

Ethnobotanical and Ethnomedicinal Uses of Floristic Diversity in Murari Devi and Surrounding Areas of Mandi District in Himachal Pradesh, India

¹Pankaj Sharma, ²Pooja Patti and ³Ajeet Agnihotry

¹G.B. Pant Institute of Himalayan Environment and Development, Himachal Unit,
Mohal-Kullu-175 126, Himachal Pradesh, India

²CMJ University, Meghalaya, India

³Department of Botany, NSCBM Govt. PG College, Hamirpur-177 001,
Distt. Hamirpur, Himachal Pradesh, India

Abstract: Traditional uses of floristic diversity are the most important component of indigenous knowledge system, which is widely practised by human populations all across the world. Keeping this in mind, the present study has been conducted during 2010-2012, to study the ethnobotanical and ethnomedicinal uses of floristic diversity in Murari Devi and surrounding areas of Mandi District in Himachal Pradesh, India. Total 384 species (71 trees, 97 shrubs, 209 herbs and 07 ferns) belonging to 106 families and 285 genera were recorded and used by the inhabitants of the area. Different parts of these species, such as whole plants, leaves, flowers, fruits, roots, seeds, stems, barks, etc. were used by the inhabitants for curing various ailments. Various anthropogenic activities, over exploitation and habitat degradation have led rapid population depletion of these species. Therefore, study on habitat ecology, development of conventional and *in-vitro* propagation protocols, development of agro techniques/plantation techniques and introduction in the akin habitats, education and awareness programs for the inhabitants are suggested. So that adequate planning for the conservation of these species could be done.

Key words: Ethnobotanical and ethnomedicinal uses, floristic diversity, over exploitation, himachal pradesh, Indian Himalayan region

INTRODUCTION

In rural areas human beings are totally depends on biodiversity for medicine, food, fuel, fodder, timber, making agricultural tools and various other purposes (Samant *et al.*, 1998). Indeed, biodiversity and humans have had a close mutual supportive relationship from the ancient times. The biodiversity upon which this large population depends have the critical character of being renewable, at least when they are managed well but biological resources that are abused can also become extinct (Heywood, 1995). The relationship among native communities and plant wealth is strongly revealed by well developed traditional health care practices and a variety of plant uses in various ceremonies, routine household uses and trading for economic gain (Singh, 1999). A large proportion of the world's population depends on traditional medicines to meet its needs. According to estimates, the proportion of the world's population using

traditional medicines ranges between 70 and 80% (Maikhuri *et al.*, 1998). In Asia, India and China are two of the largest countries, which have the richest array of registered and relatively well-known medicinal plants (Raven, 1998). In India about 2500 species of ethnobotanical importance are known (Jain, 1991). In the Indian Himalayan Region (IHR), 1748 medicinal plants (Samant *et al.*, 1998), 675 wild edibles (Samant and Dhar, 1997), 279 fodder (Samant, 1998), 118 essential oil yielding medicinal and aromatic plants (Samant and Palni, 2000) and 155 sacred plants (Samant and Pant, 2003) are known. In the Himalaya, 76% of total natural resource needs are derived from forests and agroforestry systems, mainly because they are free, easy to access and simple to use (Chettri and Sharma, 2006). The growing commercial trade of natural products, in particular plant medicines and crafts, has resulted in the harvest of increasing volumes from wild plant populations and has therefore generated concern about overexploitation (Tiwari, 2000).

Corresponding Author: Pankaj Sharma, Biodiversity Conservation and Management Theme,
G.B. Pant Institute of Himalayan Environment and Development, Himachal Unit,
Mohal-Kullu-175 126, Himachal Pradesh, India
Tel.: 01902-225329 (O), 01902-226347 Fax: +91-94187-76534

Furthermore, activities related to wild plants contribute to household incomes by providing employment opportunities and cash income from the sale of some of the products (Walter, 2001).

Like other states of the IHR, Himachal Pradesh blessed with rich biodiversity which is very difficult to find elsewhere in such a scale. The state has a large number of floral species to suit the local needs and habitat conditions. This wealth of valuable raw materials has been exploited by the local people in a variety of ways. Various studies has been carried out on ethnobotanical and ethnomedicinal uses of floristic diversity in Himachal Pradesh (Shabnam, 1964; Uniyal and Chauhan, 1971; Koelz, 1979; Jain, 1991; Chauhan, 1999; Singh, 1999; Badola, 2001; Sood and Thakur, 2004; Badola and Aitken, 2003; Kala, 2005; Uniyal *et al.*, 2006; Samant *et al.*, 2007a, b; Sharma *et al.*, 2010; Rana and Sawant, 2011; Thaplyal *et al.*, 2012). In spite of the efforts of the above workers many biodiversity rich areas are still unexplored or underexplored for the economically important floristic diversity. Therefore, comprehensive studies on ethnobotanical and ethnomedicinal uses of floristic diversity are essentially required so that pressure on the economically important biological resources could be identified and an adequate management plan for their conservation could be prepared. The present study has been made to assess the ethnobotanical and ethnomedicinal uses of floristic diversity and suggest strategies for the conservation, management and sustainable use of these important resources.

MATERIALS AND METHODS

Study area: The present study has been carried out in Murari Devi and surrounding areas, situated at a distance of 40 km in the south-west direction of Mandi district in Himachal Pradesh. This covers the 'Sikandra Dhar' ranges of submontane Himalayas between 31°37' 30" N latitudes and 76°49' 50"E longitudes. Murari Devi temple is a beautiful place in the west of Sundernagar on the top of a sacred hill named Murari Dhar. The study areas were fall in Suket, Bhambla and Nagrota Forest Divisions of Mandi District in Himachal Pradesh with an altitudinal range varies from 700-2000 m amsl. Geographically, the area constitutes a part of Mandi (an area formed by the merger of the erstwhile princely states of Mandi and Suket on the formation of Himachal Pradesh on 15 April, 1948). It is bounded by Sundernagar on south, Jogindernagar on north, Chachyot on east and Sarkaghat areas on west. The area is hilly and weather is subtropical monsoon (Puri, 1960).

Surveys, sampling, data collection and analysis: The inhabitants of 23 representative villages (Ukhla, Smaila,

Plassi, Kot, Baldwara, Bhambla, Sikandra, Bachawan, Kasmela, Math, Bhated, Balra, Alsogi, Chowk, Ambla galu, Kalkhar, Katoh, Badoun, Nadgi, Dabhoi, Trifalghat, Ropadi and Leda) located at different altitudes in the study area were selected to generate information on ethnobotanical and ethnomedicinal uses of economically important plants by the inhabitants of the area. For this local Vaidhyas and knowledgeable persons from each village were interviewed. The interviews were mostly individual, except in some cases, where several people participated at the same time. The language used with the informants was the local dialect of the study area viz., Mandiyali and Hindi. The age of respondents ranged from 22 to 65 years. Those older than 50 years had a rich knowledge base. Among the village experts, one person was hired to survey and collect the useful plant species from the natural habitats. Information on botanical binomial, local name, plant part sec⁻¹ used and the ailment for which it is used, altitudinal range, habit, habitat sec⁻¹ and use values was gathered. Fresh samples of the useful species were collected and identified with the help of local and regional floras (Chowdhery and Wadhwa, 1984; Dhaliwal and Sharma, 1999; Singh and Rawat, 2000; Khullar, 1994, 2000). Information on mode of utilization of medicinal plants was collected. The indigenous uses are based on the surveys, however in the case of medicinal plants information on indigenous uses has also been updated with the help of existing secondary information (Jain, 1991; Samant and Palni, 2000; Samant *et al.*, 2001, 2007b). Some species are not used by the inhabitants but their uses are known from other parts of the State and IHR have also been included. The wild edibles are either eaten fresh, boiled, cooked or in the form of dried or liquid products (Samant and Dhar, 1997). Fodder is either fed fresh or stored after drying to use during the lean period.

RESULTS

Diversity: A total of 384 species of vascular plants i.e., Angiosperms (100 families, 278 genera and 374 species), Gymnosperms (1 family, 2 genera and 3 species) and Pteridophytes (5 families, 5 genera and 7 species) were recorded. Of the total species, 71 species were trees, 97 shrubs, 209 herbs and 7 pteridophytes (Table 1).

Table 1: Taxonomic description of economically important plants in Murari Devi and surrounding areas in Mandi District of Himachal Pradesh, India

Taxonomic group	Families	Genera	Species	Herbs	Shrubs	Trees
Angiosperms	100	278	374	209	97	68
Gymnosperms	1	2	3	-	-	3
Pteridophytes	5	5	7	7	-	-
Total	106	285	384	216	97	71

Among families, Asteraceae (31 sp.); Fabaceae (25 sp.); Poaceae and Lamiaceae (17 sp., each); Rosaceae (12 sp.); Apiaceae (11 sp.); Anacardiaceae, Acanthaceae and Euphorbiaceae (10 sp., each); Caesalpiniaceae, Moraceae and Solanaceae (9 sp., each); Rubiaceae (8 sp.); Polygonaceae and Ranunculaceae (7 sp., each); Rutaceae and Urticaceae (6 sp., each); Boraginaceae, Rhamnaceae and Cyperaceae (5 sp., each); Araceae, Amaranthaceae, Commelinaceae, Convolvulaceae, Verbenaceae, Vitaceae and Zingiberaceae (04 sp., each) were the dominant. 33 families were monotypic. Among genera, *Ficus* (8 spp.); *Artemisia*, *Bauhinia*, *Cassia*, *Euphorbia* and *Rubus* (4 sp., each); *Albizia*, *Asparagus*, *Desmodium*, *Indigofera*, *Jasminum* *Justicia*, *Oxalis* and *Zizyphus* (3 sp., each) were species dominant (Appendix).

Distribution: Maximum number of species (i.e., 318 spp.) was recorded in the altitudinal zone, 700-1300 m followed by 310 species in the altitudinal zone, 1301-1800 m and 252 species in the altitudinal zone, >1800 m (Fig. 1). The diversity decreased with the increasing altitude. The representative species of altitudinal zone, 700-1300 m were *Bauhinia vahlii*, *Acorus calamus*, *Flacourtia indica*, *Bergenia ligulata*, *Quercus glauca*, *Acacia catechu*, *Morus alba*, *Dodonaea viscosa* *butea monosperma*, *Terminalia bellirica*, *Tinospora cordifolia*, *Kalanchoe spathulata*, *Murraya koenigii*, *Bombax ceiba*, *Pistacia integerrima*, *Emblica officinalis*, *Urtica dioica*, *Zanthoxylum armatum*, etc.; altitudinal zone, 1301-1800 m were *Plantago lanceolata*, *Debregeasia longifolia*, *Lyonia ovalifolia*, *Herminium lanceum*, *Agrimonia pilosa*, *Salix denticulata*, *Ulmus villosa*, *Valeriana jatamansi*, *Arundinaria falcata*, *Daphne papyracea*, *Girardinia diversifolia*, etc.; the altitudinal zone >1800 m were *Litsea glutinosa*, *Rhododendron arboretum*, *Polygonatum verticillatum*, *Thalictrum cultratum*, etc.

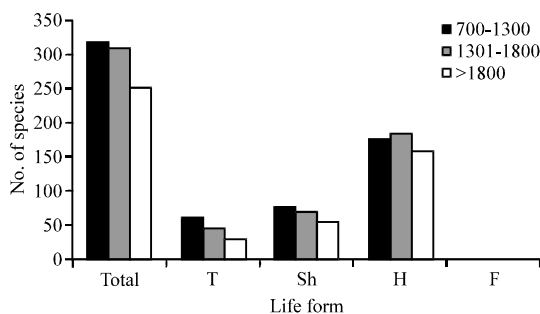


Fig. 1: Altitudinal distribution of species in Murari Devi and surrounding areas of Mandi District in Himachal Pradesh, India

Amongst the total species, *Achyranthes aspera*, *Cyathula capitata*, *C. tomentosa*, *Berberis lycium*, *Cannabis sativa*, *Cuscuta reflexa*, *Dioscorea bulbifera*, *Juglans regia*, *Colebrookia oppositifolia*, *Roylea cinerea*, *Apluda mutica*, *Rumex hastatus*, *Pyrus pashia*, *Rubia cordifolia*, *Hedychium spicatum*, *Ainsliaea aptera* and *Saccharum spontaneum* showed wide range of distribution.

Utilization pattern: Amongst 384 species, 314 were used as medicine, 105 wild edible/food, 97 fodder, 51 fuel, 21 religious, 05 each dye and fibre, 7 for making timber and agricultural tools and 17 for various miscellaneous purposes (Fig. 2). Among the parts of plants used, leaves of maximum species (166 sp.), followed by whole plant (114 sp.), roots (85 sp.) and fruits (82 sp.) (Fig. 3). Among all the species, 67 species have multipurpose utility. For example, *Pinus wallichiana* for medicine, timber, fuel and agricultural tools; *Cannabis sativa* for medicine, edible and fiber; *Berberis aristata* for medicinal, edible, fuel and religious; *Quercus glauca* used as fuel, fodder and making agricultural tools; *Juglans regia* used as medicinal, fuel, edible and also used in house building; *Pistacia integerrima* used for medicine, edible, fodder; timber and dye; *Bauhinia vahlii* as medicine, edible, fodder, fuel and religious purposes; *Quercus leucotrichophora* used for fuel, fodder and timber; *Cyanodon dactylon* used for medicine, religious and ornamental purposes in lawns; *Grewia oppositifolia* as medicinal, fodder, fuel and fibre and *Pyrus pashia* as edible, fuel and fodder (Appendix).

Indigenous Uses: Traditional/Indigenous practices of the plant resources for medicine, wild edible, fodder, fuel,

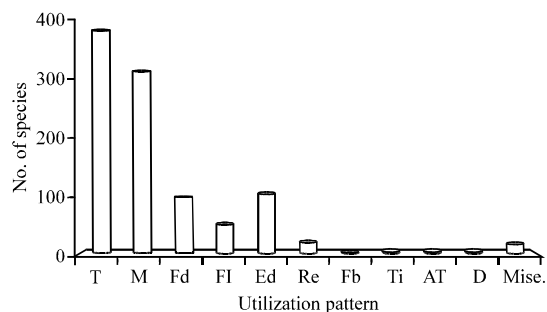


Fig. 2: Diversity and utilization pattern of economically important species in Murari Devi and surrounding areas in Mandi District of Himachal Pradesh, India, T: Total, M: Medicinal, Fd: Fodder, FI: Fuel, Ed: Edible, Re: Religious, Fb: Fibre, Ti: Timber, AT: Agricultural Tools, D: Dye and Misc: Miscellaneous

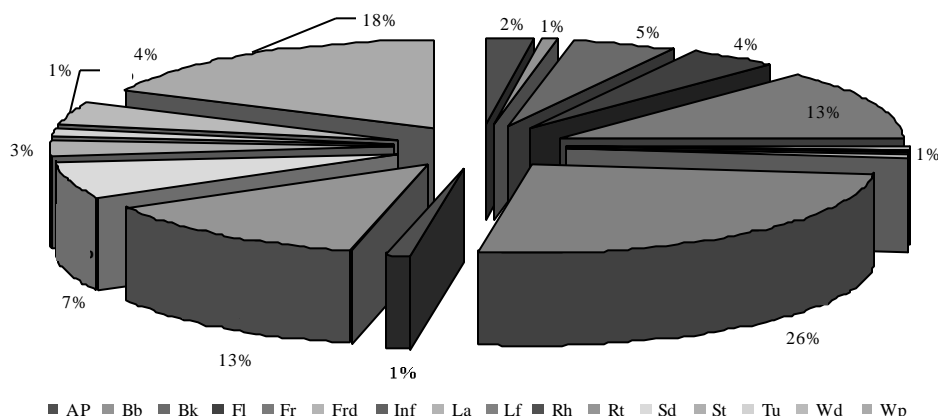


Fig. 3: Statistics of plant parts used, AP: Aerial part, Bb: Bulb, Bk: Bark, Fl: Flower, Fr: Fruit, Inf: Inflorescence, Lf: Leaf, Rh: Rhizome, Rt: Root, Sd: Seed, St: Stem, Tu: Tuber, WP: Whole plant, Wd: Wood, Res: Resin, Frd: Frond and La: Latex

timber, agricultural tools, religious and various other purposes are very popular among the inhabitants of the study area. For example, seeds/nuts of *Juglans regia*, fruits of *Syzygium cumini*, *Myrica esculenta*, *Embllica officinalis*, *Rubus ellipticus*, *Fragaria nubicola*, *Berberis lycium*, *Murraya koenigii*, *Carissa opaca*, *Psidium guajava*, *Mangifera indica* and flowers of *Bauhinia variegata* and *Rhododendron arboreum* are consumed/eaten by the inhabitants. *Phoenix sylvestris* and *Dendrocalamus strictus* were used for preparation of different value added items locally called Dal (for carrying of fodder, litter, etc.), Tokari (for putting different goods), Mats (for matting over the roofs), Brooms (for cleaning the houses), etc. In certain villages the mats prepared from the leaves of *Hedychium spicatum* (vern. Ban haldi) were used mainly. Also the thread prepared from *Cannabis sativa* was used to prepare *Jirila* which is tied in the back while carrying the headloads by the women folk. Inhabitants place *Prinsepia utilis* on the doors of their houses, to protect them from illness and bad souls/devils. The twigs and leaves of *Asparagus racemosus*, *Berberis aristata*, *B. asiatica*, *Ficus bengalensis*, *F. religiosa*, *Prunus cerasoides* and *Mangifera indica* were used on various religious occasions. Amongst the medicinal plants, rhizome of *Acorus calamus* are used in abdominal pain, bodyache, asthma, skin diseases, cold and cough; rhizome of *Hedychium spicatum* in asthma, blood purification, bronchitis, nausea; fruits and seeds of *Zanthoxylum armatum* in cough, cholera, fever, eczema, itching, leucoderma, piles, rheumatism, onic, tooth complaints; leaves and flower petals of *Rhododendron arboreum* in headache, fever, dysentery, wounds and nose bleeding.

DISCUSSION

The people living in the Himalaya have developed an age old tradition of selectively using a wide variety of forest resources for fodder, fuel and timber based on their quality and availability. They depend on the forests for their socio-economic structure. Due to habitat degradation and over exploitation, population of these economically important species is decreasing rapidly. Many of the preferred and higher quality species are under pressure, leading to changes in species composition and forest succession patterns (Chettri *et al.*, 2002). In addition, ever increasing human and livestock populations are exerting additional pressure on forest resources and livelihoods as a result of resource shortages (Chettri and Sharma, 2006). The presence of 384 species indicates richness and high socio-economic value of these areas. Use of these species as medicinal (314 sp.), wild edible/food (105 sp.), fuel (51 sp.), fodder (97 sp.), timber (07 sp.), religious (221 sp.), fibre (5 sp.), making agricultural tools (07 sp.) and various other purposes (17 sp.) show that these species has high importance are very important for the sustenance of the inhabitants. The parts of plants mostly used for medicinal purposes are leaves (166 sp.) and whole plant (114 sp). The diversity of these species decreased with the increasing altitude. The species *Acorus calamus*, *Acacia catechu*, *Bergenia ligulata*, *Centella asiatica*, *Dioscorea deltoidea*, *Hedychium spicatum*, *Pistacia integerrima*, *Terminalia bellirica*, *T. chebula*, *Valeriana jatamansi*, *Viola canescens* and *Zanthoxylum armatum* were over exploited by the inhabitants from the natural habitats. If over exploitation

of these species continues, they will be wiped out from area in future. Promotion for cultivation of these species in the villages may reduce the human pressure on the wild habitats. Therefore, conservation measures have to be taken to maintain the current status of these species. Awareness among the villagers and mass multiplication through conventional and *in-vitro* propagation protocols, development of agro techniques/plantation techniques and introduction in the akin habitats, education and awareness programs for the inhabitants are recommended for the species facing high anthropogenic pressures and their establishment and maintenance in the *in situ* and *ex situ* conditions may help in the conservation and management of these species. The information generated in the present communication could be useful for the industry, pharmacologists, physicians, phytochemists, botanists and alike interested in the development of

alternative therapies. As, it represents for the first time an immensely valuable database that provides a baseline information and contribute in filling the knowledge gaps for the compilation of a local biodiversity registers of the study area, a key instrument for achieving the regional and global biodiversity conservation and sustainable development goals.

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APPENDIX

Appendix: Diversity, vernacular name/local name, distribution, life form, part/s used and Indigenous uses of economically important species in Murari Devi and surrounding areas of Mandi district in Himachal Pradesh, India

Taxa	Vernacular name/ local name	AR (m)	LF	Part/s used	Indigenous uses
Angiosperms					
Acanthaceae					
<i>Adhatoda vasica</i> Nees.	Basuti	700-1700	Sh	Rt, Fl, Fr, Lf, Wd	Medicinal (Fever, anthelmintic, antiseptic, antispasmodic, asthma, bronchitis, cold, congestion, cough, eczema, malaria, pulmonary problems, rheumatism, swelling)
<i>Barleria cristata</i> L.	Morani	700-1900	H	Wp	Medicinal (Anaemia, body pain, headache, swellings, toothache); Edible
<i>Dicliptera roxburghiana</i> Nees	Saundi	700-1900	H	Wp	Medicinal (Leucorrhoea, tonic)
<i>Justicia adhatoda</i> L.	Adasthodalam	700-1300	Sh	Rt,Fr	Medicinal (Anthelmintic, asthma, antipyretic, sedative, malaria, antiseptic, antispasmodic, constipation)
<i>J. japonica</i> Don	-	800-2000	H	Rt, Fr	Medicinal (Asthma, boils, child birth, dislocation of joints); Edible; Fodder
<i>J. simplex</i> D.Don.	Juffa	700-1200	H	Wp	Medicinal (Cough, cold, chest pain, pimples, blisters, itching, asthma, fever, flatulence, rheumatism); Fodder
<i>Lepidagathis cuspidata</i> Nees	Bralu	700-1000	H	Wp	Medicinal (Boils, scabies, ulcers, sores)
<i>L. incurva</i> Buch.-Ham. ex D. Don.	-	700-1100	H	Lf	Medicinal (Ear complaints)
<i>Peristrophe bicalyculata</i> Nees	-	700-1800	H	Wp	Medicinal (Eye disorder, fracture, sprain)
<i>Rungia pectinata</i> (L.) Nees	-	700-1300	H	Wp	Medicinal (Small pox, urine comp); Edible
Achyranthaceae					
<i>Achyranthes aspera</i> L.	Puthkanda	700-2000	H	Wp	Medicinal (Asthma, boils, bronchitis, cold, cough, dysentery, germicide, headache, laxative leucoderma, piles, pneumonia, rheumatism, scabies, skin diseases, sore, stomachache, tonic, toothache, whooping cough, wounds, veterinary diseases); Edible
<i>A. bidentata</i> Bl.	Puthkanda	700-1800	H	Wp	Medicinal (Blisters in mouth, cholera, scorpion sting, swelling, whooping cough)
Agavaceae					
<i>Agave americana</i> L.	Ramban	700-1600	Sh	Lf, Wp	Medicinal (Boils, burns, constipation, cuts, dropsy, dysentery, fever, goiter, skin diseases, syphilis, veterinary diseases)
<i>Yucca superba</i> Roxb.	-	1200-2000	H	Wp	Medicinal (Inflammation, arthritis, blood pressure, gout, diabetes, genitourinary disorders, indigestion, constipation, diuretic, skin cleansing)
Alliaceae					
<i>Allium cepa</i> L.	Payaz	700- 2000	H	Bb	Medicinal (Anthelmintic, asthma, nose bleeding, blisters, boils, bronchitis, ear complaint, expectorant, eye complaint, giddiness, insect bites, itching, piles, ring-worm, sedative, skin diseases, vomiting, wounds); Edible

Appendix: Continue

Taxa	Vernacular name/ local name	AR (m)	LF	Part/s used	Indigenous uses
<i>A. sativum</i> L.	Lahsun	700- 2000	H	Bb, Lf	Medicinal (Bronchitis, cough, dropsy, ear complaints, eczema, expectorant, fever, nervous disorder, piles, respiratory disorder, rheumatism, ringworm, skin eruptions, tumor, whooping cough, wounds); Edible
Amaranthaceae					
<i>Amaranthus paniculatus</i> L.	Saryara	700-1700	H	Sd	Medicinal (Diarrohea, blood purifier, piles, sores, diuretic)
<i>Cyathula capitata</i> Moq.	Litra	700-2000	H	Lf, Sd	Medicinal (Emetic, abortifacient, veterinary diseases)
<i>C. tomentosa</i> (Roth.) Moq.	Kutha	700-2000	H	Ap, Rt, Lf	Medicinal (Skin diseases); Fodder
<i>Deeringia amaranthoides</i> (Lam.) Merr.	-	700-1200	Sh	Lf, Fr	Medicinal (sores)
Anacardiaceae					
<i>Cotinus coggygria</i> Scop.	-	700-1300	Sh	Fr, Fl	Medicinal (Astringent); Dye
<i>Lamnea coromandelica</i> (Houtt.) Merr.	-	700-1400	T	Bk, Lf	Medicinal (Astringent, bruises, skin eruptions, heart diseases, dysentery, mouth sores, toothache, swellings, pains)
<i>Mangifera indica</i> L.	Amb	700-1800	T	Lf, fr, Sd	Medicinal (Abortifacient, cancer, anasarca, antifertility, dropsy, fever, cholera, diarrhoea, digestion, tonic, dysentery, eye complaints, jaundice, laxative, rheumatism, scabies, stomachache, toothache); Edible; Fuel; Religious (Sculptures on temples, pillars, with maidens of Jain, Hindu called (Vrikshikas), Abode of God, decoration on festivals and newly build houses)
<i>Pistacia integerrima</i> Bin	Kakarsinghi	700-1800	T	Fr	Medicinal (Tonic, expectorant, cough, asthma, fever, appetite, chronic pulmonary affection, dyspeptic, vomiting and diarrhoea); Edible; Fodder; Timber; Dye
Apiaceae					
<i>Apium leptophyllum</i> F. Muell. ex Benth.	-	1100-1800	H	Fr	Medicinal (Germicide, disinfectant, antiseptic, flavoring agent in food products)
<i>Bupleurum hamiltonii</i> N.P. Balkr.	-	900-2000	H	Ap, Rt	Medicinal (Diaphoretic, antiseptic, anti-inflammatory, liver complaints)
<i>B. tenne</i> Buch.-Ham. ex D. Don	-	1000-1600	H	Wp	Fodder
<i>Chaerophyllum reflexum</i> Lindl.	-	1700-2000	H	Rt	Edible
<i>Cenella asiatica</i> (L.) Urb.	Brahmi	700-1500	H	Wp	Medicinal (Anthelmintic, brain tonic, cholera, cough, diarrhoea, diuretic, dysentery, eye complaints, fever, headache, leprosy, liver complaints, nervous diseases, respiratory diseases, skin diseases, stomachache, syphilis, tumor, urine complaints, wounds)
<i>Coriandrum sativum</i> L.	Dhaniya	700- 2000	H	Lf, Sd, Wp	Medicinal (Piles, colic, flatulence, chicken pox, stomachache); Edible; Misc. (Spices)
<i>Daucus carota</i> L.	Gajar	700-2000	H	Lf, Sd	Medicinal (Child birth, toothache); Edible
<i>Foeniculum vulgare</i> Mill.	Saunf	700- 2000	H	Sd, Lf	Medicinal (Burning sensation in body, carminative, chest diseases, colic, cough, dysentery, fever, headache, kidney and spleen complaints); Edible; Misc. (Spices)
<i>Hydrocotyle javanica</i> Thunb.	-	700-1900	H	Lf	Medicinal (Dysentery, indigestion, fever)
<i>Pimpinella diversifolia</i> DC.	-	1200-2000	H	Rt, Wp	Medicinal (Cold, cough, digestive disorder); Edible
<i>Trachydium roylei</i> L.	-	1000-2000	H	Ap	Fodder
Apocynaceae					
<i>Carissa opaca</i> Stapf ex Haines	Garnoin	700-1500	Sh	Lf, Fr	Fodder; Edible
<i>Catharanthus roseus</i> (L.) Don	-	700-1500	Sh	Wp, Rt, Lf	Medicinal (Cancer, diabetes, menorrhoea, body vomiting, anti-cancer, purgative, vermifuge, swelling, depurative, hemostatic, antibacterial, antifungal, antiviral); Misc. (Ornamental)
<i>Vinca rosea</i> L. wasps stings)	Sadabahar	700-1800	H	Wp	Medicinal (Hypotensive, sedative, cancer, muscle pain,
Araceae					
<i>Acorus calamus</i> L.	Bare/Bauch	1000-1800	H	Rh, St, Lf	Medicinal (Abdominal pain, asthma, bodyache, bronchitis, cold, cough, cuts, dysentery, epilepsy, fever, headache, hysteria, inflammation, malaria, skin diseases, snake bite, stomachache, veterinary medicine)
<i>Arisaema flavum</i> (Forsk.) Schott	Kira aloo	1200-2000	H	Bb	Medicinal (Skin disease, veterinary diseases)
<i>A. tortuosum</i> (Wall.) Schott	Biskaphar	700-2000	H	Wp	Medicinal (Veterinary diseases)
<i>Saurumatum venosum</i> Kunth.	Kidachali	1000-2000	H	Tu	Medicinal (Skin disease, tumors, veterinary sores); Edible
Areaceae					
<i>Phoenix sylvestris</i> (Linn.) Roxb.	-	700-1700	Sh	Lf, Fr	Medicinal (Cardiotonic, constipation, heart complaints, abdominal complaints, fevers, vomiting, toothache)
Araliaceae					
<i>Hedera nepalensis</i> Koch.	Katari	900-2000	Sh	Fr, Lf	Medicinal (Cold, cough, stimulant, diaphoretic, cathartic, rheumatism); Edible

Appendix: Continue

Taxa	Vernacular name/ local name	AR (m)	LF	Part/s used	Indigenous uses
Asclepiadaceae					
Appendix: Countinue					
<i>Asclepias curassavica</i> L.	-	700-1500	Sh	Lf, Rt	Medicinal (Emetic, laxative, abortifacient, expectorant, pneumonia, pleurisy, lung problems, ringworm, stop bleeding, fever, intestinal troubles, diaphoretic, anthelmintic, purgative, stomach tumours, piles, gonorrhoea, warts); Fodder
<i>Cryptolepis buchananii</i> Roem. and Schultes	Taern	1100-1900	Sh	Wp	Medicinal (Rickets, abdominal pain, anasarca, bodyache, cholera, dropsy, dysentery, cuts, stomachache, venereal diseases); Fibre
<i>Marsdenia roylei</i> Wt.	-	700-1500	H	Wp	Medicinal (Cold, eye complaints, gonorrhea)
Asparagaceae					
<i>Asparagus adscendens</i> Roxb.	Sansarpali	700-1400	H	Wp	Medicinal (Nausea, vomiting, headache, aphrodisiac, appetizer, astringent, leucorrhoea)
<i>A. filicinus</i> Buch.-Ham.	Shatavari	1300-2000	Sh	Tu, Ap	Medicinal (Urinary problems); Religious
<i>A. racemosus</i> Willd.	Sansarpali	700-2000	Sh	Tu	Medicinal (Anthelmintic, aphrodisiac, rheumatism, bleeding from nose, cough, dysentery, febrifuge, gastric complaints, gonorrhea, headache, menstrual complaints, snake bite, stomachache, tonic, urine complaints); Edible
Asteraceae					
<i>Achillea millefolium</i> L.	Gandan	1200-2000	H	Wp	Medicinal (Cold, diphtheria, epilepsy, fever, gastric complaints, hysteria, piles, stimulant, tonic, toothache, ulcer)
<i>Ainsliaea aptera</i> DC.	Sath jalari	800-2000	H	Rt	Medicinal (Stomachache)
<i>Ageratum conyzoides</i> L.	Okalbuti	700-1700	H	Lf, Rt, Sd, Fr, Fl	Medicinal (Antiseptic, boils, burns, cancer, cuts, diarrhoea, headache, leprosy, muscular pain, piles, ringworm, scabies, snake bite, sores, swellings, tumor, uterine disorders)
<i>A. houstonianum</i> Mill.	Okalbuti	700-1300	H	Wp	Medicinal (Diarrhoea, tonic, skin diseases)
<i>Artemisia japonica</i> Pamp.	Chamber	1200-1700	H	Lf	Medicinal (Decoction, throat infections, vaginitis, skin diseases)
<i>A. nilagirica</i> (Cl.) Pamp. insect	-	1400-1900	Sh	Wp	Medicinal (Antiallergic, headache, menstrual problem, repellent); Religious
<i>A. parviflora</i> Roxb.	Jhau	1400-2000	H	Lf, Rt, Sd	Medicinal (Carminative, wormifuge, throat problems); Fodder
<i>A. scoparia</i> Waldst. and Kit.	Jandrodhi	700-1500	H	Lf	Medicinal (Burns, cold, headache, earache, constipation)
<i>Bidens biternata</i> (Lour.) Merr. and Sherff.	Badigumbri	700-1900	H	Fr, Lf, Fl, Rt	Medicinal (Appetizer, cough, cuts, inflammation, snake bite, sores, toothache, ulcers); Edible
<i>B. pilosa</i> L.	-	1000-2000	H	Wp	Medicinal (Cough, cuts, ear and eye complaints, headache, inflammation, leprosy, skin diseases, snake bite, sores, wounds); Edible
<i>Bhumea laciniata</i> (Roxb.) DC.	-	1200-1700	H	Lf	Medicinal (Eczema, skin disease)
<i>Conyza stricta</i> Willd.	-	700-2000	H	Wp	Medicinal (Bone fracture, swellings)
<i>C. japonica</i> (Thunb.) Less.	Gaadi	1000-1800	H	Wp	Medicinal (Killing or expelling worms from the body)
<i>Cosmos caudatus</i> Kunth	-	900-1400	H	Lf	Medicinal (Blood circulation, potent antioxidants)
<i>Dichrocephala bicolor</i> Schldl.	-	700-1600	H	Rt	Medicinal (Antihypertensive agent)
<i>Eclipta alba</i> (L.) Hassk.	Bringraj	700-1500	H	Wp	Medicinal (Antifertility, asthma, bronchitis, fever, headache, itching, jaundice, leucoderma, swelling, toothache, antiseptic)
<i>Elephantopus scaber</i> L.	-	700-1600	H	Lf, Rt	Medicinal (Abortifacient, amoebic dysentery, blood dysentery, cough, cuts, debility of children, dropsy, facilitates child birth, fever, gonorrhea, headache, stomachache, heart disease, inflammation, liver complaints, pimples, postnatal complaints, rheumatism, swell, tooth worms, tetnus, urine complaints, vomiting, wounds); Edible
<i>Erigeron bonariensis</i> (L.)	-	700-1900	H	Lf	Medicinal (Rheumatism, mouth, throat and skin diseases)
<i>E. canadensis</i> L.	-	700-1600	H	Wp	Fodder
<i>Gerbera gossypina</i> (Royle) Beauv.	Bach	1100-2000	H	Rt	Medicinal (Blood pressure, gastric disorders)
<i>Imula cappa</i> (Buch.-Ham. ex D.Don) DC.	-	1000-1900	Sh	Lf	Medicinal (Headache, urinary complaints); Fodder
<i>I. cuspidata</i> Hk.f.	-	900-1800	Sh	Lf	Fodder
<i>Parthenium hysterophorus</i> L.	Chikadu	700-1600	H	Wp	Medicinal (Tonic, analgesic, tonic, febrifuge, amniotic, dysentery)
<i>Senecio graciliflorus</i> DC.	-	1300-2000	H	Ap	Medicinal (Insect bites, ringworm diseases, earache)
<i>S. nudicaulis</i> Buch.-Ham.	-	1200-2000	H	Rt	Medicinal (Cough, cold)
<i>Siegesbeckia orientalis</i> L.	-	700-1800	H	Wp	Medicinal (Boils, sores, ulcer, cardiac, skin diseases)
<i>Sonchus asper</i> (L.) Hill.	-	700-1700	H	Lf	Medicinal (Cuts, injuries)

Appendix: Continue

Taxa	Vernacular name/ local name	AR (m)	LF	Part/s used	Indigenous uses
<i>S. oleraceus</i> L.	-	800-2000	H	Lf, La	Medicinal (Febrifuge, jaundice, liver complaints, tonic)
<i>Tagetes minuta</i> L.	-	700-1800	H	Wp	Misc. (Aromatic oil)
<i>Taraxacum officinale</i> Weber	Kanphul	700-1900	H	Wp	Medicinal (Blisters, blood purifier, bowel complaints, diuretic, dysentery, gastric, ulcer, headache, kidney diseases, liver complaints, tonic, wounds); Edible
<i>Tridax procumbens</i> L.	-	900-1500	H	Wp	Medicinal (Antiseptic, blister, boils, cuts, diarrhoea, dysentery, eczema, eye disease, fever, leprosy, scorpion bite, skin disease, sores, stomachache, stone in urine bladder, toothache, ulcer)
Balsaminaceae					
<i>Impatiens balsamina</i> L.	Teur	1000-1900	H	Wp	Medicinal (Inflammation, burns, scalds, ulcers, constipation, arthritis, urinary retention)
<i>I. scabrida</i> DC.	-	700-1500	H	Sd, Wp	Medicinal (Abortion); Fodder
Berberidaceae					
<i>Berberis aristata</i> DC.	Kshambal	1000-2000	Sh	Wp	Medicinal (Antidote to snake bite, malaria, piles); Edible; Fuel
<i>B. lycium</i> Royle	Kshambal	700-2000	Sh	Rt, Fr	Medicinal (Jaundice, eye diseases); Edible; Fuel
Bignoniaceae					
<i>Begonia picta</i> Sm.	Khattu	1000-2000	H	Wp	Medicinal (Body pain, heat stroke, dysentery, mouth ulcers, colic pain)
<i>Tecoma stans</i> (L.) HB. and K.	-	800-1600	T	Wp	Medicinal (Diabetes, stomach pains, diuretic, syphilis)
Boraginaceae					
<i>Bombax ceiba</i> L.	Simbal	700-1700	T	Rt, Bk, Lf	Medicinal (Acne, pimples, anaemia, antifertility, aphrodisiac, boils, bone fracture, chicken pox, cholera, cough, diarrhoea, fever, gum problem, inflammation, skin diseases, leprosy, tonic, urine complaint)
<i>Cynoglossum zeylanicum</i> Thunb. ex Lehm.	-	700-2000	H	Lf, Rt	Medicinal (Asthma, cough, vomiting)
<i>Ehretia acuminata</i> R.Br.	Bakli/Bakaar/ Banchaula	700-1100	T	Bk, Fr, Wd	Medicinal (Sores on tongue); Edible; Agricultural Tools
<i>E. laevis</i> Roxb.	-	700-1000	T	Lf, Bk, Fr	Medicinal (Mussel pain); Edible
<i>Lindlofia longifolia</i> (Benth.) Baill.	-	1500-2000	H	Lf	Medicinal (Diarrhoea, inflammation)
Brassicaceae					
<i>Cardamine impatiens</i> L.	-	700-2000	H	St	Medicinal (Tonic); Edible
<i>Capsella bursa-pastoris</i> (L.) Medik	-	700-2000	H	Wp	Medicinal (Blood pressure, dropsy)
<i>Lepidium virginicum</i> L.	-	700-1300	H	Wp	Medicinal (Diuretic and stimulant, asthma, cough, bleeding piles)
Buddlejaceae					
<i>Buddleja asiatica</i> Lour.	-	700-1000	Sh	Lf	Medicinal (Inflammation); Edible
<i>B. crispa</i> Benth.	Sfed saryu	1400-1900	Sh	Lf, Wd	Fodder; Fuel
Cactaceae					
<i>Opuntia monacantha</i> Haw.	-	700-1400	Sh	St, Fr	Medicinal (Hypotensive, anti-inflammatory, antihyperglycaemic, whooping coughs)
Caesalpiniaceae					
<i>Bauhinia racemosa</i> Lamk.	-	700-1000	T	Lf, Bk, Sd, Fr	Medicinal (Diarrhoea, dysentery); Edible; Fuel; Fodder
<i>B. retusa</i> Roxb.	-	700-1000	T	Gum, Bud	Medicinal (cholera, snake bite); Fuel; Fodder
<i>B. vahlii</i> (Wt. and Arn.) Benth.	Tour	700-1200	Sh	Sd, Fr	Medicinal (Antifertility, dysentery, fatness, stomachache, tonic); Edible; Fuel; Fodder, Religious
<i>B. variegata</i> L.	Karyalae	700-1500	T	Lf, Fr, Fl	Medicinal (Diarrhoea, dysentery, fatness, flatulence, piles, scrofula, skin disease, Leprosy, snakebite, tumors, ulcers, worms); Edible; Fuel; Fodder; Religious
<i>Caesalpinia bonduc</i> (L.) Roxb.	-	700-1200	Sh	Rt, Bk, Sd	Medicinal (anthelmintic, diuretic, anti-pyretic, febrifuge)
<i>Cassia fistula</i> L.	Amaltas	700-1100	T	Rt, Lf, Fr, Bk	Medicinal (Constipation, fever, common cold, leucoderma, swellings, pain, liver disorders, tuberculosis, sore eyes, diabetes, purification of blood, haematuria, typhoid, asthma, leprosy)
<i>C. mimosoides</i> L.	-	700-1100	H	Rt, Lf	Medicinal (Constipation, cold, fever, skin disorders, intestinal disorders)
<i>C. occidentalis</i> L.	-	700-1200	Sh	Rt, Lf, Fl, Sd	Medicinal (Diuretic, fevers, asthma, bronchitis, menstrual problems, tuberculosis, anemia, liver complaints, tonic for general weakness and illness, gonorrhoea, urinary tract disorders, edema, stomach colic, anti-inflammatory, expel intestinal worms and parasites, skin disorders, wounds, skin fungus, parasitic skin diseases, abscesses)
<i>C. tora</i> L.	-	700-1000	H	Sd, Lf	Medicinal (Antispasmodic, carminative, anti-cholesterol, emollient, ophthalmic, purgative, indigestion, stomachache complaints, eczema and skin conditions)

Appendix: Continue

Taxa	Vernacular name/ local name	AR (m)	LF	Part/s used	Indigenous uses
Cannabaceae					
<i>Cannabis sativa</i> L.	Bhang	700-2000	H	Lf, Bk, Sd, Fr, Fl, St	Medicinal (Anthelmintic, appetizer, bowel complaints, cold, cough, convulsions, cramps, epilepsy, cuts, dyspepsia, ear complaints, eye diseases, laxative, narcotic, nervine stimulant, piles, skin diseases)
Caprifoliaceae					
<i>Viburnum cotinifolium</i> Don	Jungli dakh	1300-2000	Sh	Lf, Fr, Bk	Medicinal (Menorrhoea)
Capparaceae					
<i>Capparis zeylanica</i> L.	-	700-1000	Sh	Wp	Medicinal (Anthelmintic, blisters, boils, cholera, colic, pneumonia, piles, rheumatism, snake-bite, swell testicle, ulcer); Edible
Caryophyllaceae					
<i>Drymaria cordata</i> (L.) Willd. ex R. and S	-	700-2000	H	Wp	Medicinal (Asthma, burns, diarrhoea, dysentery, fever, skin diseases)
<i>Gypsophila cerastioides</i> D. Don	-	700-2000	H	Wp	Medicinal (Bodyache, headache, renal pain, cough)
<i>Stellaria media</i> (L.) Villars	-	700-2000	H	Wp	Medicinal (Bone fracture); Edible
Chenopodiaceae					
<i>Chenopodium album</i> L.	Bathua	700-2000	H	Sd, Lf	Medicinal (Skin diseases, urine complaints); Edible
<i>C. botrys</i> L.	Sokana	1000-2000	H	Wp	Medicinal (Anthelmintic, diuretic, headache, laxative, liver complaints, stomachache); Edible
Celastraceae					
<i>Euonymus pendulus</i> Wall.	-	1400-2000	T	Rt, Bk, Lf	Medicinal (Dysentery, headache, eye diseases)
Combretaceae					
<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Baheda 700-1300		T	Bk, Fr	Medicinal (Cough, cold, asthma, conjunctivitis, appetizer, flatulence, thirst, piles, worms, astringent, blood pressure, dysentery, headache, eye diseases); Edible
<i>T. chebula</i> Retz.	Harad	700-1500	T	Fr, Bk	Medicinal (Laxative, anorexia, appetite, tonic, astringent, anthelmintic, expectorant, carminative, skin disorders, anemia, piles, stimulant, diarrhoea, leprosy, fever, heart disease, cough); Edible
Commelinaceae					
<i>Commelina benghalensis</i> L.	-	700-1100	H	Lf, Rt	Medicinal (Dysentery, fever, scorpion bite, wounds); Edible
<i>C. paludosa</i> Bl.	Chura	1500-2000	H	Wp	Medicinal (On insect stings, diuretic, depressant, hypotensive); Edible
<i>Cyanotis cristata</i> (L.) Don	-	700-2000	H	Lf	Medicinal (Applied to sores); Fodder; Edible
<i>C. vaga</i> (Lour.) J.A. and J.H. Schult.	-	900-2000	H	Ap	Edible
Convolvulaceae					
<i>Convolvulus arvensis</i> L.	-	700-2000	H	Wp	Medicinal (Purgative, burns, bruises); Detergent
<i>Evolvulus alsinoides</i> L.	-	700-2000	H	Wp	Medicinal (Asthma, fever, cough, cold, venereal diseases, azoospermia, adenitis, depression, anti-amnesic, antistress, braintonic fever, scorpion sting, stomachache); Religious
<i>Ipomoea purpurea</i> (L.) Roth.	-	700-2000	H	Ap, Sd	Medicinal (Anthelmintic, laxative, diuretic, hallucinogenic, diuretic, laxative, oedema, oliguria, ascariasis, constipation mental disorders.); Fodder
<i>I. nil</i> (L.) Roth.	Ghaudan	700-1500	H	Wp	Medicinal (Anthelmintic, diuretic, laxative, constipation, antifungal, antispasmodic, antitumor, oedema, oliguria, hallucinogenic, parasiticide, anthelmintic, anticholinergic, antifungal, ascariasis, mental disorders); Fodder
Coriariaceae					
<i>Coriaria nepalensis</i> Wall.	Fanai	1000-1800	Sh	St, Lf, Fr	Medicinal (Emetic, antifungal, antimicrobial); Fodder
Crassulaceae					
<i>Kalanchoe spathulata</i> DC.	Patharchat	700-1400	H	Lf	Medicinal (Healing for scar, tumors, anti-inflammatory)
Cucurbitaceae					
<i>Coccinia grandis</i> (L.) Voigt	-	900-1300	H	Rt, Lf, Fr	Medicinal (Cold, cough, diabetes, headache, filarial, swell, loss of taste, slow pulse, sores, syphilis, throat effect, vomiting)
<i>Melothria heterophylla</i> (Lour.) Cogn.	Bankakadi	1100-1700	H	Rt, Lf, Fr	Medicinal (Antifertility, cuts, diabetes, fever, stomachache, dysuria, stimulant, purgative, gonorrhoea, spermatorrhoea); Edible; Fodder
<i>Trichosanthes tricuspidata</i> Lour.	-	700-2000	H	Lf, Rt, Sd, Fr	Medicinal (Burns, diarrhoea, dysentery, fever, pneumonia, rheumatism, snake bite, vomiting)
Cuscutaceae					
<i>Cuscuta reflexa</i> Roxb.	Amarbel	700-2000	H	Wp	Medicinal (Bodyache, burns, cuts, nervine weakness, swellings, body part, veterinary, kills lice)
Cyperaceae					
<i>Carex breviculmis</i> R.Br.	-	700-1100	H	Ap	Fodder
<i>C. cruciata</i> Wahlenb.	Dastana ghas	700-2000	H	Wp	Fodder

Appendix: Continue

Taxa	Vernacular name/ local name	AR (m)	LF	Part/s used	Indigenous uses
<i>Cyperus compressus</i> L.	-	700-2000	H	Wp	Fodder
<i>C. squarrosus</i> L.	-	700-1700	H	Wp	Fodder
<i>Fimbristylis dichotoma</i> (Vahl) Kunth.	-	700-2000	H	Wp	Fodder
Dioscoreaceae					
<i>Dioscorea bulbifera</i> L.		700-2000	H	Tu	Medicinal (Abdominal pain, boils, bone fracture, dysentery, piles, jaundice)
<i>D. deltoidea</i> Wall. ex Kunth	Shingli-mingli	800-2000	H	Tu	Medicinal (Dysentery, piles); Edible
Ebenaceae					
<i>Diospyros montana</i> Roxb.	-	700-1300	T	Wd	Fuel
Elaeagnaceae					
<i>Elaeagnus conferta</i> Roxb.	Ghayai	1200-1900	Sh	Fl, Fr	Medicinal (Sores, ulcer); Edible
<i>E. parviflora</i> Wall. Ex Royle	Ghayai	1400-2000	Sh	Fr, Lf	Medicinal (Astringent, diarrhoea, pulmonary infections); Edible
Ericaceae					
<i>Lyonia ovalifolia</i> (Wall.) Drude wounds)	Ehran	1500-2000	T	Wp	Medicinal (Boils, pimples, skin diseases, wormifuge,
<i>Rhododendron arboreum</i> Sm.	Braah	1600-2000	T	Fl, Lf	Medicinal (Dysentery, fever, headache, rheumatism, wounds, nose bleeding); Edible; Religious; Fuel
Euphorbiaceae					
<i>Emblica officinalis</i> L.	Amala	700-2000		T	Fr, Bk
					Medicinal (Constipation, antioxidant, asthma, bronchitis, dysentery, scurvy, diuretic, coolant, diabetes, cold, burns, hypoglycemic, skin problem, hypotensive, hair tonic); Edible, Religious
<i>Euphorbia helioscopia</i> L.	-	700-1800	H	Wp	Fodder
<i>E. hirta</i> L.	Dhudhi	700-2000	H	Wp	Medicinal (Antidote in snake bite, asthma, boils of mouth, kidney disease, pain in joints, veterinary. bone fracture); Edible
<i>E. prolifera</i> Buch.-Ham. ex D. Don	-	1000-2000	H	Wp	Fodder
<i>E. royleana</i> Boiss. fistular sores)	Choi	700-2000	Sh	Bk	Medicinal (Eye complaints, skin diseases, bone fracture,
<i>Jatropha curcas</i> L.	Jatropha	700-1700	T	Sd, La	Medicinal (Constipation, purgative, burns, cancers, chest pain, eczema, herpes, inflammation, pneumonia, rheumatism, syphilis)
<i>Ricinus communis</i> L.	Arind	700-1700	Sh	Sd, Rt, Lf, Fr	Medicinal (Anti-inflammatory, anodyne, antidote, emetic, emollient, expectorant, insecticide, laxative, purgative, tonic, vermifuge, abscess, anasarca, arthritis, asthma, boils, burns, cancer, carbuncles, cholera, cold, colic, convulsions, corns, deafness, delirium, dermatitis, dropsy, epilepsy, fever, flu, gout, headache, moles, rheumatism, sores, stomachache, toothaches, tuberculosis, tumors, wounds)
<i>Mallotus philippensis</i> Muell. -Arg.	Kambla	700-1500	T	Sd, Fr	Medicinal (Blisters, Boils, Skin diseases, Snake bite); Fuel; Dye
<i>Phyllanthus fraternus</i> Webst.	-	700-1900	H	Wp	Medicinal (Abortificant, allergy, gastric problem)
<i>P. parvifolius</i> Buch.-Ham.	-	800-2000	H	Lf	Fodder
<i>Sapium insigne</i> (Royle) Benth.	-	700-2000	T	La	Medicinal (Germicide)
Fabaceae					
<i>Abrus precatorius</i> L.	Rati	700-1300	Sh	Wp	Medicinal (Body pain, inflammation of gum, constipation); Religious
<i>Albizia chinensis</i> Merr.	Srinh	700-1300	T	Wd, Lf	Fuel; Fodder
<i>A. julibrissin</i> Durazz		700-1500	T	Wd, Lf	Fuel; Fodder
<i>A. lebbeck</i> (L.) Benth.	Chuli	700-1400	T	Fl, Sd, Bk, Rt, Lf	Medicinal (Boils, diarrhoea, dysentery, gonorrhoea, eye sores, night blindness, piles, swelling); Misc. (Detergent)
<i>Atylosia mollis</i> Benth.	-	700-1100	H	Wp	Medicinal (Dropsy, pain in leg, pain swell in pregnancy)
<i>Butea monosperma</i> Roxb.	Palah	700-1200	T	Wp	Medicinal (Pimples cooling, gum, wounds, eye disease); Edible; Religious;
<i>Crotalaria albida</i> Heyne ex Roth.	-	700-1100	H	Sd, Rt	Medicinal (Blood purifier, constipation)
<i>Dalbergia sissoo</i> Roxb.	Shisam, Sayointi	700-1300	T	Lf, Wd	Medicinal (Skin ailments, astringent, dysentery, eruptions, stimulant, gonorrhoea, menorrhagia, headache, leprosy); Fuel; Fodder; Agricultural tools
<i>Desmodium concinnum</i> DC.	-	700-2000	Sh	Wp	Fodder; Fuel
<i>D. sequax</i> Wall.	-	700-1200	Sh	Lf, Rt	Medicinal (Antiseptic, diaphoretic)
<i>D. triquetrum</i> DC.	-	700-2000	H	Wp	Medicinal (Abdominal pain, cold, cough, fever, snake bite)
<i>Indigofera atropurpurea</i> Buch.-Ham. ex Horn.	Kathi	700-2000	Sh	Lf, Wd	Fuel; Fodder
<i>I. heterantha</i> Wall. ex Brandis	Kali Kathi	1200-2000	Sh	Rt, Fl	Medicinal (Veterinary, urine problem); Edible

Appendix: Continue

Taxa	Vernacular name/ local name	AR (m)	LF	Part/s used	Indigenous uses
<i>I. linifolia</i> (L.f.) Retz.	-	700-1100	H	Wp	Medicinal (Veterinary, wounds, sores); Edible
<i>Lespedeza gerardiana</i> Grah. ex Maxim.	-	1200-2000	H	Lf	Fodder
<i>Lathyrus aphaca</i> L.	Janglimattar	700-2000	H	Sd	Fodder
<i>Millettia auriculata</i> (Benth.) Baker	-	700-1100	Sh	Wp	Medicinal (To kill lice and ticks, spleen dislocation, toothache, kill bedbugs, fever); Fodder
<i>Mimosa rubicaulis</i> Lam.	-	700-1200	Sh	Wp	Medicinal (Throat infection, measles, gum trouble, hysteria, smallpox); Fodder
<i>Mucuna pruriens</i> (L.) DC.	Daryagal	700-1100	Sh	Sd	Medicinal (Aphrodisiac, snakebite, antidepressant, diuretic, purgative, constipation)
<i>Ougeinia oojinensis</i> (Roxb.) Hochr.	-	700-1200	T	St, Lf	Medicinal (Asthma, cholera, dysentery); Edible; Fuel; Fodder; Agriculture tools
<i>Robinia pseudo-acacia</i> L.	Ravinia	700-2000	T	St, Bk, Wd	Medicinal (Toothache, antispasmodic, diuretic, tonic, digestive disorders); Fuel; Fodder; Agriculture tools
<i>Sesbania bipinosa</i> W.F. Wight	-	700-1000	H	Rt, Sd	Medicinal (Alexiteric, anthelmintic, diuretic, wounds, snakebite, skin diseases)
<i>Trifolium repens</i> L.	Malori	700-2000	H	Wp	Medicinal (Astringent); Fodder
<i>Vicia rigidula</i> Royle	-	700-1100	H	Wp	Fodder
<i>Vigna vexillata</i> (L.) A. Rich.	-	1100-2000	H	Rt, Sd	Medicinal (Cholera, ulcers); Edible
Fagaceae					
<i>Quercus glauca</i> Thunb.	Bani	1000-2000	T	Wd, Lf	Fodder; Fuel; Timber
<i>Q. leucotricophora</i> A. Camus	Ban	1200-2000	T	Wd, Lf	Fodder; Fuel; Timber
Flacourtiaceae					
<i>Flacourtia indica</i> (Burm.f.) Merr.	Kangu	700-1000	T	Lf, Bk, Fr, Rt	Medicinal (Veterinary foot and mouth disease, bite of medicinal dog, facilitates child birth); Edible
<i>Xylosma longifolium</i> Clos.	-	700-1000	T	Bk, Lf	Medicinal (Stomachache); Edible; Fuel
Fumariaceae					
<i>Fumaria indica</i> Pugsley	-	700-2000	H	Wp	Medicinal (Diarrohea, fever, liver complaints)
Geraniaceae					
<i>Geranium nepalense</i> Sw.	Tirahni	1400-2000	H	Rt	Medicinal (Cuts, jaundice, toothache, ulcer, wounds, stomach complaints); Dye
Hypericaceae					
<i>Hypericum oblongifolium</i> Choisy	Kharau	1000-2000	Sh	Lf, Fl	Medicinal (Wounds, boils)
<i>H. urahum</i> Buch.-Ham.	Bani Wakra	700-2000	Sh	Sd, Lf	Medicinal (Food poisoning, abortifacient)
Juglandaceae					
<i>Juglans regia</i> L.	Akhrot, Khod	700-2000	T	Fr, Wd, Lf	Edible; Timber; Dye; Misc. (Insecticide)
Lamiaceae					
<i>Ajuga bracteosa</i> Benth.	Neelkanthi	1200-2000	H	Lf, Rt	Medicinal (Ascariasis)
<i>A. parviflora</i> Benth.	Neelkanthi	700-2000	H	Lf, Rt	Medicinal (Febrifuge, itching, diabetes, skin diseases, mouth ulcers)
<i>Colebrookia oppositifolia</i> Sm.	Gaddoos	700-2000	Sh	Lf, Wp	Medicinal (Cough, burns, cuts, eye complaints, hysteria, toothache, sores, wounds)
<i>Leucas capitata</i> Desf.	-	700-2000	H	Wp	Fodder
<i>Mentha longifolia</i> L.	Pudina	700-2000	H	Lf, Wp	Medicinal (Antiseptic, stimulant, wounds, carminative)
<i>M. piperita</i> L.	Pipermint	700-1700	H	Wp	Medicinal (Headache, nausea, diarrohea, carminative, vomiting, stomachache, dysentery, flatulence.)
<i>Nepeta hindostana</i> B. Heyne	-	700-1100	H	Lf, Fl, Wp	Medicinal (Anti-inflammatory, brain tonic, muscular pain, stimulant)
<i>Ocimum basilicum</i> L.	Bhabri	700-2000	H	Lf, Rt, Wp	Medicinal (Anthelmintic, cholera, epilepsy, antipyretic, earache, carminative, diaphoretic, expectorant, fever, headache, sores, wounds, snakebite, ringworm); Edible
<i>Origanum vulgare</i> L.	Ban tulsi	1000-2000	H	Wp, Lf, Rt	Medicinal (Cold, fever, hysteria, influenza, menstrual complaints, stimulant, tonic); Edible; Religious
<i>Plectranthus coesta</i> Buch Ham.	-	1200-2000	H	Lf	Medicinal (Gastric complaints)
<i>P. mollis</i> Spreng.	-	700-1500	H	Sd	Medicinal (Rheumatism, tonic)
<i>Pogostemon bengalensis</i> (Burm.f.) Ktze.	Bhaerda	700-2000	H	Lf, Fl	Medicinal (Cuts, snake bite, haemorrhages, wounds, skin diseases, fever); Edible
<i>Rabdosia rugosa</i> H. Hara	-	700-2000	Sh	Lf, Wp	Medicinal (Swellings, vermicide, insecticide, stomach pain, anti-inflammatory)
<i>Roylea cinerea</i> Baill.	Kadaku	700-2000	Sh	Lf, Rt	Medicinal (Blood purifier, fever, pimples, tonsils)
<i>Salvia lanata</i> Roxb.	Gawandru	1500-2000	H	Rt, Lf, Fl	Medicinal (Astringent, colic, cold, cough)
<i>S. mubicola</i> Wall.	-	1300-2000	H	Lf, Rt	Medicinal (Wounds, cold, cough)
<i>Scutellaria angulosa</i> Colebr.	-	700-1000	H	Lf	Medicinal (Dysentery, vomiting)
Lauraceae					
<i>Cinnamomum tamala</i> Nees and Ebern	Tejpatta	700-1500	T	Bk, Lf	Medicinal (Heart, throat complaints)
<i>Liisea glutinosa</i> (Lour.) Rob.	Gwanyu	1800-2000	T	Bk, St, Lf, Fr	Medicinal (Rheumatism, arthritis, muscular pain, heat stroke, diarrohea, ulcers, sores, astringent)
Leeaceae					
<i>Leea aspera</i> Edgew.	-	700-1100	H	Rt	Medicinal (Skin diseases, ring worm)

Appendix: Continue

Taxa	Vernacular name/ local name	AR (m)	LF	Part/s used	Indigenous uses
Liliaceae					
<i>Gloriosa superba</i> L.	Kalihari	1000-2000	H	Rh	Medicinal (Antiemetic, laxative, alexiteric, abortifacient, ulcers, leprosy, piles, inflammations, abdominal pains, itching, thirst)
<i>Polygonatum verticillatum</i> (L.) All.	Salam mishri	1600-2000	H	Tu	Medicinal (Aphrodisiac, appetite, nervine tonic, tonic); Edible
Linaceae					
<i>Reinwardtia indica</i> Durm.	Matkhena	700-2000	Sh	Ap	Medicinal (Mouth sores); Fodder
Loranthaceae					
<i>Viscum album</i> L. (complaints)	Rhini	1000-2000	Sh	Wp	Medicinal (Abortifacient, antifertility, bodyache, spleen)
Lythraceae					
<i>Duabanga sonneratioides</i> Buch.-Ham.	-	700-1000	T	Wd, Bk	Fuel
<i>Lawsonia inermis</i> L.	Mehandi	700-1300	Sh	Lf, Rt, Fl, Sd	Medicinal (Pain, ulcer, edema, hair fall, graying of hair, burning sensation, headache, hepatitis, skin diseases, dysmenorrhea, anemia); Fuel
<i>Woodfordia fruticosa</i> (L.) Kurz	-	700-1900	Sh	St, Fl, Rt	Medicinal (Bone fracture, burns, cholera, cough, dropsy, dysentery, fever, hemorrhage, injuries, menorrhoea, muscle pain, nausea, night blindness, fever, rheumatism, skin disease, small pox, sores, spleen complaints, sprain, ulcer wounds, veterinary sores); Edible
Malvaceae					
<i>Malvastrum coromandelianum</i> Gracke	-	700-1000	H	Lf	Medicinal (Jaundice, sprain, sores, wounds); Misc. (Broom)
<i>Sida cordata</i> (Burm.f.) Borss. (bite)	-	700-2000	H	Wp	Medicinal (Abortifacient, cooling, cuts, pain in back, snake bite)
<i>Urena lobata</i> L.	-	700-1700	Sh	Rt, Lf	Medicinal (Body pain, dysentery, rheumatism, constipation, hydrophobic)
Melastomataceae					
<i>Osbeckia stellata</i> Buch.-Ham. ex D. Don	-	1200-2000	Sh	Rt, Lf	Medicinal (Cough, digestion, dysentery, nose bleeding, snake bite, wounds, stomachache, toothache)
Meliaceae					
<i>Azadirachta indica</i> L.	Darek	700-1100	T	Lf, Bk, Fr	Medicinal (Antipyretic, blood purifier, scabies, measles, skin diseases, wounds, boils, cancer, cholera, diabetes, dysentery, jaundice, heart complaint, leprosy, malaria, piles)
<i>Toona ciliata</i> M. Roem.	Daral	700-1600	T	Bk, Fr, Lf	Medicinal (Antiseptic, dysentery, bronchitis, fever, gastric troubles); Fodder
<i>T. serrata</i> (Royle) Roem.	Darlein	700-2000	T	St	Medicinal (Antiseptic, gastric troubles)
Menispermaceae					
<i>Cissampelos pariera</i> L.	Bhatindru	700-2000	H	Wp	Medicinal (Stomachache, tonic, diuretic, astringent, dropsy, urinary diseases)
<i>Stephania glabra</i> (Roxb.) Miers.	Galaukadi	700-1700	H	Tu	Medicinal (Asthma, dysentery, fever)
<i>Tinospora cordifolia</i> (L.) Merr.	Galoy/Gujya	700-1300	Sh	Rt, St	Medicinal (Asthma, immunity disorder, stomach ulcer, urinary disorder, mental disorder, weakness, dyspepsia, swine flu, urinary tract infections, antispasmodic, jaundice, hepatic fibrosis, peritonitis, diabetes, metabolic disorders, arthritis, tuberculosis); Edible
Mimosaceae					
<i>Acacia catechu</i> (L.f.) Willd.	Khair	700-1000	T	Bk, Wd	Medicinal (Skin diseases, cough, obesity, toothache); Fuel
<i>A. gageana</i> Craib.	Bagharme	700-1600	Sh	Lf, Fl, Sd	Medicinal (Dog bites, flatulence, veterinary diseases); Fodder; Fuel
Moraceae					
<i>Ficus bengalensis</i> L.	Bad	700-1100	T	La, Lf, Fr	Medicinal (Blisters, boils, cholera, cough, cuts, diabetes, dysentery, eye complaints, fever, scabies, snake bite, sores in mouth, skin disease, toothache); Edible
<i>F. hederacea</i> Roxb.	-	1300-2000	Sh	Wd, Lf	Fodder; Fuel
<i>F. nemoralis</i> Wall. ex Mir	-	1500-2000	T	Fr, Lf, Wd	Edible; Fodder; Fuel
<i>F. palmata</i> Forsk.	Phaegda	700-1700	T	Fr, Lf	Medicinal (Digestive disorders, cough, boils, constipation, diabetes, dysentery, stomachache); Edible; Fodder
<i>F. racemosa</i> L.	-	700-1100	T	Wp	Medicinal (Blisters, boils, leprosy, muscle pain, piles, dislocation joints); Religious; Fuel; Fodder
<i>F. religiosa</i> L.	Peepal	700-1600	T	Wp	Medicinal (Abortifacient, cholera, fever, gonorrhoea, scabies, skin disease, smallpox snakebite, sore in mouth, urine problem); Edible; Religious; Fuel; Fodder
<i>F. roxburghii</i> Wall.	Traymbalu	700-1900	T	Lf, Rt, Wd	Edible; Fodder, Fuel
<i>F. rumphii</i> Bl.	-	700-1600	T	Fr	Edible
<i>Morus alba</i> L.	Shetoot	700-1000	T	Lf, Fr	Medicinal (Anthelmintic, dyspepsia, refrigerant, purgative, vermifuge, sore throat); Edible; Fodder; Fuel; Agricultural Tools; Misc. (Leaves used for rearing silkworms)

Appendix: Continue

Taxa	Vernacular name/ local name	AR (m)	LF	Part/s used	Indigenous uses
Myricaceae					
<i>Myrica esculenta</i> Buch.-Ham. ex Don	Kaphal	1400-2000	T	Bk, Fr, Wd	Medicinal (Asthma, cholera, cough, fever, indigestion, malaria, rheumatism); Edible; Fuel
Myrsinaceae					
<i>Maesa indica</i> Willd.	-	700-1000	Sh	Fr	Medicinal (Syphilis, women disease); Edible
<i>Myrsine africana</i> L.	-	700-2000	Sh	Wp	Medicinal (Pain, Gum tone, Vermifuge)
Myrtaceae					
<i>Eucalyptus tereticornis</i> Sm.	Safeda	700-1200	T	Lf	Medicinal (Larvicidal agent against malaria)
<i>Psidium guajava</i> L.	Amrood	700-2000	T	Fr	Medicinal (Diabetes, appetizer, digestion)
<i>Syzygium cumini</i> Skees	Jamun	700-1500	T	Bk, Lf, Sd, Fr	Medicinal (Astringent, blister in mouth, diabetes, cancer, piles, pimples, fermentation for rice beer); Edible; Fuel; Religious
Nyctaginaceae					
<i>Boerhaavia diffusa</i> L.	-	700-900	H	Lf, Rt	Medicinal (Abortifacient, anemia, asthma, blood purifier, body heat, bronchitis, child birth, cold, cough, dropsy, dysentery, eczema, epilepsy, eye complaints, liver complaints, tonic, eye complaints, kidney complaints, menstrual complaints, pain in abdomen, piles, rheumatism, urine complaints, wounds); Edible
<i>Mirabilis jalapa</i> L.	Gulal, Shivkali	900-2000	H	Fl	Medicinal (Aphrodisiac, purgative, tonic, boils, blisters, child birth, earache, piles); Edible; Religious
Oleaceae					
<i>Jasminum dispernum</i> Wall. ex Roxb.	-	1200-2000	Sh	Lf	Medicinal (Cuts, wounds); Fodder
<i>J. humile</i> L.	Juhi	700-2000	Sh	Fl, Rt, Lf	Medicinal (Sinus, skin, blood, heart diseases, ringworm)
<i>J. officinale</i> L.	Juhi	700-2000	Sh	Fl, Lf, Rt	Medicinal (Ringworm); Fodder; Religious
Onagraceae					
<i>Epilobium angustifolium</i> L.	-	1600-2000	H	Wp	Medicinal (Abdominal pain, hepatic, intestinal, renal complaints)
<i>Oenothera rosea</i> Herit. ex Ait.	-	700-2000	H	Lf	Medicinal (Hepatic pain, kidney problems)
Orchidaceae					
<i>Habenaria marginata</i> Hk.f. ex Collett	-	700-2000	H	Tu	Medicinal (Flatulence)
<i>Hermidium lanceum</i> Thunb. ex Swartz.	-	1500-2000	H	Bb	Medicinal (Urinary diseases)
<i>Satyrium nepalense</i> D.Don	-	1600-2000	H	Tu	Medicinal (Malaria, dysentery, tonic)
Oxalidaceae					
<i>Oxalis corniculata</i> L.	Malori	700-2000	H	Wp	Medicinal (Appetizer, cooling, cough, cuts, dysentery, epilepsy, eye complaints, fever, jaundice, scurvy, skin diseases, stomachache, swelling); Edible
<i>O. corymbosa</i> DC.	-	700-1000	H	Wp	Medicinal (Dyspepsia, jaundice)
<i>O. latifolia</i> Kunth.	Malori	1200-2000	H	Wp	Medicinal (Cuts, dysentery, fever, insect bite, scurvy, skin disease, stomachache, warts); Edible
Phytolaccaceae					
<i>Phytolacca acinosa</i> Roxb.	Kala Jharka	1300-2000	H	Lf	Medicinal (Body pain); Edible
Papaveraceae					
<i>Argemone mexicana</i> L.	-	700-2000	H	Sd, Rt	Medicinal (Emetic, wormicide, leucorrhoea)
Plantaginaceae					
<i>Plantago lanceolata</i> L.	Isabgol	1400-2000	H	Lf	Medicinal (Blood purifier)
<i>P. ovata</i> Forssk.	Jangli isabgol	1600-2000	H	Sd	Medicinal (Diarrhoea, constipation)
Plumbaginaceae					
<i>Plumbago zeylanica</i> L.	-	700-1200	H	St, Rt, Fl, La	Medicinal (Abortifacient, headache, rheumatism)
Poaceae					
<i>Apluda mutica</i> L.	-	700-2000	H	Wp	Medicinal (Mouth sores); Fodder
<i>Arthraxon compositus</i> (L.) P.Beauv	-	700-2000	H	Wp	Fodder
<i>A. lancifolius</i> Hochst.	-	700-2000	H	Wp	Fodder
<i>Arundinaria falcata</i> Nees.	Nargal	1600-2000	Sh	Shoots	Misc. (Making baskets)
<i>Arundinella nepalensis</i> Trin.	-	700-2000	H	Wp	Medicinal (Ointment)
<i>Bothriochloa intermedia</i> Cam.	-	700-2000	H	Wp	Fodder
<i>B. pertusa</i> (L.)	-	1300-2000	H	Wp	Fodder
<i>Chrysopogon serrulatus</i> Trin.	-	700-2000	H	Lf	Fodder
<i>Dendrocalamus strictus</i> Nees	-	700-1600	T	Rt, Lf, Bk	Medicinal (Antifertility, cough, fever, tonic, veterinary); Edible; ; Religious
<i>Digitaria cruciata</i> (Nees ex Steud.)	-	1400-1800	H	Lf	Fodder
<i>A. camus</i>	-	-	-	-	-
<i>Eragrotis unioides</i> (Retz.) Nees.	-	700-2000	H	Wp	Fodder
<i>Opismenus compositus</i> (L.) Beauv.	-	700-2000	H	Wp	Fodder
<i>O. latifolius</i> Haenke ex Steud.	-	1500-2000	H	Wp	Fodder
<i>Panicum psilopodium</i> Trin.	-	700-1100	H	Wp	Fodder
<i>Saccharum spontaneum</i> L.	Surad	800-2000	H	Lf	Medicinal (Asthma, cholera); Fodder
<i>Setaria glauca</i> L.	-	500-2000	H	Sd	Edible
<i>Themeda anathera</i> Hack	-	700-2000	H	Wp	Fodder

Appendix: Continue

Taxa	Vernacular name/ local name	AR (m)	LF	Part/s used	Indigenous uses
Polygalaceae					
<i>Polygala abysinica</i> Buch.-Ham.	-	700-2000	H	Rt	Medicinal (Tuberculosis)
Polygonaceae					
<i>Fagopyrum dibotrys</i> (D. Don) Hara	Ban Paphra	1300-2000	H	Lf	Medicinal (Insect bite); Edible
<i>F. esculentum</i> (L.) Moench	-	1000-2000	H	Rt, Fr, Lf	Medicinal (Lung disorders, rheumatism, typhoid, urine complaints)
<i>Polygonum amplexicaule</i> D. Don	Ban madua	1200-2000	H	Lf, Rt	Medicinal (Cough, dysentery, tonic); Fodder
<i>P. capitatum</i> Buch.-Ham. ex D. Don	-	700-2000	H	Wp	Medicinal (Antidote in snake bite, boils, insect stings)
<i>P. nepalense</i> Meissn.	Trod	1000-2000	H	Lf	Medicinal (Swelling); Edible
<i>Rumex hastatus</i> D. Don	Aambi	700-2000	H	Lf	Edible
<i>R. nepalensis</i> Spreng.	Albar	1300-2000	H	Lf, Rt	Medicinal (Boils, colic, cooling, diuretic, purgative, scurvy, swelling of muscles); Fodder
Punicaceae					
<i>Punica granatum</i> L.	Daru	700-2000	T	Fr	Medicinal (Stomach disorders, vomiting, antihelminthic, stomachache, eye complaints, diarrhoea, bronchitis, cholera, astringent)
Ranunculaceae					
<i>Anemone polyanthes</i> D. Don	-	1300-2000	H	Rt	Medicinal (Purgative)
<i>Clematis barbellata</i> Edgew.	Baldkuja	1400-2000	Sh	Lf, Rt	Medicinal (Skin diseases, sores, tumors)
<i>C. buchananiana</i> DC.	Chabru	1000-2000	Sh	Lf, Rt	Medicinal (Skin diseases, migraine, sores, tumors)
<i>Ranunculus diffusus</i> DC.	-	1500-2000	H	Wp	Medicinal (Boils)
<i>R. laetus</i> Wall. ex D. Don	-	700-2000	H	Lf	Medicinal (Skin infections)
<i>Thalictrum cultratum</i> Wall.	Mamiri	1800-2000	H	Ap	Fodder
<i>T. foliolosum</i> DC.	Mamiri	1600-2000	H	Rt	Medicinal (Abdominal pain, blood purifier, eye diseases, leucoderma, rheumatism); Fodder
Rhamnaceae					
<i>Rhamnus purpureus</i> Edgew.	Chaunsha	1300-2000	Sh	Fr, Wd, Lf	Medicinal (Purgative); Agricultural tools; Fodder
<i>R. triquetra</i> (Wall.) Brandis	-	700-2000	T	Bk	Medicinal (Dysentery, diarrhoea)
<i>Zizyphus mauritiana</i> Lam.	Baer	700-1200	Sh	Ap, Fr, Rt, Bk	Medicinal (Antiemetic, astringent, blood purifier, purgative, sedative, cholera, dysentery, diarrhoea); Edible; Fodder
<i>Z. oxyphylla</i> Edgew.	Baer	700-1100	Sh		
<i>Z. rugosa</i> Lamk.	Baer	700-1000	Sh	Bk, Fl, St, Fr	Medicinal (Astringent, Diarrhoea, menorrhoea, hypotensive)
Rosaceae					
<i>Agrimonia pilosa</i> Ledlb.	Kuri	1500-2000	H	Ap, Rt	Medicinal (Cough, urinary problems)
<i>Fragaria vesca</i> L.	700-2000	H	Fr	Edible	
<i>F. mubicola</i> Lindl. ex Lacaita	Bumbra	1200-2000	H	Fr	Edible
<i>Prinsepia utilis</i> Royle	Bhekhal	1000-2000	Sh	Sd, Fr	Medicinal (Burns, cuts, rheumatism, wounds); Edible,
Religious					
<i>Prunus persica</i> Benth. and Hk.	Aadu	1300-2000	T	Fr, Fl, Lf, Rt, St	Medicinal (Antiemetic, diuretic, eczema, antiscorbutic, purgative, scabies, whooping cough); Edible; Fuel
<i>Pyrus pashia</i> Buch.-Ham. ex D. Don	Shegal	700-2000	T	Lf, Fr, Wd	Edible; Fodder; Fuel
<i>Rosa brunonii</i> Lindl.	Kunja	700-2000	Sh	Rt	Medicinal (Pain, eye complaints); Fuel; Fodder
<i>Rubus biflorus</i> Buch.-Ham. ex Sm.	Aachhe	1200-2000	Sh	Fr, Rt	Medicinal (Diarrhoea); Edible
<i>R. ellipticus</i> Sm.	Aachhe	700-2000	Sh	Fr, Rt	Medicinal (Dysentery, malaria, stomachache, worms); Edible
<i>R. foliolosus</i> D. Don	-	1500-2000	Sh	Fr, Rt	Medicinal (Dysentery); Edible
<i>R. paniculatus</i> Sm.	Lal Aachha	1600-2000	Sh	Lf, Fr	Medicinal (Diarrhoea, stomach disorder); Edible
<i>Sorbaria tomentosa</i> (Lindl.) Rehder	Chhattayee	1600-2000	Sh	Wd	Fuel
Rubiaceae					
<i>Galium aparine</i> L.	-	1600-2000	H	Wp	Medicinal (Astringent, skin disease)
<i>G. rotundifolium</i> L.	-	1400-2000	H	Ap	Medicinal (Bronchitis, tonsil); Fodder
<i>Hymenodictyon excelsum</i> (Roxb.) Wall.	-	700-1100	T	Rt, Bk, Lf	Medicinal (Abortifacient, cholera, fever, gout, lactation, malaria); Edible
<i>Leptodermis lenceolata</i> Wall.	-	700-2000	Sh	Bk, Lf	Medicinal (Boils, Blisters in mouth); Fodder
<i>Oldenlandia corymbosa</i> L.	-	700-1000	H	Wp	Medicinal (Anthelmintic, diuretic, expectorant, liver tonic, jaundice, heat eruptions, constipation, flatulence, colic, cough, skin diseases, dyspepsia, leprosy, cough, bronchitis)
<i>Randia tetrasperma</i> (Roxb.) Benth. and Hk.	Kharnadu	1100-2000	Sh	Fr, Lf, Bk	Edible; Fodder; Misc. (branches used for making walking sticks)
<i>Rubia cordifolia</i> L.	Majeet, Pagalpathi	700-2000	H	Rt, St	Medicinal (Tonic, menstrual complaints, cancer, diuretic, antiseptic, leucoderma, anti-inflammatory, snakebite, astringent, antidote, dysentery)
<i>Wendlandia heynei</i> (Roem. and Schult.) Sant. and Merch.	-	700-1600	T	St	Misc. (Toothbrush)
Rutaceae					
<i>Aegle marmelos</i> (L.) Corr.	Bil	700-1200	T	Fr	Medicinal (Digestive disorder); Religious

Appendix: Continue

Taxa	Vernacular name/ local name	AR (m)	LF	Part/s used	Indigenous uses
<i>Boenninghausenia albiflora</i> (Hk.f.) Reichb. ex Meissn.	Chitri, Pissumar	1300-2000	H	Lf	Medicinal (Antiseptic, cuts, wounds, vomiting, dysentery)
<i>Limonia acidissima</i> L.	-	700-1000	T	Rt, Bk, Lf, Fr	Medicinal (Diarrohea, cough, bronchitis, hiccough, dysentery, vomiting, rich source of antioxidants)
<i>Murraya koenigii</i> Spr.	Gandaela	700-1400	Sh	R, Lf, Fr, Bk	Medicinal (Anthelmintic, diarrhoea, dysentery, tonic, lactation, malaria fever); Edible
<i>M. paniculata</i> (L.) Jack.	-	700-1000	Sh	Rt, Bk, Lf	Medicinal (Body Pain, diarrhoea, fever, headache, labour pain, rheumatism)
<i>Zanthoxylum armatum</i> DC.	Tirmir	900-1900	Sh	Fr, Sd	Medicinal (Cough, cholera, fever, eczema, itching, leucoderma, piles, rheumatism, tonic, tooth complaints); Edible; Fuel
Santalaceae					
<i>Osyris quadripartita</i> Salz. ex Decne.	-	1500-2000	Sh	Wp	Fodder
Salicaceae					
<i>Salix denticulata</i> Anders.	-	1500-2000	Sh	Wd, Lf	Fuel; Fodder
<i>S. tetrasperma</i> Roxb.	Biunsh	800-1900	T	Lf, Wd	Medicinal (Rheumatism, epilepsy, venereal diseases, bladder stone, piles, swellings, febrifuge, toothache); Fodder; Fuel
Sapindaceae					
<i>Dodonaea viscosa</i> (L.) Jacq.	Mehndu	700-1100	Sh	Lf, Fr	Medicinal (Cold, cuts, wounds, insect problem)
<i>Sapindus mukorossi</i> Gaertn.	Doda, Reetha	700-1600	T	Fr	Medicinal (Expectorant, febrifuge, epilepsy, tonsillitis); Fodder; fuel; Misc. (Detergent)
Saxifragaceae					
<i>Bergenia ligulata</i> (Wall.) Engl.	Pashanbhed	1000-1800	H	Lf, Rh	Asthma, boils, cuts, wounds, burns, fever, liver complaints, piles, kidney stone, urine complaints
Scrophulariaceae					
<i>Lindenbergia indica</i> Vatke.	-	700-1800	H	Lf	Bronchitis, skin diseases, sore throat, toothache
<i>Scrophularia himalensis</i> Royle	-	700-2000	H	Lf	Misc. (Insecticide)
<i>Verbascum thapsus</i> L.	Jangli Tambakhoo	700-1800	H	Sd	Medicinal (Asthma, cough, inflammation, leucoderma, veterinary diseases)
Smilacaceae					
<i>Smilax aspera</i> L.	-	1200-2000	Sh	Rt, Lf, St	Medicinal (Skin eruptions, sores, wounds); Fuel
Solanaceae					
<i>Capsicum annuum</i> L.	Pipli, Mirch	700-1800	H	Fr	Medicinal (Digestion)
<i>Cestrum nocturnum</i> L.	Ratrani	700-1600	Sh	Lf	Medicinal (Epilepsy, headache, mouth ulcers)
<i>Datura innoxia</i> Mill.	Datura	700-1200	H	Lf, Sd, Fr	Medicinal (Antihydrophobic, boils, sedative, asthma, anodyne, skin diseases, boils, rheumatism)
<i>D. stramonium</i> L.	Datura	700-2000	H	Lf, Sd, Fr	Medicinal (Asthma, dislocation of joints, jaundice, rheumatism, stomach complaints, toothache)
<i>Nicotiana tabacum</i> L.	Tambakhoo	700-1800	H	Wp	Medicinal (Eczema, antispasmodic, asthma, itching, toothache, wounds, antihelminthic)
<i>Solanum indicum</i> L.	-	700-1800	H	Fr	Medicinal (Asthma, fever, colic)
<i>S. nigrum</i> L.	Makoi	700-2000	H	Fr, Lf, Fl, Sd	Medicinal (Antidote, boils, cough, dysentery, ear complaints, fever, eye complaints, skin diseases, urinary complaints)
<i>Physalis minima</i> L.	-	1000-1500	H	Wp	Medicinal (Abdomen disease, earache, fever, gastric disease, stomachache); Edible
<i>Withania somnifera</i> (L.) Dunal	Ashwagandha	700-1800	Sh	Rt, Lf, Wp	Medicinal (Tumors, carbuncles, ulcers, leucoderma, bronchitis, asthma, tonic, increases sperm count, sexual potency, increases the iron content in the blood, curing AIDS, weakness in children and old age peoples, cures pain in backache, weak eyesight, arthritis, vitality, antioxidant, diabetes, anti-inflammatory, immunomodulating, antistress, aphrodisiac, anthelmintic, psoriasis, bronchitis, ulcers, scabies, marasmus of children, insomnia, debility, lumbago, thirst); Edible; Misc. (Leaves are mixed with tea used to prepare tea)
Symplocaceae					
<i>Symplocos chinensis</i> (Lour.) Druce	Lojji	1300-2000	T	Bk, Lf	Medicinal (Astringent); Fuel; Agricultural tools
Sterculiaceae					
<i>Helicteres isora</i> L.	-	700-1000	Sh	Ap, St	Medicinal (Diarrhoea, antispasmodic); Fibre
<i>Melochia corchorifolia</i> L.	-	700-1000	Sh	Lf	Edible
Thymelaeaceae					
<i>Daphne papyracea</i> Wall. ex Stued. fever, intestinal complaints)	Kania/ Patrori	1600-2000	Sh	Rt, Lf	Medicinal (Intestinal complaints, hypotensive, purgative,
Tiliaceae					
<i>Grewia asiatica</i> L.	-	700-1100	T	Fr, Bk, Lf	Medicinal (Astringent, cooling, demulcent, rheumatism, antibacterial, rich in Vitamin A and C)

Appendix: Continue

Taxa	Vernacular name/ local name	AR (m)	LF	Part/s used	Indigenous uses
<i>G. oppositifolia</i> Buch.-Ham. ex Roxb.	Beul	700-1900	T	Lf, Bk, Wd	Medicinal (Child birth, stomachache); Edible; Fodder; Agricultural Tools; Misc. (Making ropes)
<i>Triumfetta rhomboidea</i> Jacq.	-	700-1200	Sh	Wp, Fiber	Medicinal (Abortificant, child birth, stomachache); Fodder; Misc.
Ulmaceae					
<i>Celtis australis</i> L.	Khirak	700-2000	T	Lf, Rt, Bk	Medicinal (Menorrhoea, colic pain, leprosy); Fodder; Fuel
<i>Ulmus villosa</i> Brand. ex Gamble	Chor	1500-2000	T	Lf, Wd	Fodder; Fuel
Urticaceae					
<i>Debregeasia longifolia</i> (Burm. f.) Wedd.	Shyaru	1400-2000	Sh	Bk, Lf	Fodder; Fibre; Fuel
<i>D. salicifolia</i> (D. Don.) Rendle.	-	1500-2000	Sh	Bk, Lf	Fodder; Fibre; Fuel
<i>Girardinia diversifolia</i> (Link.) Friis	Jarahan	1600-2000	H	Bk, St	Fibre
<i>Parietaria debilis</i> Frost.	1400-2000	H	Rt		Medicinal (Dandruff, hair problems)
<i>Pilea scripta</i> (Buch.-Ham. ex D. Don) Wedd.	-	1300-2000	H	Ap	Fodder
<i>Urtica dioica</i> L.	Aan/ Bichubuti	900-2000	Sh	Wp	Medicinal (Anthelmintic, antiseptic, boils, wounds, dandruff, diarrhea, gout, rheumatism, sciatica, jaundice, nephritis, sprain, throat diseases); Edible
Valerianaceae					
<i>Valeriana jatamansi</i> Jones	Mushkbala	1500-2000	H	Wp	Medicinal (Antidote to sting of insects, hysteria, neurosis, skin diseases); Religious
Verbenaceae					
<i>Caryopteris foetida</i> (Don) Robin	Rumri	1500-2000	Sh	Lf	Medicinal (Wounds)
<i>Callicarpa macrophylla</i> Vahl.	Nagdhava	700-2000	Sh	Lf, Rt	Cough and cold, relieves stomach ailments, rheumatism, indigestion, ulcers, diuretic
<i>Lantana camara</i> L.	-	700-1700	Sh	Lf, Fr	Medicinal (Itching, malaria, rheumatism, ringworm); Edible; Fuel
<i>Vitex negundo</i> L.	Barna	700-1600	Sh	Wp	Medicinal (Blister, bone fracture, bodyache, cold, colic, diarrhoea, epilepsy, fever, gout, gum trouble, headache, itch, mental disturbance, piles, reduce sex desire, skin problem, tonic, ulcer) Insect repellent; Religious;
Violaceae					
<i>Viola canescens</i> Wall. ex Roxb.	Banafsha	700-2000	H	Lf, Fl	Medicinal (Asthma, bronchitis, cold, cough, eye diseases)
<i>V. ripens</i> Wall. ex Roxb.	Banafsha	1500-2000	H	Lf, Fl	Medicinal (Asthma, bronchitis, cold, cough, wounds)
Vitaceae					
<i>Ampelocissus latifolia</i> (Vahl) Planch.	-	700-1000	Sh	Rt	Medicinal (Bone fracture, dysentery, Fever, Pain in stomach, pneumonia, snake bite)
<i>Parthenocissus himalayana</i> Planch.	-	1200-2000	H	Fr	Edible; Fodder
<i>P. semicordata</i> (Wall.) Planch.	Karmai	1200-2000	Sh	Fr, Lf	Edible; Fodder
<i>Vitis parviflora</i> Baker	-	700-1000	Sh	St	Medicinal (Sap from stem dripped into eyes to relieve inflammation)
Zingiberaceae					
<i>Curcuma angustifolia</i> Roxb.	Chudidar Haldi	700-1800	H	Rh	Medicinal (Bone fracture, diarrhoea, fever, jaundice, swellings, joint pains)
<i>C. longa</i> L.	Haldi	700-2000	H	Rh	Medicinal (Joint pains, cold, influenza, jaundice, fever, diarrhoea, blood purifier)
<i>Hedychium spicatum</i> Sm.	Ban haldi	700-2000	H	Rh, Lf	Medicinal (Asthma, blood purifier, bronchitis, nausea); Fodder; Misc. (Mats)
<i>Zingiber officinale</i> Rosc.	Adrak	800- 2000	H	Rh	Medicinal (Cough, diarrhoea, rheumatism, anti-inflammatory, fever, morning sickness, indigestion, nausea, vomiting, headaches, menstrual pain, sore throat, gastrointestinal problems, heartburn); Edible
Gymnosperms					
Pinaceae					
<i>Cedrus deodara</i> (Roxb. ex D. Don) G. Don	Devdar	1600-2000	T	Res, Lf, Wd	Medicinal (Antihelminthic, rheumatism, ulcers); Fuel; Timber
<i>Pinus roxburghii</i> Sarg.	Chil/Chir	700-2000	T	Sd, Wd, Res	Medicinal (Boils, bone fracture, cracks in sole of feet, leprosy, skin diseases, snake bite, sprain, swelling, urine complaints); Edible; Fuel; Timber; Agricultural tools
<i>P. wallichiana</i> A. B. Jackson	Kail	1600-2000	T	Wd	Fuel; Timber
Pteridophytes					
Adiantaceae					
<i>Adiantum capillus-veneris</i> L.	Barin	1300-2000	F	Frd, Lf	Medicinal (Bronchitis, cold, cough, fever, menstrual complaints, throat disorders)
<i>A. venustum</i> D. Don	-	1600-2000	F	Frd	Medicinal (Fever)
Athyriaceae					
<i>Diplazium esculentum</i> (Retz.) Sw.	Lingad	1400-2000	F	Frd	Medicinal (Constipation)
Dryopteridaceae					
<i>Dryopteris cochleata</i> C. Chr.	-	1200-1800	F	Rh	Medicinal (Cholera)

Appendix: Continue

Taxa	Vernacular name/ local name	AR (m)	LF	Part/s used	Indigenous uses
Equisetaceae					
<i>Equisetum debile</i> (Roxb. ex Vauch.) Hauke	Khasra ghass	700-2000	F	Wp	Medicinal (Tooth complaints)
<i>E. arvense</i> L.	-	700-2000	F	Wp	Medicinal (Diuretic, dropsy, haemostatic, haemopoitic, kidney affection, gravel affection, acidity, dyspepsia)
Pteridiaceae					
<i>Pteridium aquilinum</i> (L.) Kuhn.	-	1400-2000	F	Rt, Frd, Wp	Medicinal (Antihelminthic, haemostat, cuts, wounds) Abbreviations used

AR: Altitudinal Range, LF: Life Form, H: Herb, Sh: Shrub, T: Tree, Ap: Aerial part, Bb: Bulb, Bk: Bark, Fl: Flower, Fr: Fruit, Infl: Inflorescence, Lf: Leaf, Rh: Rhizome, Rt: Root, Sd: Seed, St: Stem, Tu: Tuber, Wp: Whole plant, Wd: Wood, Misc.: Miscellaneous, Res: Resin, Frd: Frond and La: Latex

REFERENCES

- Badola, H.K. and S. Aitken, 2003. The Himalayas of India: A treasury of medicinal plants under seize. Biodiversity, 4: 3-13.
- Badola, H.K., 2001. Medicinal Plant Diversity of Himachal Pradesh. In: Himalayan Medicinal Plants: Potential and Prospects, Samant, S.S., U. Dhar and L.M.S. Palni (Eds.). Gyanodaya Publications, Nainital, India, pp: 87-116.
- Chauhan, N.S., 1999. Medicinal and Aromatic Plants of Himachal Pradesh. Indus Publishing Co., New Delhi.
- Chettri, N., E. Sharma, D.C. Deb and R.C. Sundriyal, 2002. Impact of firewood extraction on tree structure, regeneration and woody biomass productivity in a trekking corridor of the Sikkim Himalaya. Mountain Res. Dev., 22: 150-158.
- Chettri, N. and E. Sharma, 2006. Assessment of natural resources use patterns: A case study along a trekking corridor of Sikkim Himalaya, India. Resour. Energy Dev., 3: 21-34.
- Chowdhery, H.J. and B.M. Wadhwa, 1984. Flora of Himachal Pradesh-Analysis. Vols. 1-3, DBSI, Howrah.
- Dhaliwal, D.S. and M. Sharma, 1999. Flora of Kullu District, Himachal Pradesh. Bishen Singh Mahendra Pal Singh, Dehradun, India, ISBN-13: 9788121101493, Pages: 744.
- Heywood, V.H., 1995. Global Biodiversity Assessment. United Nations Environment Programme. Cambridge University Press, Cambridge, UK. ISBN-13: 9780521564816.
- Jain, S.K., 1991. Dictionary of Indian Folk Medicine and Ethnobotany. Deep Publications, New Delhi.
- Kala, C.P., 2005. Indigenous uses, population density and conservation of threatened medicinal plants in protected areas of the Indian Himalayas. Conserv. Biol., 19: 368-378.
- Khullar, S.P., 1994. An illustrated fern flora of the West Himalaya, Volume I. International Book Distributors, Dehradun, India.
- Khullar, S.P., 2000. An illustrated fern flora of the West Himalaya, Volume II. International Book Distributors, Dehradun, India, ISBN-13: 9788170892700, Pages: 544.
- Koelz, W.N., 1979. Notes on the ethnobotany of Lahul, a province of the Punjab. Pharm. Biol., 17: 1-56.
- Maikhuri, R.K., S. Nautiyal, K.S. Rao and K.G. Saxena, 1998. Role of medicinal plants in the traditional health care system: A case study from Nanda Devi biosphere reserve. Curr. Sci., 72: 152-157.
- Puri, G.S., 1960. Indian Forest Ecology, Volume I. Oxford Book Co., New Delhi, India.
- Rana, M.S. and S.S. Sawant, 2011. Diversity, indigenous uses and conservation status of medicinal plants in Manali wildlife sanctuary, North western Himalaya. Ind. J. Trad. Knowl., 10: 439-459.
- Raven, P.H., 1998. Medicinal plants and global sustainability: The canary in the coal mine. Proceedings of the International Conference on Medicinal Plants for Survival, Medicinal Plants: A Global Heritage, February 16-19, 1998, Bangalore, India, pp: 14-18.
- Samant, S.S. and U. Dhar, 1997. Diversity, endemism and economic potential of wild edible plants of Indian Himalaya. Int. J. Sustainable Dev. World Ecol., 4: 179-191.
- Samant, S.S., 1998. Diversity, distribution and conservation of fodder resource of west Himalaya, India. Proceedings of the 3rd Meeting of the Temperate Asia Pasture and Fodder Network, March 9-13, 1998, Pokhara, Nepal, pp: 109-128.
- Samant, S.S., U. Dhar and L.M.S. Palni, 1998. Medicinal plants of Indian Himalaya: Diversity, Distribution, Potential Values. Gyanodaya Prakashan, India.
- Samant, S.S. and L.M.S. Palni, 2000. Diversity, distribution and indigenous uses of essential oil yielding medicinal plants of Indian Himalayan region. J. Med. Arom. Plant Sci., 22: 671-684.
- Samant, S.S., U. Dhar and L.M.S. Palni, 2001. Himalayan Medicinal Plants: Potential and Prospects. Gyanodaya Publications, Nainital, India.

- Samant, S.S. and S. Pant, 2003. Diversity, distribution pattern and traditional knowledge of sacred plants in Indian Himalayan Region. *Indian J. Forestry*, 26: 222-234.
- Samant, S.S., M. Singh, M. Lal and S. Pant, 2007a. Diversity, distribution and prioritization of fodder species for conservation in Kullu District, Northwestern Himalaya, India. *J. Mountain Sci.*, 4: 259-274.
- Samant, S.S., S. Pant, M. Singh, M. Lal, A. Singh, A. Sharma and S. Bhandari, 2007b. Medicinal plants in Himachal Pradesh, north western Himalaya, India. *Int. J. Biodivers. Sci. Manag.*, 3: 234-251.
- Shabnam, S.R., 1964. Medicinal plants of Chamba. *Indian Forester*, 90: 50-63.
- Sharma, P., S. Vidyarthi and N.K. Mishra, 2010. Medicinal uses of plants in and around a cement factory in Bilaspur district of Himachal Pradesh, North-Western Himalaya. *J. Non Timber Forest Prod.*, 17: 477-486.
- Singh, G.S., 1999. Utility of non-timber forest products in a small watershed in the Indian Himalayas: The threat of its degradation. *Nat. Resour. Forum*, 23: 65-77.
- Singh, S.K. and G.S. Rawat, 2000. Flora of Great Himalayan National Park, Himachal Pradesh. Bishen Singh Mahendra Pal Singh, Dehradun, India, Pages: 304.
- Sood, S.K. and S. Thakur, 2004. Ethnobotany of Rewalsar Himalaya. Deep Publications, New Delhi, India, ISBN-13: 9788185622101, Pages: 388.
- Thaplyal, V., S. Sharma and A.B. Bhatt, 2012. Sacred groves as ethnobotanical gene pools in tribal areas of the Western Himalaya. *Indian Forester*, 138: 70-78.
- Tiwari, B.K., 2000. Non-timber forest produce of north east India. *J. Human Ecol.*, 11: 445-455.
- Uniyal, M.R. and N.S. Chauhan, 1971. Medicinal plants of Kangra valley in Kangra forest division. *J. Res. Indian Med.*, 6: 287-299.
- Uniyal, S.K., K.N. Singh, P. Jamwal and B. Lal, 2006. Traditional use of medicinal plants among the tribal communities of Chhota Bhangal, Western Himalaya. *J. Ethnobiol. Ethnomed.*, Vol. 2.
- Walter, S., 2001. Non-Wood Forest Products in Africa: A Regional and National Overview. FAO, Rome, Italy, Pages: 303.