

Species Diversity and Ethno Botanical Classes of the Flora of Allai Valley District Battagram Pakistan

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Abstract During present study the species diversity of the vascular flora in various climatic and vegetational zones of Allai valley was evaluated. An ethno-botanical survey was carried out for collecting information regarding the species diversity and traditional uses of the plants in different sub localities of Allai valley. The aim of the study was to document plant resources, usage and conservation issues of the selected plants. Field observations showed that the visible threats to the vegetation of the study area was the trend to urbanization, deforestation, over grazing, overexploitation, introduction of exotic taxa and loss of habitat. A total of 415 species of vascular plants, belonging to 111 families were collected and identified from Allai Valley. These include 246 herbs, 75 shrubs, 68 trees, 06 climbing shrubs, 18 climbers and 03 epiphytes. Based on local uses, there were 185 medicinal plants, 21 were poisonous, 261 were fodder species, 126 were fuel wood species, 37 were timber yielding plants, 43 were thatching and sheltering plants, 31 were hedge plants, 73 were wild ornamental, 100 were weeds, 48 species yield edible fruits and seeds, 43 were used as vegetable and pot herb. The critically endangered species include; *Acer caesium*, *Betula utilis*, *Dioscorea deltoidea*, *Taxus wallichiana* and *Ulmus wallichiana*. Measures for the conservation of plant resources of Allai Valley are urgently needed.

Keywords Diversity, Ethnobotanical Classes, Threats, Conservation, Allai Valley

1. Introduction

Biodiversity consists of species diversity, genetic diversity, ecosystem diversity and the diversity of ecological processes[1],[2]. Species diversity may be analyzed as a coexistence of different life objects within taxa and in a territory[3]. Globally important biological diversity territories are called hot spot territories. One half of all plant species in the planet grow in 34 hot spots, but not yet destroyed vegetation of these territories occupies only 2.3 % of the Earth[4]. The total species diversity of vascular plants on the earth is estimated between 310,000 to 420,000[5]. Worldwide between 35,000 and 70,000 medicinal plants provide a real alternative for primary health care system[6]. Due to multiple ecological regions, diverse climatic and soil conditions more than 6000 species of higher plants is reported to exist in Pakistan (Haq et al 2010), including 2000 medicinal plant species[7].

Pakistan is under tremendous ecological stress due to its population explosion, unplanned urbanization, deforestation and overexploitation of natural resources[8]. Pakistan with

its less than 4 % natural forests resources is rapidly declining at a rate of 4 – 6 % per year[9], results in a decline in species and genetic diversity of population[10].

The Allai Valley is located in the Western Himalayan Province of District Battagram between 34° 44' and 34° 58' N and 72° 54' and 73° 15' E with a total area of 56081 ha including agricultural, wasteland, forest and alpine range. The width of Allai valley varies from 0.5 km to 5 km and is accessible from Besham via Kond Saiyidan and Thakot located on Karakoram Highway[1],[11].

The Allai Valley is bounded by Kohistan valley in the north, by vast pasture meadows of Chaur in the east, by the Nandiar valley in the south and by the river Indus in the west. The Allai Valley is generally rough and mountainous having variable slopes from gentle to precipitous and ranges in altitude from 545m at Thakot to 4690m above mean sea level at Sukaisar (GPS reading). Allai Khuwarr the main stream of the area to which all the small streams from different sub valleys joins at different locations, runs from East to West and joins River Indus near Besham at Kond Saiyidan. The nullahs, which feed the main stream, are Jabbar, Gantar, Batila and Pashto Khuwarrs.

The present study was mainly aimed:

To explore the species diversity of the flora of Allai valley.

To document plant uses, rate of consumption and availability profile of selected plants.

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To recommend ways for sustainable utilization of the local resources, for introducing effective conservation measures in the area.

2. Materials and Methods

Field trips to various parts of the selected area of Allai Valley were undertaken from 1st Sep 2009 to 30th Aug 2011 to collect the information and specimens to be used for future reference. The segments which were visited repeatedly include Banna, Biari, Batila, Barkandorkai, Chaur, Gangwal, Gantar, Jabar, Kanai, Pashto, Rashung, Sakargah and Thakot. The informations were collected from people of different ages belonging to different sub localities. The identification was done with the help of Flora of Pakistan [12], [13], [14].

3. Results

A total of 415 species of vascular plants, belonging to 111 families were collected and identified from Allai Valley. Pteridophytes were represented by 9 families and 23 species, Gymnosperms by 3 families and 8 species, Angiosperms by 99 families and 384 species. The well-represented families were Asteraceae contributing 41 species, Rosaceae by 29 species, Labiatae and Papilionaceae by 22 species each; Poaceae followed them by 16 species.

Among the 415 species reported, 246 species were herbs, 75 shrubs, 68 trees, 06 climbing shrubs, 18 climbers and 03 epiphytes. The plants were classified according to local, traditional and economic value. Most of the plant species were used for multipurpose. Based on local uses, there were 185 medicinal plants, 21 were poisonous, 261 were fodder species, 126 were fuel wood species, 37 were timber yielding plants, 43 were thatching and sheltering plants, 31 were hedge plants, 73 were wild ornamental, 100 were weeds, 48 species yield edible fruits and seeds, 43 were used as vegetable and pot herb.

The conservation status of the vascular plants of Allai valley shows that 5 plant species are critically endangered locally. The critically endangered species include; *Acer caesium*, *Betula utilis*, *Dioscorea deltoidea*, *Taxus wallichiana* and *Ulmus wallichiana*.

3.1. Forest Types

According to the classification of forest types of Pakistan coupled with ecological condition, most of the forest of Allai Valley fall under Moist Temperate category of the internationally known Western Himalayan Moist Temperate ecology [3]. On the basis of available indicator species the Allai Valley forests can further be classified into the following six categories:

3.1.1. Tropical Sub Humid Forest

It is a scrub forest, consisting mainly of dry bushy shrubs

and small trees, and is found up to an elevation of 900 m, consisting of small trees and thorny shrubs. Representative areas of such forest are Thakot to Kond Saiyidan. *Acacia modesta*, *Mallotus philippensis*, *Albizia lebbekii*, *Bauhinia variegata*, *Dalbergia sissoo* and *Ficus racemosa* are the dominant trees of the forest. The common shrubs are *Dodonaea viscosa*, *Justicia adhatoda*, *Rubus fruticosus* and *Myrtus royleanus*.

3.1.2. Sub Tropical Chir-Pine Forests

Chir pine (*Pinus roxburghii*) forest is found at altitudinal zone ranging between 900 to 1500 m, occupying an area of 133ha at Chiran. Broad-leaved associates in these forests are *Quercus incana*. The undergrowth consists of *Woodfordia fruticosa*, *Indigofera heterantha*, *Berberis lycium* and *Rosa moschata*. Ground flora mainly consists of grasses.

3.1.3. The Moist Temperate Blue Pine Forest

Blue pine (*Pinus wallichiana*) locally known as Pewouch occurs at the altitudinal zone ranging between 1500 to 2300m. The blue pine forests are found in Pashto, Batila and Gantar. The broad-leaved associates in these forests are *Juglans regia*, *Quercus dilatata*, *Quercus incana*, *Rhododendron arboreum* that are found singly scattered or in groups in moist places. Undergrowth consists of *Viburnum cotinifolium*, *Cotoneaster microphylla*, *Cotoneaster nummularia*, *Sarcococca saligna*, *Berberis lycium*, *Indigofera heterantha*, *Rubus fruticosus* and *Rosa moschata*, which are frequently found. Ground flora consists of *Paeonia emodi*, *Fragaria nubicola* and *Viola* species.

3.1.4. Mixed Coniferous Forests

The predominant species of this forest are Silver fir (*Abies pindrow*) and Spruce (*Picea smithiana*) along with Blue pine. Mixed coniferous forests occur between elevations of 2300 to 2800m in Shaeed Kandao, Shakoora, Ulao Khadman, Kage oba, Loedarra, Rashung, Raindarra, Jabbar, Koela, Balucha, Gantar, batila, Baleja and Pashto. The composition of the forest is strongly influenced by aspect. Hot southern slopes contain more of blue pine while on northern aspect Silver firs are predominant. The forest is generally heterogeneous in nature having mixed age classes. The broad-leaved associates are *Quercus dilatata*, *Juglans regia*, *Aesculus indica*, *Prunus padus* and *Acer* species. Undergrowth consists of *Parrotiopsis jacquemontiana*, *Berberis* sp, *Spiraea vacciniifolia*, *Lonicera quinquelocularis* and *Viburnum* species. Ground flora consists of *Fragaria nubicola*, *Podophyllum emodi*, *Paeonia emodi*, *Geranium wallichianum*, *Skimmia laureola*, and *Euphorbia* species.

3.1.5. Pure Fir and Spruce Forests

Silver fir (*Abies pindrow*) and Spruce (*Picea smithiana*) locally known as "Achal" and "Kachar" respectively are usually found on the elevation ranging from 2800 to 3050

m. This type of forest is found in the compartments of Gantar, Batila and Pashto. The broad-leaved associates are *Juglans regia*, *Aesculus indica*, *Prunus padus*, *Quercus semicarpifolia*, *Populus ciliata*, *Taxus wallichiana*, *Ulmus wallichiana*, *Cornus macrophylla* and *Betula utilis*. Undergrowth consists of *Berberis* sp, *Desmodium elegans*, *Viburnum* sp, *Parrotiopsis jacquemontiana* and *Spiraea vacciniifolia*. Ground flora consists of *Ranunculus*, *Aquilegia*, *Aconitum*, *Skimmia*, *Atropa*, *Fragaria* and *Geranium* species.

3.1.6. Alpine Pastures

Alpine pastures are situated to the east of Gangwal – Jabbar valley forests forming the boundary between the Hillian and Jabori forest ranges. These pastures support a large number of sheep, goats and cattle during summer. *Betula utilis* and *Juniperus communis* are found occasionally on rocky slopes.

3.2. The Ethno-botanical Use Classes

During present study it was observed that the local people use the plant resources for various purposes. On the bases of their use the plants of Allai Valley can be classified as medicinal plants, poisonous plants, fodder species, fuel wood species, timber yielding plants, thatching and sheltering plants, hedge plants, wild ornamental plants, weeds, edible fruits and seeds plants and vegetable and pot herb species. These classes are presented in Table 1.

3.2.1. Medicinal Plants

During present survey it was noted that various parts of 185 plant species are used for medicinal purpose. These include 23 ethno veterinary important plants. Some plant species are used individually, while other is in mixtures. The recipes may be in the form of fresh plant material, powder, or in the form of Paste. The powder form may be taken in small quantity along with milk or water depends on the nature of disease. The recipes prepared from these medicinal plants are generally used for curing several diseases such as asthma, cough, tonic, abdominal pain, expectorant, anthelmintic, carminative, jaundice, diarrhea, dysentery, on boils and snakebites etc. The important plants are; *Acacia modesta*, *Aconitum heterophyllum*, *Acorus calamus*, *Ajuga bracteosa*, *Atropa acuminata*, *Berberis lycium*, *Mentha longifolia*, *Punica granatum*, *Podophyllum emodi*, *Valeriana jatamansi*, *Viola canescens* and *Zanthoxylum armatum* etc. Plants important with respect to ethno veterinary use are *Asparagus officinalis*, *Cedrus deodara*, *Cissampelos pareira*, *Cotinus coggyria*, *Jasminum officinale*, *Paeonia emodi*, *Podophyllum emodi*, *Poligonatum verticellatum*, *Bistorta amplexicaulis*, *Populus alba*, *Pteris cretica*, *Rumex dentatus*, *Urtica dioica* and *Valeriana jatamansi* etc.

3.2.2. Poisonous Plants

Twenty-one plant species are poisonous to man, livestock

and fishes create various diseases in them. These include whole plant of *Andrachne cordifolia*, the red fruits of *Arisaema flavum* causes numbness of tongue, vomiting and coma, leaves of *Cedrella serrata* to cattle, fruits of *Datura innoxia* and *Datura stramonium*, whole plant of *Nerium indicum*, lotus *corniculatus* and *Urtica dioica*. *Persicaria stagnina* and *Dioscorea deltoidea* are crushed and used as fish poison.

3.2.3. Fodder Plant Species

The livestock feed on 261 plant species. The fodder plant species may be used in fresh and dried form. The local people cut grass in the month of September and dried it and then fed to livestock during winter. These include *Avena fatua*, *Agrostis hissarica*, *Amaranthus* sp, *Cyperus* sp, *Dactylis glomerata*, *Heteropogon contortus*, *Kyllinga brevifolia*, *Lygodium hazaricum*, *Phleum pratense*, *Poa infirma*, *Themeda anathera* and *Trifolium repens*. The leaves of *Acacia modesta*, *Ailanthus altissima*, *Alangium chinense*, *Betula utilis*, *Morus* sp, *Olea ferruginea*, *Quercus* sp and *Robinia pseudo acacia* are used as fodder for goats and sheep.

3.2.4. Fuel Wood Species

There are 126 plant species that are used as fuel wood and various parts like stem, branches and roots of these plants are burnt for cooking and heating purposes. Some of them are *Abies pindrow*, *Acacia modesta*, *Ailanthus altissima*, *Aesculus indica*, *Alnus nitida*, *Bauhinia variegata*, *Berberis lycium*, *Diospyrus lotus*, *Dodonaea viscosa*, *Indigofera heterantha*, *Pinus roxburghii*, *Pinus wallichiana*, *Prunus padus*, *Taxus wallichiana*, *Ulmus wallichiana*, *Ficus*, *Morus* and *Quercus* species.

3.2.5. Timber Yielding Plants

There are 37 timber wood species. The timber yielding plants are used in roof, doors, and windows and in furniture's. Some of them are *Abies pindrow*, *Aesculus indica*, *Diospyros lotus*, *Juglans regia*, *Picea smithiana*, *Pinus roxburghii*, *Pinus wallichiana*, *Platanus orientalis* and *Ulmus wallichiana*.

3.2.6. Thatching / Sheltering Plants

Forty three plant species are used for thatching and sheltering purposes and are placed on the roof above timbers. These include branches of *Abies pindrow*, *Cotinus coggyria*, *Desmodium elegans*, *Deutzia staminea*, *Dodonaea viscosa*, *Indigofera heterantha*, *Picea smithiana*, *Pinus roxburghii*, *Pinus wallichiana*, *Phragmites australis*, *Sarcococca saligna* and *Spiraea vacciniifolia*.

3.2.7. Fencing and Hedge Plants

Fences and hedges are made up by 31 bushy and spiny plant species and are either cultivated on the margins of the fields and form a permanent fencing or branches of these

plants are fixed in the soil for making temporary fencing. These include *Acacia modesta*, *Berberis lycium*, *Caesalpinia decapitala*, *Gymnosporia royleana*, *Robinia pseudoacacia*, *Rosa moschata*, *Rubus ellipticus*, *Rubus fruticosus*, *Rubus ulmifolius*, *Zanthoxylum armatum*, *Zizyphus oxyphylla* and *Zizyphus vulgare*.

3.2.8. Wild Ornamental Plants

There are 73 plant species that are considered as wild ornamental due to their fragrant and color of flowers in the area including *Androsace hazarica*, *Althaea ludwigii*, *Aquilegia pubiflora*, *Delphinium vestitum*, *Hypericum oblongifolium*, *Impatiens bicolor*, *Inula royleana*, *Jasminum* sp., *Narcissus tazetta*, *Onopordum acanthium*, *Rosa moschata*, *Solanum pseudocapsicum*, *Spiraea vacciniifolia* and *Tulipa stellata*.

3.2.9. Weeds

Hundred plant species are weeds that grow along cereal plants and compete for nutrients and cause less productivity of cereal crops including *Conyza canadensis*, *Cynodon dactylon*, *Ipomoea eriocarpa*, *Ipomoea turbinata*, *Ranunculus arvensis*, *Tagetes minuta* and *Xanthium stromarium*.

3.2.10. Plants that Yields Edible Fruits

There are 48 plants that bear edible fruits and seeds including *Berberis* sp., *Diospyros* sp., *Duchesnea indica*, *Ficus* sp., *Juglans regia*, *Morus* sp., *Rubus* sp., *Solanum nigrum*, *Vitis jacquemontii* and *Zizyphus* sp.

3.2.11. Vegetable and Potherb Species

There are 43 wild plant species that are used as vegetables and potherbs, including *Allium filidens*, *Amaranthus viridis*, *Capsella bursa-pastoris*, *Dryopteris jaxtapostia*, *Lepidium apetalum*, *Lepidium pinnatifidum*, *Medicago denticulata*, *Medicago lupulina*, *Mentha longifolia*, *Mentha spicata*, *Portulaca oleracea* and *Thymus linearis*.

3.3. Conservation Status

During present study it was noted that 5 plant species were critically endangered locally under IUCN criteria version 3.1. These plant species fall under criteria A, B, C and D. The critically endangered species include; *Acer caesium*, *Betula utilis*, *Dioscorea deltoidea*, *Taxus wallichiana* and *Ulmus wallichiana*.

3.4. Major Threats to the Flora of Allai Valley

Due to increase of human population and constant unplanned overexploitation of plants for medicinal, timber, firewood, fodder and thatching purposes has damaged the vascular flora of the selected area. Other threats to the flora are loss of habitat, unplanned collection, deforestation, over grazing, erosion, change of environment, attack of pathogens and effect of introduced taxa.

4. Discussion

Plant biodiversity are precious endowment of nature upon which mankind has always been dependent. The authentic knowledge of plants is based on trial and error and passed on from one generation to another, after refining and additions[15]. The replacement of wild plants with desired cultivated crops on large scale has affected the availability of plants in their natural habitat[16]. Worldwide land cover, is altered principally by direct human use; through agriculture, pasture, forestry, and development[17], due to which natural habitats are reduced, leaving less area available for native species[18].

In some parts of the globe including Himalayan region, the humans are using plant resources very ruthlessly[19]. During the last hundred years, the area has been subjected to major structural changes leading to a decrease of about 50% of the potential forest area[9]. The loss and degradation of natural forests clearly implies a decline in species number and genetic diversity of population[10]. The moist temperate Himalayas deserve specific attention to the conservation of environment and the sustainable development of plant resources.

Recently the species diversity of vascular plant[3], medicinal flora[15] and conservation status of critically endangered and endangered species[20] were explored in Nandiar Valley, and medicinal flora of Allai Valley[1] District Battagram, Western Himalayas Pakistan. There is no such study on the species diversity of Allai Valley; therefore Allai Valley has been selected for present study.

During present study the species diversity and ethno botanical uses of 415 species of vascular plants was explored from sub tropical foothills to alpine pastures including 13 alien plant species which are naturalized and established in Allai valley. These alien plant species were introduced from other parts of Asia, Australia, Africa, Europe and America.

The people of the valley use plant resources for their various ailments. They collect plants for medicinal uses, fuel wood, fodder, timber, and many other purposes. They prepare the recipes through personal experience and ancestral prescription from same plants or mixed with other plants. These recipes are taken in the form of fresh, powder or in paste form. The powder form may be taken with water or milk. Certain plant species are poisonous and causes various diseases in man, livestock and fishes. Some of these plants causes allergy in human. A large number of plant species are used as fodder for livestock. These fodder species are used both in fresh and dried form. The local people use many plant species as fuel wood for cooking and heat during winter. Due to lack of facilities in the area, the local people construct their houses from stones and clay and use certain plant species for timber upon which thatching and sheltering plant species are kept to support the roof. Around the cultivated lands the fences are made from thorny plant species to protect the crop from the attack of cattle. Certain plant species has given beauty and fragrance

Provision of civic facilities in the area like road, health, education, water supply, electricity, natural gas and telephone will not only improve the living standard of the people but will also lead to the sustainable use of the resources and ecological development of the area.

The forests are continuously depleting due to high human pressure and lack of proper management. The local people are unaware of the proper collecting of timber, fuel wood and medicinal plants. Proper community training and

Table.1. Ethno-botanical profile of vascular plants of Allai valley

[illegible]

13.	<i>Adiantum venustum</i> D. Don	+	-	-	-	-	-	-	-	-	-	-
14.	<i>Aegopodium burtii</i> E. Nasir	-	-	+	-	-	-	-	-	-	-	-
15.	<i>Aeschynomene indica</i> L.	-	-	+	-	-	-	-	-	+	-	-
16.	<i>Aesculus indica</i> (Wall. ex Cambl.) Hook.f.	+	-	-	+	+	-	-	-	-	-	-
17.	<i>Agrimonia eupatoria</i> L.	-	-	+	-	-	-	-	+	-	-	-
18.	<i>Agrostis hissarica</i> Rozhev.	-	-	+	-	-	-	-	-	-	-	-
19.	<i>Ailanthus altissima</i> (Mill.) Swingle	-	-	+	+	+	-	-	-	-	-	-
20.	<i>Ajuga bracteosa</i> Wall.ex Benth	+	-	-	-	-	-	-	-	-	-	+
21.	<i>Alangium chinense</i> (Lour.) Harm.	-	-	+	+	+	-	-	+	-	-	-
22.	<i>Albezia lebbeck</i> (Asb.) Stewart	+	-	-	+	+	-	-	-	-	-	-
23.	<i>Alliaria petiolata</i> (M.Bieb.) Cavara.	-	-	+	-	-	-	-	-	+	-	+
24.	<i>Allium filidens</i> Regel.	+	-	-	-	-	-	-	+	-	-	+
25.	<i>Alnus nitida</i> (Spach.) Endl	-	-	-	+	+	-	-	-	-	-	-
26.	<i>Alotis stoliczkai</i> Clarke	-	-	+	-	-	-	-	-	+	-	-
27.	<i>Althaea ludwigii</i> L.	-	-	+	-	-	-	-	+	+	+	+
28.	<i>Amaranthus caudatus</i> L.	+	-	+	-	-	-	-	-	+	-	-
29.	<i>Amaranthus viridis</i> L.	+	-	+	-	-	-	-	-	+	-	+
30.	<i>Anagalis arvensis</i> L.	+	-	+	-	-	-	-	-	+	-	+
31.	<i>Anagalis phoenicea</i> Gern.	-	-	+	-	-	-	-	-	+	-	-
32.	<i>Anaphalis busa</i> DC.	-	-	+	-	-	-	-	-	+	-	+
33.	<i>Andrachne cordifolia</i> (Wall.ex Dc.) Muell.	-	+	+	+	+	+	-	-	-	-	-
34.	<i>Androsace hazarica</i> Y. J. Nasir	-	-	+	-	-	-	-	+	-	-	-
35.	<i>Androsace rotundifolia</i> Hardw.	-	-	+	-	-	-	-	+	-	-	-
36.	<i>Aquilegia pubiflora</i> Wall.ex Royle	-	+	-	-	-	-	-	+	-	-	-
37.	<i>Arabis bijuga</i> G. Watt.	-	-	+	-	-	-	-	-	+	-	+
38.	<i>Arisaema flavum</i> Forssk.	+	+	-	-	-	-	-	-	-	-	-
39.	<i>Arisaema jacquemontii</i> Blume	+	+	-	-	-	-	-	-	-	-	-
40.	<i>Artemisia japonica</i> Thunb.	+	-	-	-	-	+	-	-	-	-	-
41.	<i>Artemisia roxburghiana</i> Wall. ex Bess.	+	+	-	-	-	+	-	-	-	-	-
42.	<i>Artemisia vulgaris</i> L.	+	-	-	+	-	+	-	-	-	-	-
43.	<i>Asparagus filicinus</i> Bunch–Ham.ex D.Don.	+	-	+	-	-	-	-	-	+	-	-
44.	<i>Asparagus officinalis</i> L.	+	-	-	-	-	-	-	-	-	-	-
45.	<i>Asplenium cordatum</i> G. Forst.	-	-	+	-	-	-	-	-	-	-	-
46.	<i>Asplenium cunifolium</i> Altunat.	-	-	+	-	-	-	-	-	-	-	-
47.	<i>Asplenium trichomonas</i> L.	-	-	+	-	-	-	-	-	-	-	-
48.	<i>Aster himalaicus</i> C. B. Clarke	-	-	+	-	-	-	-	+	-	-	-
49.	<i>Astragalus ammophilus</i> Karelin.	-	-	+	-	-	-	-	-	-	-	-
50.	<i>Astragalus graveolens</i> Buch.	-	-	+	-	-	-	-	-	-	-	+
51.	<i>Astragalus leucocephalus</i> Grach.ex Benth	-	-	+	-	-	-	-	-	-	-	+
52.	<i>Atropa acuminata</i> Royle	+	-	-	-	-	-	-	-	-	-	-
53.	<i>Atylosia platycarpa</i> Benth	-	-	+	-	-	-	-	-	-	-	-
54.	<i>Avena fatua</i> L.	-	-	+	-	-	-	-	-	+	-	-
55.	<i>Bauhinia variegata</i> L.	-	-	-	+	+	-	-	-	-	-	-
56.	<i>Berberis jaeschkeana</i> C.K. Schneider	-	-	+	+	-	-	+	-	-	+	-
57.	<i>Berberis lycium</i> Royle	+	-	+	+	-	-	+	-	-	+	-
58.	<i>Bergenia ciliata</i> Sternb.	+	-	-	-	-	-	-	-	-	-	-
59.	<i>Betula utilis</i> D. Don	+	-	+	+	+	-	-	-	-	-	-
60.	<i>Bistorta emodi</i> (Meisn) Hara	+	-	+	-	-	-	-	-	+	-	-
61.	<i>Broussonetia papyrifera</i> Vent	-	-	-	+	+	-	-	+	-	-	-
62.	<i>Buplerum hazaricum</i> Nasir	+	-	+	-	-	-	-	-	+	-	-
63.	<i>Buplerum longicaule</i> Wall.ex DC	-	-	+	-	-	-	-	-	+	-	-
64.	<i>Caesalpinia decapetala</i> (Roth) Alston	+	-	-	+	-	-	+	-	-	-	-
65.	<i>Calotropis procera</i> (Willd)R.Br.	+	+	-	-	-	-	-	+	-	-	-
66.	<i>Caltha alba</i>	+	-	+	-	-	-	-	-	-	-	-
67.	<i>Cannabis sativa</i> L.	+	-	-	+	-	-	-	-	-	-	-
68.	<i>Capsella bursa pectoris</i> (L.) Medik.	-	-	+	-	-	-	-	-	-	-	+
69.	<i>Cardamine impatiens</i> L.	-	-	+	-	-	-	-	-	+	-	+
70.	<i>Carex cardiolepis</i> Nees.	-	-	+	-	-	-	-	-	-	-	-
71.	<i>Carex foliosa</i> D. Don	-	-	+	-	-	-	-	-	-	-	-
72.	<i>Carex serotina</i> M. crat.	-	-	+	-	-	-	-	-	-	-	-
73.	<i>Caropteris grata</i> Benth.	-	-	+	-	-	+	-	-	-	-	-
74.	<i>Carpesium abrotanoides</i> L.	-	-	+	-	-	-	-	-	-	-	-
75.	<i>Carpesium nepalense</i> Less.	-	-	+	-	-	-	-	-	-	-	-

76.	<i>Cedrella serrata</i> Royle	+	+	-	+	+	-	-	-	-	-
77.	<i>Cedrus deodara</i> Roxb. ex Lamb.	+	-	-	+	+	-	-	-	-	-
78.	<i>Celosia argentea</i> L.	-	-	+	-	-	-	+	+	-	-
79.	<i>Celtis australis</i> L.	+	-	+	+	+	-	-	-	-	-
80.	<i>Centaurea iberica</i> Trevir ex Sprengel	-	-	-	-	-	-	-	+	-	-
81.	<i>Cephalanthera longifolia</i> (L.) Fritsch	+	-	-	-	-	-	+	-	-	-
82.	<i>Cheilanthes albo-marginata</i> Clarke	-	-	-	-	-	-	-	-	-	-
83.	<i>Cheilanthes dalhousiae</i> Hook.f.	-	-	-	-	-	-	-	-	-	-
84.	<i>Chenopodium album</i> L.	-	-	+	-	-	-	-	+	-	+
85.	<i>Chloris pilosa</i> Schumacher	-	-	+	-	-	-	-	+	-	+
86.	<i>Cichorium intybus</i> L.	+	-	-	-	-	-	-	+	-	-
87.	<i>Cichorium nandiaricum</i>	-	-	+	-	-	-	-	-	-	-
88.	<i>Cirsium falconeri</i> (Hook. f.) Petrak.	-	-	+	-	-	-	-	-	-	-
89.	<i>Cissampelos pareira</i> L.	+	-	+	-	-	-	-	-	-	-
90.	<i>Clematis connata</i> DC.	-	-	+	-	-	-	-	-	-	-
91.	<i>Clematis grata</i> Wall.	+	-	+	-	-	-	-	-	-	-
92.	<i>Clematis montana</i> Buch.	+	-	+	-	-	-	-	-	-	-
93.	<i>Colebrookia oppositifolia</i> Smith	-	-	+	+	-	+	+	-	-	-
94.	<i>Convolvulus arvensis</i> L.	+	-	+	-	-	-	-	+	-	-
95.	<i>Conyza Canadensis</i> L. Cronq.	-	-	+	-	-	-	-	+	-	-
96.	<i>Cornus macrophylla</i> Wall.	+	-	+	+	+	-	-	+	-	-
97.	<i>Cortaderia selloana</i>	-	-	+	-	-	-	+	-	-	-
98.	<i>Corydalis stewartii</i> Fedde	+	-	+	-	-	-	-	-	-	-
99.	<i>Cotinus coggyria</i> Scop.	+	-	-	+	-	+	-	-	-	-
100.	<i>Cotoneaster bacillaris</i> Wall. ex Lindl.	-	-	-	+	-	-	-	-	-	-
101.	<i>Cotoneaster integerrima</i> Medic.	-	-	-	+	-	-	-	-	-	-
102.	<i>Cotoneaster microphylla</i> Wall. ex Lindl.	+	-	-	+	-	+	-	-	+	-
103.	<i>Cotoneaster nummularia</i> Fisch. & Mey	+	-	-	+	-	+	-	-	+	-
104.	<i>Crataegus sonagaria</i> G. Koch.	+	-	-	+	-	-	+	-	-	+
105.	<i>Crotalaria medicaginea</i> Lamk.	-	-	+	-	-	-	-	-	-	-
106.	<i>Cupressus sempervirens</i> L.	-	-	-	+	-	-	+	-	-	-
107.	<i>Cuscuta gigantea</i> Griff.	+	-	-	-	-	-	-	-	-	-
108.	<i>Cynodon dactylon</i> L.	+	-	+	-	-	-	-	+	-	-
109.	<i>Cynoglossum lanceolatum</i> Forsk.	-	-	+	-	-	-	-	+	-	-
110.	<i>Cyperus iria</i> L.	-	-	+	-	-	-	-	-	-	-
111.	<i>Cyperus neveux</i> Retz.	-	-	+	-	-	-	-	-	-	-
112.	<i>Cystopteris fragilis</i> (L.) Benth.	-	-	-	-	-	-	-	-	-	-
113.	<i>Dactylis glomerata</i> L.	-	-	+	-	-	-	-	+	-	-
114.	<i>Dalbergia sisso</i> Roxb.	+	-	+	+	+	-	-	-	-	-
115.	<i>Daphne mucronata</i> Royle	+	-	-	+	-	-	-	-	+	-
116.	<i>Daphne papyracea</i> Wall. ex Steud.	+	-	-	+	-	+	-	-	-	-
117.	<i>Datura innoxia</i> Miller	+	+	-	-	-	-	+	-	-	-
118.	<i>Datura stramonium</i> L.	+	+	-	-	-	-	+	-	-	-
119.	<i>Debregeesia salcifolia</i> (D. Don) Rendle	+	-	-	+	-	-	+	-	-	-
120.	<i>Delphinium vestitum</i> Wall. ex Royle	-	+	-	-	-	-	+	-	-	-
121.	<i>Descurainia sophia</i> (Linn.) Webb.	+	-	+	-	-	-	-	+	-	-
122.	<i>Desmodium elegans</i> DC.	+	-	+	+	-	+	-	-	-	-
123.	<i>Deutzia staminea</i> R. Br. ex Wall.	+	-	-	+	-	+	-	-	-	-
124.	<i>Dicliptra bupleioides</i> Nees	-	-	+	-	-	-	-	+	-	-
125.	<i>Dioscorea deltoidea</i> Wall. ex Kunth	+	+	-	-	-	-	-	-	-	-
126.	<i>Dioscorea melenophyllum</i> Burkill & Prain	-	-	+	-	-	-	-	-	-	-
127.	<i>Diospyros kaki</i> L.	-	-	-	+	-	-	+	-	+	-
128.	<i>Diospyros lotus</i> L.	+	-	-	+	+	-	-	-	+	-
129.	<i>Diplazium kawakamii</i>	-	-	+	-	-	-	-	-	-	-
130.	<i>Dodonaea viscosa</i> (L.) Jacq.	+	-	-	+	-	+	+	-	-	-
131.	<i>Dryopteris blandfordi</i> Hope.	-	-	+	-	-	-	-	+	-	+
132.	<i>Dryopteris jaxtapostia</i> Chirst.	+	-	+	-	-	-	-	-	-	+
133.	<i>Dryopteris serrate dentata</i> (Bedd.) Hay	-	-	+	-	-	-	-	-	-	+
134.	<i>Dryopteris wallichiana</i> (Spring) Hyl.	-	-	+	-	-	-	-	-	-	-
135.	<i>Duchesnea indica</i> (Andr.) Focke.	+	-	+	-	-	-	-	-	+	-
136.	<i>Duhaldea cappa</i> Anderb.	-	-	+	+	-	+	-	-	-	-
137.	<i>Echinochloa colona</i> (Linn.) Link.	-	-	+	-	-	-	-	+	-	-
138.	<i>Echinochloa oryzoides</i> (Ard.) Fritsch	-	-	+	-	-	-	-	+	-	-

139.	<i>Ehretia serrata</i> Roxb.	-	-	+	+	+	-	-	-	-	-	-
140.	<i>Elaeagnus umbellata</i> Thunb.	+	-	-	+	-	-	+	-	-	+	-
141.	<i>Eleocharis umiglumis</i> (Link) Schultes	-	-	+	-	-	-	-	-	+	-	-
142.	<i>Elsholtzia fruticosa</i> (Roxb .ex D. Don)	-	-	+	-	-	-	-	-	+	-	-
143.	<i>Elsholtzia strobilifera</i> Benth.	-	-	+	-	-	-	-	-	+	-	-
144.	<i>Epilobium rhychospermum</i> Hausskn.	-	-	+	-	-	-	-	-	-	-	-
145.	<i>Equisetum arvense</i> L.	+	-	-	-	-	-	-	-	-	-	-
146.	<i>Equisetum hiemale</i> L.	+	-	-	-	-	-	-	-	-	-	-
147.	<i>Erodium cicutarium</i> L.	-	-	+	-	-	-	-	-	+	-	-
148.	<i>Erophila verna</i> (L.) Besser	-	-	+	-	-	-	-	-	+	-	+
149.	<i>Eucalyptus globules</i>	-	-	-	+	+	-	-	+	-	-	-
150.	<i>Euphorbia cognata</i> Boiss.	-	+	-	-	-	-	-	-	-	-	-
151.	<i>Euphorbia helioscopia</i> L.	-	+	-	-	-	-	-	-	+	-	-
152.	<i>Euphorbia indica</i> Lam.	+	-	-	-	-	-	-	-	-	-	-
153.	<i>Euphorbia wallichii</i> Hook.f.	+	+	-	-	-	-	-	-	-	-	-
154.	<i>Fagopyrum dibotrys</i> (D. Don) Hara	-	-	+	-	-	-	-	-	-	-	-
155.	<i>Fallopia convolvulus</i> L.	-	-	+	-	-	-	-	-	+	-	-
156.	<i>Ferula</i> sp.	+	-	-	-	-	-	-	-	-	-	-
157.	<i>Ficus carica</i> Forsk.	+	-	-	+	-	-	-	-	-	+	-
158.	<i>Ficus palmata</i> Forsk.	+	-	-	+	-	-	-	-	-	+	-
159.	<i>Ficus racemosa</i> L.	+	-	-	+	-	-	-	-	-	+	-
160.	<i>Ficus sarmentosa</i> Buch.	-	-	-	-	-	-	-	+	-	+	-
161.	<i>Filipendula vestita</i> Maxim.	-	-	+	-	-	-	-	-	-	-	-
162.	<i>Foeniculum vulgare</i> Miller	+	-	-	-	-	-	-	-	-	+	+
163.	<i>Fragaria nubicola</i> Lindl.	+	-	+	-	-	-	-	+	-	+	-
164.	<i>Fumaria indica</i> (Husskin) H. N.	+	-	+	-	-	-	-	-	-	-	-
165.	<i>Gagea satifolia</i> Baker.	-	-	+	-	-	-	-	+	+	-	-
166.	<i>Galinsoga parviflora</i> Cav.	-	-	+	-	-	-	-	-	+	-	-
167.	<i>Gallium aparine</i> L.	+	-	+	-	-	-	-	-	+	-	-
168.	<i>Gentiana karelinii</i> DC.	-	-	+	-	-	-	-	-	-	-	-
169.	<i>Gentianodes pedicellata</i> D. Don	+	-	-	-	-	-	-	-	-	-	-
170.	<i>Geranium collinum</i> Steph .ex Willd.	-	-	+	-	-	-	-	-	-	-	-
171.	<i>Geranium lucidum</i> L.	-	-	+	-	-	-	-	-	-	-	-
172.	<i>Geranium rotundifolium</i> L.	+	-	+	-	-	-	-	-	-	-	-
173.	<i>Geranium wallichianum</i> D.Don	+	-	+	-	-	-	-	-	-	-	-
174.	<i>Gerberia gossipiana</i> (Royle) Beauv.	+	-	-	-	-	-	-	-	-	-	-
175.	<i>Geum roylei</i> Bolle.	-	-	+	-	-	-	-	-	+	-	-
176.	<i>Girardiana palmata</i> (Forssk) Gaugich.	-	-	-	-	-	-	-	-	+	-	-
177.	<i>Glochidon velutinum</i> Wight.	-	-	-	+	-	-	+	-	-	-	-
178.	<i>Grewia optiva</i> Drum.ex Burret.	+	-	+	+	+	-	-	-	-	-	-
179.	<i>Gymnosporia royleana</i> Wall.ex Lawson.	+	-	-	+	-	-	+	-	-	-	-
180.	<i>Hedra nepalensis</i> K. Koch.	+	-	+	-	-	-	-	-	-	-	-
181.	<i>Heliotropium cabulicum</i> Bunge.	-	-	+	-	-	-	-	-	+	-	-
182.	<i>Heracleum cochemiricum</i> C. B. Clarke.	-	-	+	-	-	-	-	-	+	-	-
183.	<i>Heteropogon contortus</i> L.	-	-	+	-	-	-	-	-	-	-	-
184.	<i>Himalrandia tetrasperma</i> (Roxb.) Yama.	-	-	-	+	-	-	+	-	-	-	-
185.	<i>Hypericum oblongifolium</i> Choisy	-	-	+	-	-	+	-	+	-	-	-
186.	<i>Hypericum perforatum</i> L.	+	-	+	-	-	-	-	-	+	-	-
187.	<i>Ilex dipyrena</i> Wall.	-	-	-	+	-	-	-	-	-	-	-
188.	<i>Impatiens bicolor</i> Royle	+	-	+	-	-	-	-	+	+	-	-
189.	<i>Impatiens brachycentra</i> Kar.	-	-	+	-	-	-	-	+	-	-	-
190.	<i>Impatiens edgeworthii</i> Hook.f.	-	-	+	-	-	-	-	+	+	-	-
191.	<i>Impatiens sulcata</i> Wall.	-	-	+	-	-	-	-	+	-	-	-
192.	<i>Indigofera heterantha</i> Well.ex Brandis	+	-	-	+	-	+	-	-	-	-	-
193.	<i>Inula acuminata</i> Royle .ex DC.	-	-	+	-	-	-	-	-	-	-	-
194.	<i>Inula royleana</i> DC.	+	-	+	-	-	-	-	+	-	-	-
195.	<i>Ipomoea eriocarpa</i> R. Br. Proder	-	-	+	-	-	-	-	-	+	-	-
196.	<i>Ipomoea nil</i> (linn.) Roth.	-	-	+	-	-	-	-	-	+	-	-
197.	<i>Ipomoea turbinate</i> Lag.	-	-	+	-	-	-	-	-	+	-	-
198.	<i>Iris germanica</i> L.	-	-	-	-	-	-	-	+	+	-	-
199.	<i>Isodon coetsa</i> Buch. Ham .ex D. Don.	-	-	+	+	-	+	-	-	-	-	-
200.	<i>Isodon rugosus</i> L.	+	-	+	+	-	+	-	-	-	-	-
201.	<i>Jasminum humile</i> L.	+	-	-	-	-	-	-	+	-	-	-

202.	<i>Jasminum officinale</i> L.	+	-	-	-	-	-	-	+	-	-	-
203.	<i>Juglans regia</i> L.	+	-	-	+	+	-	-	-	-	+	-
204.	<i>Juncus articulatus</i> L.	-	-	+	-	-	-	-	-	-	-	-
205.	<i>Juniperus communis</i> Brand.	+	-	-	+	-	-	-	-	-	-	-
206.	<i>Justicia adhatoda</i> L.	+	+	-	-	-	+	-	+	-	-	-
207.	<i>Koeleria macrantha</i> Schult	-	-	+	-	-	-	-	-	+	-	+
208.	<i>Kyllinga brevifolia</i> Rottb.	-	-	+	-	-	-	-	-	+	-	-
209.	<i>Lallemantia royleana</i> Benth.	-	-	+	-	-	-	-	-	-	-	-
210.	<i>Lamium album</i> L.	-	-	+	-	-	-	-	-	-	-	-
211.	<i>Lathyrus aphaca</i> L.	+	-	+	-	-	-	-	-	+	+	-
212.	<i>Lathyrus sphaericus</i> Retz.	-	-	+	-	-	-	-	-	+	+	-
213.	<i>Launea procumbens</i> Roxb.	+	-	-	-	-	-	-	-	-	-	-
214.	<i>Leontopodium brachyoctis</i> Gandoger	-	-	+	-	-	-	-	-	-	-	-
215.	<i>Lepidium apetalum</i> Willd.	-	-	+	-	-	-	-	-	+	-	+
216.	<i>Lepidium pinnatifidum</i> Ledeb.	-	-	+	-	-	-	-	-	+	-	+
217.	<i>Lespedeza gerardiana</i> Graham ex Maxim.	-	-	+	-	-	-	-	-	-	-	-
218.	<i>Leucostegia pulchra</i> D. Don	-	-	+	-	-	-	-	+	-	-	-
219.	<i>Lindelia stylosa</i> Brand.	-	-	+	-	-	-	-	-	-	-	-
220.	<i>Lonicera quinquelocularis</i> Hardw.	-	-	+	+	-	+	-	+	-	-	-
221.	<i>Lotus corniculatus</i> L.	-	+	-	-	-	-	-	-	+	-	-
222.	<i>Lygodium hazaricum</i>	-	-	+	-	-	-	-	-	-	-	-
223.	<i>Lyonia ovalifolia</i> (Wall.) Prude	-	+	-	+	-	-	+	-	-	-	-
224.	<i>Mallotus philippensis</i> (Lam) Muell	+	-	-	+	-	-	+	-	-	-	-
225.	<i>Malva neglecta</i> Wall.	+	-	+	-	-	-	-	-	+	-	+
226.	<i>Marrubium vulgare</i> L.	+	-	+	-	-	-	-	-	-	-	-
227.	<i>Marsilea quadrifolia</i> L.	-	-	-	-	-	-	-	-	+	-	-
228.	<i>Matricaria aurea</i> (Loefl.) Schultz.	-	-	+	-	-	-	-	-	+	-	-
229.	<i>Medicago denticulata</i> Willd.	-	-	+	-	-	-	-	-	+	-	+
230.	<i>Medicago lupulina</i> L.	-	-	+	-	-	-	-	-	+	-	+
231.	<i>Melia azedarach</i> L.	+	-	-	+	+	-	-	-	-	-	-
232.	<i>Melilotos altissima</i> Thiull.	-	-	+	-	-	-	-	-	-	-	-
233.	<i>Mentha longifolia</i> (L.) Huds.	+	-	-	-	-	-	-	-	-	-	+
234.	<i>Mentha spicata</i> L.	+	-	-	-	-	-	-	-	-	-	+
235.	<i>Micromeria biflora</i> Buch.	+	-	+	-	-	-	-	-	-	-	-
236.	<i>Mirabalis jalapa</i> L.	+	-	+	-	-	-	-	+	-	-	-
237.	<i>Morus alba</i> L.	+	-	+	+	+	-	-	-	-	+	-
238.	<i>Morus nigra</i> L.	+	-	+	+	+	-	-	-	-	+	-
239.	<i>Morus serrata</i> Roxb.	+	-	+	+	-	-	-	-	-	+	-
240.	<i>Mosla dianthera</i> (Buch, -Ham) Maxim.	-	-	+	-	-	-	-	-	+	-	-
241.	<i>Myrsine africana</i> L.	-	-	+	+	-	+	-	-	-	+	-
242.	<i>Myrtus communis</i> L.	+	-	-	+	-	-	-	-	-	-	-
243.	<i>Narcissus tazetta</i> L.	-	-	-	-	-	-	-	+	-	-	-
244.	<i>Nasturtium officinale</i> R. Br.	-	-	+	-	-	-	-	-	-	-	+
245.	<i>Nepeta cataria</i> L.	-	-	+	-	-	-	-	-	+	-	-
246.	<i>Nerium indicum</i> Mill.	+	+	-	+	-	-	-	+	-	-	-
247.	<i>Neslia apiculata</i> Fisch.	-	-	+	-	-	-	-	-	+	-	-
248.	<i>Notholirion thomsonianum</i> (D. Don) Stapf	-	-	+	-	-	-	-	+	-	-	-
249.	<i>Oenothera affinis</i> Camb.	-	-	+	-	-	-	-	+	-	-	-
250.	<i>Oenothera rosea</i> L.	-	-	+	-	-	-	-	-	+	-	-
251.	<i>Olea ferruginea</i> Royle	+	-	+	+	+	-	-	-	-	-	-
252.	<i>Onopordum acanthium</i> L.	-	-	-	-	-	-	-	+	+	-	-
253.	<i>Onosma echioides</i>	+	-	-	-	-	-	-	-	-	-	-
254.	<i>Ophipogon intermedius</i> Banddi, D. Don	-	-	+	-	-	-	-	-	-	-	-
255.	<i>Opuntia dilleni</i> Haw.	+	-	-	-	-	-	+	-	-	-	-
256.	<i>Origanum vulgare</i> L.	+	-	+	-	-	-	-	-	+	-	-
257.	<i>Otostegia limbata</i> (Benth.) Boiss.	+	-	-	+	-	-	+	-	-	-	-
258.	<i>Oxalis corniculata</i> L.	+	-	-	-	-	-	-	-	-	-	+
259.	<i>Paeonia emodi</i> Wall ex Hook. f.	+	-	-	-	-	-	-	-	-	-	-
260.	<i>Papaver rhoeas</i> L.	-	-	+	-	-	-	-	+	+	-	-
261.	<i>Parrotiopsis jacquemontiana</i> (Dec.) Rehder	-	-	-	+	-	+	-	-	-	-	-
262.	<i>Persicaria nepalensis</i> Meisn.	-	-	+	-	-	-	-	+	-	-	-
263.	<i>Persicaria stagnina</i> Buch-Ham.	+	+	+	-	-	-	-	+	+	-	-
264.	<i>Phalangium acuminatum</i> Boiss.	-	-	-	-	-	-	-	+	-	-	-

265.	<i>Phleum pratense</i> L.	-	-	+	-	-	-	-	-	-	-	-
266.	<i>Phlomis bracteosa</i> Royle .ex Benth.	-	-	+	-	-	-	-	-	-	-	-
267.	<i>Phlomis rotata</i> Royle .ex Benth.	-	-	+	-	-	-	-	-	-	-	-
268.	<i>Phragmites australis</i> (Cav.) Trin. ex steud.	-	-	+	+	-	+	+	-	-	-	-
269.	<i>Phragmites karka</i> (Retz.) Trin. ex Steud.	-	-	+	+	-	+	+	-	-	-	-
270.	<i>Physalis divaricata</i> D. Don	-	-	+	-	-	-	-	-	+	+	-
271.	<i>Picea smithiana</i> (Wall.) Boiss.	-	-	-	+	+	-	-	-	-	-	-
272.	<i>Picris hieraciodes</i> L.	-	-	+	-	-	-	-	+	-	-	-
273.	<i>Pinus roxburghii</i> Sargent	+	-	-	+	+	+	-	-	-	-	-
274.	<i>Pinus wallichiana</i> A. B. Jackson	-	-	-	+	+	+	-	-	-	-	-
275.	<i>Pistacea integerrima</i> J. L. Stewart	+	-	-	+	+	-	-	-	-	-	-
276.	<i>Plantago lanceolatum</i> L.	+	-	+	-	-	-	-	-	+	-	-
277.	<i>Plantago major</i> Aitch.	+	-	+	-	-	-	-	-	+	-	-
278.	<i>Platanus orientalis</i> L.	+	-	-	+	+	-	-	+	-	-	-
279.	<i>Pleurospermum brunonis</i> (DC.)Clarke	-	-	+	-	-	-	-	-	+	-	-
280.	<i>Poa infirma</i> H. B. K.	-	-	+	-	-	-	-	-	+	-	-
281.	<i>Podophyllum emodi</i> Wall .ex Royle	+	-	-	-	-	-	-	-	-	-	-
282.	<i>Polygonatum verticilatum</i> (L.) All.	+	-	-	-	-	-	-	-	-	-	-
283.	<i>Bistorta amplexicaule</i> D. Don	+	-	+	-	-	-	-	-	-	-	+
284.	<i>Polygonum plebejum</i> R. Br.	+	-	+	-	-	-	-	-	+	-	-
285.	<i>Populs ciliata</i> Wall.	+	-	+	+	+	+	-	-	-	-	-
286.	<i>Populus alba</i> L.	+	-	+	+	-	-	-	-	-	-	-
287.	<i>Populus nigra</i> L.	-	-	-	+	+	-	+	-	-	-	-
288.	<i>Portulaca oleracea</i> L.	+	-	-	-	-	-	-	-	-	-	+
289.	<i>Potentilla gerardiana</i> Lindl.	+	-	+	-	-	-	-	-	-	-	-
290.	<i>Potentilla nepalensis</i> Hook.f.	+	-	+	-	-	-	-	+	-	-	-
291.	<i>Potentilla sericophylla</i> Parker	-	-	+	+	-	+	-	-	-	-	-
292.	<i>Potentilla sundaica</i> (Blume) O. Kuntze	-	-	+	-	-	-	-	-	-	-	-
293.	<i>Primula denticulata</i> Smith	+	-	+	-	-	-	-	+	-	-	-
294.	<i>Prinsepia utilis</i> Royle	-	-	-	+	-	+	+	+	-	+	-
295.	<i>Prunella vulgaris</i> L.	-	-	+	-	-	-	-	-	-	-	-
296.	<i>Prunus arminiaca</i> Marsh.	+	-	+	+	-	-	-	-	-	+	-
297.	<i>Prunus domestica</i> L.	+	-	+	+	-	-	-	-	-	+	-
298.	<i>Prunus padus</i> Hook.f.	-	-	+	+	+	-	-	-	-	+	-
299.	<i>Prunus persica</i> L.	+	-	+	+	-	-	-	-	-	+	-
300.	<i>Pseudognaphalium hypolecum</i> (DC.)O. M.	-	-	+	-	-	-	-	+	-	-	-
301.	<i>Pseudognaphalium luteo album</i> (L.) O. M.	-	-	+	-	-	-	-	+	-	-	-
302.	<i>Psychrogeton andryaloides</i> (DC.) Novo.	-	-	+	-	-	-	-	-	-	-	-
303.	<i>Pteracanthus urticifolius</i> Bremek	-	-	+	-	-	-	-	-	+	-	-
304.	<i>Pteridium equinum</i> (L.) Kuhn.	-	-	-	-	-	-	-	-	-	-	+
305.	<i>Pteris cretica</i> L.	+	-	-	-	-	-	-	-	-	-	-
306.	<i>Pteris longifolia</i> L.	-	-	+	-	-	-	-	-	-	-	-
307.	<i>Pulicaria dysentrica</i> L.	-	-	+	-	-	-	-	-	-	-	-
308.	<i>Punica granatum</i> L.	+	-	-	+	-	-	-	-	-	+	-
309.	<i>Pycneus flavidus</i> (Retz) T. Koyama	-	-	+	-	-	-	-	-	-	-	-
310.	<i>Pyrus communis</i> L.	+	-	+	+	-	-	-	-	-	+	-
311.	<i>Pyrus malus</i> L.	+	-	+	+	-	-	-	-	-	+	-
312.	<i>Pyrus pashia</i> L.	+	-	+	+	-	-	-	-	-	+	-
313.	<i>Quercus baloot</i> Griffith.	-	-	-	+	-	-	-	-	-	-	-
314.	<i>Quercus dilatata</i> Lindle. ex Royle	+	-	+	+	-	-	-	-	-	-	-
315.	<i>Quercus glauca</i> Thunb.	-	-	+	+	-	-	-	-	-	-	-
316.	<i>Quercus incana</i> Roxb.	+	-	+	+	-	-	-	-	-	-	-
317.	<i>Quercus semicarpifolia</i> Smith.	-	-	+	+	-	-	-	-	-	-	-
318.	<i>Ranunculus arvensis</i> L.	-	-	+	-	-	-	-	-	+	-	-
319.	<i>Ranunculus hirtellus</i> Royle	-	-	+	-	-	-	-	-	+	-	-
320.	<i>Ranunculus laetus</i> Wall .ex Hook .f.	-	-	+	-	-	-	-	-	+	-	-
321.	<i>Ranunculus palmatifidus</i> Hook.f.	-	-	+	-	-	-	-	-	-	-	-
322.	<i>Rhamnus virgata</i> Roxb.	-	-	-	+	-	-	-	-	-	-	-
323.	<i>Rheum australe</i> D. Don	+	-	-	-	-	-	-	-	-	-	-
324.	<i>Rhododendron arboreum</i> Smith	+	-	-	+	-	-	-	+	-	-	-
325.	<i>Rhus javanica</i> L.	+	-	-	+	-	-	-	-	-	+	-
326.	<i>Rhynchosia pseudocajan</i> Camb.	-	-	+	-	-	-	-	-	+	-	-
327.	<i>Ricinus communis</i> L.	+	+	-	-	-	-	+	-	-	-	-

391.	Valerianella muricata (Stev) Baxt.	-	-	+	-	-	-	-	-	+	-	-
392.	Verbascum thapsus L.	+	-	-	-	-	-	-	-	-	-	-
393.	Verbena officinalis L.	+	-	+	-	-	-	-	-	-	-	-
394.	Verbena tenuisecta Briq.	-	-	+	-	-	-	-	+	-	-	-
395.	Veronica laxa Benth.	-	-	+	-	-	-	-	-	-	-	-
396.	Veronica persica	-	-	+	-	-	-	-	-	-	-	-
397.	Vescum album L.	-	-	-	+	-	-	-	-	-	-	-
398.	Viburnum cotonifolium D.Don	-	-	-	+	-	+	-	-	-	+	-
399.	Viburnum grandiflorum Wall.ex D C.	-	-	-	+	-	+	-	-	-	+	-
400.	Viburnum mulloha Buch. - Ham. ex D.Don	-	-	-	+	-	+	-	-	-	-	-
401.	Viburnum nervosum D.Don.	-	-	-	+	-	+	-	-	-	-	-
402.	Vicia hirsute (L.) S. F. Gray	-	-	+	-	-	-	-	-	+	+	-
403.	Vicia sativa L.	-	-	+	-	-	-	-	-	+	+	-
404.	Viola betonicifolia Smith	+	-	+	-	-	-	-	-	-	-	-
405.	Viola canescens Wall .ex Roxb.	+	-	+	-	-	-	-	-	-	-	-
406.	Vitex negundo L.	+	-	-	+	-	+	-	+	-	-	-
407.	Vitis jacquemontii Parker	-	-	+	-	-	-	-	-	-	+	-
408.	Wikstroemia canescens Maissner	-	-	+	+	-	+	-	-	-	-	-
409.	Withania somnifera (Linn.) Dunal	+	-	-	-	-	-	-	-	-	-	-
410.	Woodfordia fruticosa (Linn.) Kurz	-	-	-	+	-	+	-	+	-	-	-
411.	Wulfenia amherstiana Wall.ex Bth.	+	-	+	-	-	-	-	-	-	-	-
412.	Xanthium stromarium L.	+	-	-	-	-	-	-	-	+	-	-
413.	Zanthoxylum armatum DC.	+	-	-	+	-	-	+	-	-	+	-
414.	Zizyphus oxyphylla Edgew.	+	-	+	+	-	-	+	-	-	+	-
415.	Zizyphus vulgare Lam.	+	-	+	+	-	-	+	-	-	+	-

A: Medicinal plants, B: Poisonous plants, C: Fodder species, D: Fuel wood species, E: Timber yielding plants, F: Thatching / Sheltering plants, G: Fencing / Hedge plants, H: Ornamental, I: weeds, J: Plants yielding edible fruits and seeds, K: Vegetable and potherb species.

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