour.) Drace	Lodh	1500-2200	T	Bk, Lf	Medicinal (Astringent, diarrhoea); Fuel; Agricultural tools
Theaceae					
<i>Eurya acuminata</i> DC.	Dhiyar	1500-2200	T	Lf	Medicinal (Dysentery, diarrhoea, cholera, stomach disease)
Thymelaeaceae					
<i>Daphne papyracea</i> Wall. ex Steud.	-	1500-2200	Sh	Rt, Lf	Medicinal (Intestinal complaints); Fodder; Fiber (Making)
<i>Wikstroemia canescens</i> Meissn.	-	1800-2200	Sh	Lf, Bk	Medicinal (Piscidal); Fiber (Making)
Tiliaceae					
<i>Grewia oppositifolia</i> Buch.-Ham.	Bhimal	1500-1700	T	Lf, St, Bk	Medicinal (Eruption, fever, veterinary, bone fracture as splinter); Fodder; Fiber; Fuel
Ulmaceae					
<i>Celtis australis</i> L.	Kharik	1500-2000	T	Lf, Rt, Bk	Fodder; Fuel
<i>Ulmus wallichiana</i> Planch	Pa Uttis	1800-2200	T	Bk	Medicinal (Bone fracture, Bone dislocation)
Urticaceae					
<i>Debregeasia longifolia</i> (N. Burman) Wedd.	Tushiaru	1500-2000	T	Fr, Lf	Edible; Fodder
<i>D. salicifolia</i> (Don) Rendl.	-	1500-2000	T	Fr, Lf	Fodder; Edible
<i>Girardinia palmata</i> (Forsk.) Gaud.	Bangre-sisnu	1600-2200	H	Bk, St	Fiber
<i>Parietaria debilis</i> Frost	Chiphal-jar	1500-2200	H	Rt	Medicinal (To remove dandruffs)
<i>Pilea scripta</i> (Buch.-Ham. ex Don) Wedd.	Patyu	1500-2200	H	AP	Fodder
<i>Pouzolzia hirta</i> Hassk.	-	1500-1600	H	Lf	Medicinal (Hair tonic)
<i>Urtica hyperborea</i> Jacq. ex Wedd.	Bichhu ghass	1500-2200	H	WP, Lf	Medicinal (Antiseptic, gout, swelling)
<i>U. parviflora</i> Roxb.	Kaniyali, Lovie	1500-2200	Sh	Sd, Lf, Rt, Infl	Medicinal (Astringent, dog bite, wound, kidney disorder, post natal tonic, throat pain, tonic); Edible
Valerianaceae					
<i>Valeriana hardwickii</i> Wall.	Samaya	1800-2200	H	WP	Medicinal (Antidote to poisonous insects scorpion, epilepsy, hysteria, neurosis, skin disease); Religious
<i>V. jatamansi</i> Jones	Samayo	1500-2200	H	Rh	Medicinal (Epilepsy, hysteria, urine complaints); Religious
Verbenaceae					
<i>Callicarpa arborea</i> Roxb.	Arhi	1500-1600	T	Lf, St, Bk	Medicinal (Fever, gastric disease, gidding, headache, pneumonia, scorpion sting, skin disease)

<i>Clerodendron serratum</i> (L.) Moon	Bhetkona	1500-1600	H	Rt, Lf, Fl	Medicinal (Anasarca, appetite, bodyache, cholera, cuts, dropsy, cough, eye disease, fever, malaria, rheumatism, snake bite, ulcer, wounds); Edible
Violaceae					
<i>Viola canescens</i> Wall.	Banfasa	1500-2200	H	Lf, Fl	Medicinal (Asthma, bronchitis, cold, cough, eye disease, malaria)
<i>V. pilosa</i> L.	Banfasa	1500-2200	H	WP	Medicinal (Antipyretic, biliousness, cold, cough, diaphoretic fever, lung disease)
Vitaceae					
<i>Parthenocissus himalayana</i> (Royle) Planch.	-	1600-2200	Sh	Fr	Edible; Fodder
<i>Vitis lanata</i> Roxb.	-	1500-1800	Sh	WP	Fodder
Zingiberaceae					
<i>Curcuma longa</i>	-	1600-2000	H	Rh, Lf	Medicinal (Cough, fever, leprosy, insect bite, body swell, wounds)
<i>Globo racemosa</i> Sm.	-	1500-2200	H	WP	Medicinal (Whooping cough)
<i>Hedychium spicatum</i> Buch.-Ham. ex Sm.	Ban-haldi	1500-2200	H	Rh	Medicinal (Asthma, blood purification, bronchitis, nausea); Fodder
<i>Zingiber officinale</i> Rosc.	Adrak	1500-1800	H	Rh	Medicinal (Asthma, cough, cold, liver disorder); Edible

Gymnosperms

Cupressaceae					
<i>Cupressus torulosa</i> D. Don	Surai	1700-2200	T	St	Fuel; Timber
Pinaceae					
<i>Abies pindrow</i> Spach.	Rago	1800-2200	T	La/Res, Br	Medicinal (Rheumatism, ulcer); Fuel
<i>Pinus roxburghii</i> Sarg.	Chir	1500-2200	T	Sd, St, Re	Medicinal (Boils, bone fracture, cracks in sole of feet, leprosy, other skin disease, snake bite, sprain, swelling, ulcers, urine complaints); Edible; Fuel; Timber; Agricultural tools
<i>Cedros deodara</i> (Royle ex D. Don) G. Don	Deodar	1700-2200	T	La/Res, St	Medicinal (Anthelmintic, rheumatism, ulcers); Fuel; Timber
Taxaceae					
<i>Taxus baccata</i> subsp. <i>wallichiana</i> (Zucc.) Pilger	Thuner	2000-2200	T	Bk, Bk oil, Lf	Medicinal (Anti cancer); As Tea; Fuel

Pteridophytes

Adiantaceae					
<i>Adiantum edgerworthii</i> Hk.	-	1500-2200	H	Frd	Medicinal (Mouth blisters)
<i>Adiantum venustum</i> D. Don	Sunraj, Hansraj	1500-2200	H	Frd	Medicinal (Fever)
Aspidiaceae					
<i>Polystichum squarrosus</i> (Don) Fee	-	1600-2200	H	Rh	Medicinal (Fever)
Athyriaceae					
<i>Diplazium esculentum</i> (Retz.) Sw.	Dhuskia	1500-2200	H	Frd, St	Medicinal (Constipation); Edible

Aspleniaceae

<i>Asplenium dalhousiae</i> Hk.	-	1500-2000	H	Frd	Medicinal (Typhoid)
---------------------------------	---	-----------	---	-----	---------------------

Cryptogrammaceae

<i>Onychium contiguum</i> Wall. ex Hope	-	1500-2200	H	Frd	Medicinal (Typhoid, fever)
---	---	-----------	---	-----	----------------------------

Lygodiaceae

<i>Lygodium flexuosum</i> (L.) Sw.	-	1600-1800	H	Rh	Medicinal (Skin disease)
------------------------------------	---	-----------	---	----	--------------------------

Ophioglossaceae

<i>Ophioglossum reticulatum</i> L.	Jibhiya	1800-2200	H	Frd	Edible
------------------------------------	---------	-----------	---	-----	--------

Abbreviations used: H=Herb; T=Tree; Sh=Shrub; St=Stem; Fr=Fruit; Rh=Rhizome; Sd=Seed; Res=Resin; WP=Whole Plant; Ap= Aerial Part; Lf=Leaf; Fl= Flower; Infl=Inflorescence; Bk=Bark; Kr=Kernel; AP= Aerial part; Rt=Root; Tu=Tuber; Rh=Rhizome; La= Latex; Frd= Frond; Wd= Wood; Fi=Fiber; and Bb= Bulb; Bk=Bark

Discussion/ Conclusion

The present study provides comprehensive information on the indigenous uses and traditional practices of the plants used by the inhabitants of the MRF. According to a report of the World Health Organization (WHO), over three fourth of the World population cannot afford the products of the modern medicine and have to rely on the use of traditional medicine of plant origin (Rai et al., 2000). Each plant possesses some intrinsic potency. Traditional medicine has a long history and wide acceptability. The inhabitants of the region use traditional medicine to cure the diseases. They use different plant parts in different ratio to cure disease/aliments. The natural health care system is getting a great attention these days. Therefore, documentation of information on indigenous knowledge and practices will help in conserving the knowledge. Such information for the other parts of the IHR should also be documented; so that a comprehensive database of the plants used in various purposes could be made and information could be disseminated to the new generation for awareness and sustainable utilization of plants.

Acknowledgements

The authors are thankful to Dr. L.M.S. Palni, Director, G.B. Pant Institute of Himalayan Environment and Development, Kosi-Katarmal, Almora for facilities and encouragement. One of the authors (SP) is highly thankful to the Vice-Chancellor of the BGSB University, Rajouri for providing necessary facility and continuous encouragement. Authors greatly acknowledge the support and cooperation received from the local inhabitants during field surveys.

References

- Anonymous. 1883-1970. Index Kewensis Plantarum Phanerogamarum Vol. 1-2 (1883- 1885) and 15 Suppl. (1886-1970). Clarendon Press, Oxford.
- Babu CR. 1977. Herbaceous flora of Dehradun. CSIR, New Delhi.
- Dhar, U., Manjkhola, S., Joshi, M., Bhatt, I. D., Bisht, A.K., and Joshi, M. 2002. Current status and future

strategy for development of medicinal plants sector in Uttarakhand, India. *Current Science*, 83 (8): 956-964.

Farooquee, N.A. 1994. Transhumance in the central Himalaya: a study of its impact on environment. Ph.D. Thesis, H.N.B. Garhwal University, Srinagar.

Gaur, R.D. 1999. Flora of the district Garhwal northwest Himalayas (with ethnobotanical notes). Transmedia, Srinagar, Garhwal.

Jain, S.K. 1991. *Dictionary of Indian Folk Medicine and Ethnobotany*. Deep Publications, New Delhi.

Joshi, H.C., Arya, S.C., and Samant, S.S. 1999. Diversity, distribution and indigenous uses of medicinal and edible plants in a part of Nanda Devi Biosphere Reserve I. *Himalayan Biosphere Reserves (Biannual Bulletin)*, 1(1and2): 49-65.

Kala, C.P. 2005. Current status of Medicinal Plants used by traditional vaidhyas in Uttarakhand State of India. *Ethnobotany Research and Application*, 3: 267-278.

Kala, C.P., Farooquee, N.A., and Dhar, U. 2004. Prioritization of medicinal plants on the basis of available knowledge, existing practices and use value status in Uttarakhand, India. *Biodiversity and Conservation*, 13: 453-469.

Maikhuri, R.K., Nautiyal, S., Rao, K.S., and Saxena, K.G. 2000. Ethnobotany and indigenous knowledge of different Bhotia tribal sub-communities of Central Himalaya. *Indigenous knowledge and Development Monitor*.

Naithani, B.D. 1984 and 85. Flora of Chamoli, Vol I - II. Botanical Survey of India, Howrah, New Delhi.

Osmaston, A.E. 1978. A Forest Flora for Kumaun. International Book Distributors, Dehra Dun.

Pande, P.C. and Joshi, G.C. 2001. Indigenous medicinal uses of plants in Kumaun Himalaya. In: *Himalayan Medicinal Plants: Potential and Prospects* edited by: Samant SS, Dhar U, and Palni LMS, Gyanodaya Prakashan, Nainital. 117-124.

Pangtey, Y.P.S., Samant, S.S., and Rawat, G.S. 1988. Contribution to the flora of Pithoragarh district, Kumaun Himalaya. *Himalayan Research and Development*, 7: 24-46.

Pant, Shreekar. 2005. Plant Diversity and Ethnobotany of Mornaula Reserve Forest in Kumaun, West Himalaya. Ph.D Thesis, Kumaun University, Nainital.

Pushpangadan, P. 1995. Ethnobiology in India: a status report. Government of India, New Delhi.

Rai, L.K., Prasad Pankaj, and Sharma, E. 2000. Conservation threats to some important plants of the Sikkim Himalaya. *Biological Conservation*, 93: 27-33.

Samant, S.S. 1993. Diversity and status of plants in Nanda Devi Biosphere Reserve. In: *Scientific and Ecological Expedition to Nanda Devi*. Report, Army Head Quarters, New Delhi. 54-85.

Samant, S.S. 1998. Diversity, distribution and conservation of fodder resource of west Himalaya, India. In: *Proceedings of the Third Temperate Pasture and Fodder Network (TAPAFON)*, edited by Misri B (Pokhara, Nepal): 109-128.

Samant, S.S. and Pal. M. 2003. Diversity and conservation status of medicinal plants in Uttarakhand State. *Indian*

Forester, 129 (9): 1090-1108.

- Samant, S.S., and Dhar, U. 1997. Diversity, endemism and economic potential of wild edible plants of Indian Himalaya. *International Journal of Sustainable Development and World Ecology*, 4: 179-191.
- Samant, S.S., and Palni, L.M.S. 2000. Diversity, distribution and indigenous uses of essential oil yielding plants of Indian Himalayan Region. *Journal of Medicinal and Aromatic Plant Sciences*, 22: 671-684.
- Samant, S.S., and Pant, S. 2003. Diversity, distribution pattern and traditional knowledge of Sacred Plants in Indian Himalayan Region. *Indian Journal of Forestry*, 26 (3): 201-213.
- Samant, S.S., Dhar, U. and Palni, L.M.S. 2001. Himalayan Medicinal plants: Potential and Prospects. Gyanodaya Prakashan, Nainital.
- Samant, S.S., Dhar, U., and Palni, L.M.S. 1998. *Medicinal Plants of Indian Himalaya: Diversity Distribution Potential Values*. Gyanodaya Prakashan, Nainital.
- Samant, S.S., Joshi, H.C., Arya, S.C., and Pant, S. 2002. Studies on the structure, composition and changes of the vegetation in Nanda Devi Biosphere Reserve of West Himalaya. Final Technical Report submitted to Ministry of Environment and Forests, New Delhi.
- Samant, S.S. 1987. Flora of Central and South Eastern Parts of Pithoragarh District. Vol. I and II. Ph. D. Thesis, Kumaun University, Nainital.
- Singh, D.K. and Hajra, P.K. 1996. Floristic diversity. In: *Biodiversity Status in the Himalaya*, edited by Gujral, GS, and Sharma V: British Council, New Delhi: 23-38.
- Tripathi, G. 2001. Indigenous knowledge and traditional practice of some Himalayan medicinal plants. In: *Himalayan Medicinal Plants: Potential and Prospects*, edited by: Samant SS, Dhar U, and Palni LMS, Gyanodaya Prakashan, Nainital: 151-157.