



Floristic composition of Agrakhal-Kunjapuri area of District Tehri Garhwal, Uttarakhand, India

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Abstract

The present area of investigation lies at the elevation from 1300 to 1800 m in the montane zone of Garhwal Himalaya and is covered with dense oak forest. It is situated at a distance of 10 km northwards from Narendra Nagar town of district Tehri Garhwal. For recording the flora of the study area, extensive field studies were conducted for three years (December 1993 to November 1996). The floristic exploration yielded 456 species of vascular plants belonging to 306 genera and 95 families. Among the plant forms the biggest group was of herbs (320 species) followed by shrubs with 84 species and trees with 37 species. The plant diversity of the study area consisted of 439 species of angiosperms (343 dicots and 96 monocots) belonging to 293 genera (218 of dicots and 75 monocots) and 84 families (71 of dicots and 13 of monocots). *Pinus roxburghii* and *Cedrus deodara* represented the gymnospermous group. Among Pteridophytes 14 species belong to ferns and one to fern-allies. The plant diversity of the area is quite rich with all habit forms of a variety of vascular plants. The minimum diversity on south and south-west slopes may be attributed to drier condition. South-east slope had the highest diversity because it consisted of scattered woody vegetation which caused the development of more herbaceous species. The road side vegetation had maximum number of exotic species including the invaders.

Key words: *Plant diversity, low montane zone, Tehri Garhwal, Himalaya.*

Introduction

Garhwal Himalaya represents a variable topography, climatic conditions and different zones of vegetation from foot-hill to alpine regions which have been the centre of attraction to a number of botanists, naturalists, explorers, ecologists, ayurvedic physicians, tourists and expeditionists for a long period of time. The flora of this region is represented by various types of elements (Rau 1974, Babu 1977). Due to great variation in altitude ranging from 400 to 7817 m and aspects in this region, a number of changes are found in climatic and biotic factors within a few kilometres of distance, and hence flora and fauna also vary in species composition in different zones. The vegetation of the Garhwal Himalaya can be broadly classified into three major types *i.e.* sub-montane (400-1000 m), montane (1000-3200 m) and alpine (above 3200 m). Each vegetational zone has a great diversity and richness of the vegetation with a mixture of tree, shrub and herb species. The alpine zone is dominated by family Poaceae with dwarf scrubs and some other herbaceous vegetation to form

meadows (bugyals) while montane and sub-montane vegetation types are rich in floristic wealth. The oak (*Quercus*) forests in Garhwal region belong to montane vegetation and are distributed at an elevation between 1000 and 2400 m and have more floristic composition with a number of epiphytes (orchids) and woody perennials. In the history of plant exploration of Garhwal Himalaya, Thomas Hardwicke (1796) first collected plants in Alaknanda Valley, but the major interest on the floristic studies in the Garhwal as well as other parts of the Himalaya have been undertaken by various British and Indian workers during 19th and 20th centuries. The results of these explorations were published by them (Hooker 1872-1896, 1904; King 1882; Kanjilal 1901; Duthie 1906; Osmaston 1922, 1927; Dudgeon and Kenoyer 1925; Gupta 1955, 1957, 1962, 1967; Ghildyal 1957; Rao 1960; Rau 1961, 1963a, 1963b, 1975; Babu 1977; Raizada and Saxena 1978; Semwal and Gaur 1981; Gaur 1982; Kala and Gaur 1982; Rajwar 1982, 1987, 1989; Hajra 1983; Naithani 1984-1985; Mehrotra and Aswal 1985; Goel *et al.* 1987; Paliwal and Badoni 1990; Hajra and Balodi 1995).

Since oak forests of Garhwal region have great economic as well as sociological values because a

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number of plants growing in such forests provide fuel, fodder, food, timber, medicine and other needs for progressing human life, and hence these forests have suffered from ever increasing population pressure, deforestation, overgrazing, lopping, urbanization and other human activities. Thus the native flora has been largely replaced by other foreign plants and many of them have become endangered. The present chapter has been prepared with a view to compile the list of plants that exist at Agrakhal-Kunjapuri area of district Tehri Garhwal. The presentation of floristic composition has been given site-wise which may be helpful to the explorers, scholars, naturalists and planners working for various aspects of the vegetation and landscape study and for planning and management purposes.

Study Area

The study area Agrakhal-Kunjapuri lies in district Tehri Garhwal. The district Tehri falls between the geo-coordinates 30° 55'-31° 18' N latitude and 78° 9'-79° 25' E longitude, representing 4421.26 km² or 8.65 % area of Central Himalaya. The population of Tehri district is 3.2 lakh (1991). The region is highly mountainous, ranging from 300-7010 m in elevation. The present area of investigation lies at 30° 5' N latitude and 78° 3' E longitude ranging in elevation from 1300 to 1800 m in the montane zone and is covered with dense oak forest. It is situated at a distance of 10 km northwards from Narendra Nagar and 36 km Southwards from Chamba Fig. 2.2. It is a small hillside area. From southern side of Kunjapuri is there is a beautiful sight of the Ganga valley. It presents a panoramic view of famous snowclad Himalayan peaks namely Chaukhamba, Trisul, Nilkanth etc. from northern side. The famous temple of district Tehri Garhwal, Kunjapuri Temple is situated in this area which is holy "Shaktipeeth". The temple is situated 5 km from Hindolakhil. A number of tourists, villagers, naturalists, botanists comes every year to this hill side. A fair (Kunjapuri Devi Mela) is celebrated in the months of April and October each year. During this period people from different places of Garhwal region visit this place. Agrakhal also attracts tourists for its cool climate and attractive landscape. Several Gujjars and local shepherds cross it with their cattle during early summer months. Their

cattle cause damage to the vegetation and soil of the area. The forest area near the villages and roadside faces the high disturbance by local people and their cattle. The road construction has also affected the vegetation of the area. Most common constituents of this forest area are *Quercus leucotrichophora*, *Lyonia ovalifolia*, *Rhododendron arboreum*, *Symplocos paniculata* and *Myrica esculenta*. Medicinally important plants like species of *Viola*, *Ajuga*, *Berberis*, *Achyranthes*, *Bignonia*, *Valeriana*, *Desmodium* etc. frequently occur as under vegetation in the forest of present study.

Material and Methods

For recording the flora of the study area, extensive field studies were conducted for three years (December 1993 to November 1996). Plants specimens (4-5 for each species) in flowering or fruiting stages were collected at fortnightly intervals from the study area and herbarium specimens were prepared. Trees, shrubs, herbs and ferns collected during field trips were identified with the help of regional floras and comparing these specimens with authentically identified specimens preserved in the herbaria of Forest Research Institute (DD) and Botanical Survey of India, Northern Circle (BSD), Dehra Dun. All the specimens have been deposited in the Herbarium of the Department of Botany, D.A.V. (P. G.) College, Dehra Dun. The genera and species were arranged alphabetically while the families are listed according to Bentham and Hooker's system of classification with slight modifications according to International Code of Botanical Nomenclature. Each species is followed by a note about its habit, occurrence (site-wise), period of flowering and fruiting and colour of flowers. The plants with very low presence have been classified as rare plants in the study area.

Results and Discussion

The floristic exploration yielded 456 species of vascular plants belonging to 306 genera and 95 families (Table 1). Among the plant forms the biggest group was of herbs (320 species) which followed by shrubs with 84 species and trees with 37 species (Table 2). Site-wise distribution of species is given in Tables 3.



South-east site had maximum number of species (359). This was followed by road side vegetation (344 species) and north-east site (274 species). South slope had the minimum number of species (237 species). The plant diversity of the study area consisted of 439 species of angiosperms (343 dicots and 96 monocots) belonging to 293 genera (218 of dicots and 75 monocots) and 84 families (71 of dicots and 13 of monocots). *Pinus roxburghii* and *Cedrus deodara* represented the gymnospermous group. Among Pteridophytes 14 species belong to ferns and one to fern-allies (Table 4). The ratio of monocots to dicots was 1:3.5 which is higher than that obtained for British India and the genus species ratio for angiosperms was 1:5 as against 1:2.2 for Upper Gangetic Plain and 1:7 for the British India (Hooker 1904). Poaceae was the most dominant family with 48 species belonging to 26 genera. The co-dominant family was Asteraceae with 42 species and 31 genera, and the third dominant family was Papilionaceae with 34 species and 14 genera (Table 5). Other dominant families in the order of importance were Lamiaceae (28 species),

Acanthaceae (16 species), Rubiaceae (15 species), Rosaceae and Orchidaceae (12 species each), Cyperaceae (11 species) and Ranunculaceae (10 species). The first three dominant families of the study area are also dominant in the same order in Kumaun and Garhwal, and Western Himalaya (Hooker, 1904). Forty three families of angiosperms consisted of one genus each while 28 families had one species each (Table 1). Largest genus was *Desmodium* with 8 species followed by *Cassia*, *Indigofera* and *Solanum* with 6 species each, and *Rubus*, *Arundinella* and *Digitaria* with 5 species each (Table 6). The study area was the oak forest spread over a part of Fakot Block of Tehri Garhwal. The plant diversity of the area is quite rich with all habit forms of a variety of vascular plants. The minimum diversity on south and south-west slopes may be attributed to drier conditions. South-east slope had the highest diversity because it consisted of scattered woody vegetation which caused the development of more herbaceous species. The road side vegetation had maximum number of exotic species including the invaders.

Table1. List of species (family-wise) with their habit, period of flowering and fruiting and colour of flower.

Name of family/species	Habit	Period of Fl. & Fr.	Colour of flower
Dicotyledons			
Ranunculaceae			
<i>Anemone rivularis</i> Buch.-Ham. ex DC.	H	April-Aug.	White-purple
<i>Anemone vitifolia</i> Buch.-Ham. ex DC.	H	July-Sept.	White
<i>Clematis ananiana</i> DC.	CIS	Aug.-Oct.	Yellow-green
<i>Clematis gauriana</i> Roxb. ex DC.	CIS	Aug.-Sept.	Yellow-green
<i>Clematis grata</i> Wall.	CIS	July-Sept.	Creamy
<i>Clematis montana</i> Buch.-Ham. ex DC.	CIS	April-May	White
<i>Delphinium denudatum</i> Wall. ex Hook. f. & Th.	H	April-May	Blue
<i>Ranunculus diffusus</i> DC.	H	May-July	Yellow
<i>Ranunculus laetus</i> Wall. ex Hook. f & Th.	H	May-Oct.	White
<i>Thalictrum javanicum</i> Blume	H	July-Aug.	White
Menispermaceae			
<i>Cissampelos pareira</i> L.	CIS	July-Aug.	Greenish-yellow
<i>Cocculus laurifolius</i> DC.	S	April-May	Yellow-green
<i>Stephania elegans</i> Hook. f. & Th.	CIH	Aug.-Sept.	Purple
<i>Stephania glabra</i> (Roxb.) Miers.	CIS	July-Aug.	Greenish-yellow
Berberidaceae			
<i>Berberis asiatica</i> Roxb. ex DC.	S	Mar.-May	Yellow
<i>Berberis lycium</i> Royle	S	Mar.-May	Yellow
Papaveraceae			
<i>Argemone mexicana</i> L.	H	May-June	Yellow
Brassicaceae			



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<i>Cardamine impatiens</i> L.	H	Mar.-April	White
<i>Cardamine scutata</i> Thunb.	H	April-June	White
<i>Lepidium virginicum</i> L.	H	Mar.-April	White
Violaceae			
<i>Viola betonicifolia</i> J. E. Smith	H	July-Sept.	Dark liliac
<i>Viola canescens</i> Wall.	H	April-Sept.	Liliac
<i>Viola pilosa</i> Blume	H	April-June	Pale-blue
<i>Viola serpens</i> Wall.	H	April-July	Liliac
Bixcaee (Flacourtiaceae)			
<i>Flacourtia indica</i> (Burm. f.) Merr.	T	Mar.-April	Greenish-yellow
Polygalaceae			
<i>Polygala abyssinica</i> R. Br. ex Fresenius	H	May-Sept.	Purple
<i>Polygala chinensis</i> L	H	Aug.-Sept.	Yellow
<i>Polygala persicariaefolia</i> DC.	H	Aug.-Sept.	Pink
<i>Polygala sibirica</i> L.	H	Aug.-Sept.	Pink
Caryophyllaceae			
<i>Cerastium holosteoides</i> Fries.	H	April-Sept.	White
<i>Drymaria cordata</i> (L.) Willd. ex R. & S.	H	Aug.-Sept.	White
<i>Stellaria media</i> (L.) Villars	H	Feb.-April	White
<i>Stellaria semivestita</i> Edgew. & Hook. f.	H	July-Aug.	White
<i>Stellaria webbiana</i> Edgew. & Hook. f.	H	April-May	White
<i>Vaccaria pyramidata</i> Medikus	H	April-May	Pink
Hypericaceae			
<i>Norysca urala</i> (Buch.-Ham. ex D.Don) K. Koch.	S	July-Aug.	Yellow
<i>Norysca</i> sp.	H	Aug.-Sept.	Pale-yellow
Malvaceae			
<i>Sida cordata</i> (Burm. F.) Borss.	H	Sept.-Nov.	Pale-yellow
<i>Sida obovata</i> Wall.	S	Sept.-Oct.	Yellow
<i>Sida spinosa</i> L.	H	May-Oct.	Pale-yellow
<i>Urena lobata</i> L.	S	July-Nov.	Pink
Tiliaceae			
<i>Grewia optiva</i> J.R. Drummond ex Burret	PIT	April-May	Yellow
<i>Triumfetta annua</i> L	H	July-Oct.	Yellow
<i>Triumfetta pilosa</i> Roth.	S	Sept.-Oct.	Yellow
<i>Triumfetta rhomboidea</i> Jacquin	H	July-Oct.	Dark-yellow
Linaceae			
<i>Reinwardtia indica</i> Dumortier	H	Mar.-April	Yellow
Geraniaceae			
<i>Geranium nepalense</i> Sweet	H	May-Sept.	Purple
<i>Geranium ocellatum</i> Cambess.	H	Mar.-June	Pink
Oxalidaceae			
<i>Oxalis acetosella</i> L.	H	July-Sept.	Pink
<i>Oxalis corniculata</i> L.	H	July-Sept.	Pale-yellow
<i>Oxalis dehradunensis</i> Raizada	H	Mar.-April	Pink
Balsaminaceae			
<i>Impatiens balsamina</i> L.	H	Aug.-Sept.	Pink
<i>Impatiens scabrida</i> DC.	H	Aug.-Sept.	Yellow
Rutaceae			
<i>Boenninghausenia albiflora</i> (Hook.)Reichb. ex Meisn.	H	July-Sept.	White
<i>Murraya koenigii</i> (L.) Sprengel	S	May-July	White
<i>Zanthoxylum armatum</i> DC.	S	April-May	Pale-yellow



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Meliaceae			
<i>Cedrela serrata</i> Royle	T	May-June	Green-yellow
Celastraceae			
<i>Euonymus pendulus</i> Wall. ex Roxb.	T	May-June	Green
Vitaceae			
<i>Parthenocissus semicordata</i> (Wall.) Planch	CIS	April-May	Yellowish-green
Leeaceae			
<i>Leea edgeworthii</i> Santapau	S	July-Sept.	Pale-green
Aceraceae			
<i>Acer oblongum</i> Wall. Ex DC.	T	Mar.-April	White-green
Anacardiaceae			
<i>Rhus cotinus</i> L.	S	April-June	Purple
<i>Rhus parviflora</i> Roxb.	S	May-June	Yellowish-green
<i>Rhus punjabensis</i> Stewart	T	July-Aug.	Greenish-yellow
<i>Rhus wallichii</i> Hook. f.	T	July-Aug.	Greenish-yellow
Coriariaceae			
<i>Coriaria nepalensis</i> Wallich	S	Mar.-April	Green
Papilionaceae			
<i>Alysicarpus bupleurifolius</i> (L.) DC.	H	July-Sept.	Pink
<i>Alysicarpus monilifer</i> DC.	H	July-Sept.	Yellowish-pink
<i>Argyrolobium flaccidum</i> (Royle) Jaubert & Spach	H	May-Aug.	Yellow
<i>Astragalus leucocephalus</i> Graham ex Benth.	H	May-Aug.	Pale-yellow
<i>Astragalus trichocarpus</i> Grah.	H	May-Aug.	Pink
<i>Crotalaria albida</i> Heyne ex Roth	H	July-Sept.	Yellow
<i>Crotalaria calycina</i> Schrank	H	July-Sept.	Bluish-yellow
<i>Crotalaria prostrata</i> Rottler ex Willd.	H	July-Sept.	Yellow
<i>Crotalaria spectabilis</i> Roth	H	Sept.-Feb.	Yellow
<i>Desmodium concinnum</i> DC.	S	Sept.-Feb.	Purple
<i>Desmodium laxiflorum</i> DC.	H	Sept.-Feb.	Pale-yellow
<i>Desmodium microphyllum</i> (Thunb.) DC.	S	July-Sept.	Purplish-brown
<i>Desmodium motorium</i> (Houtt.) Merr.	S	July-Sept.	Yellow
<i>Desmodium retusum</i> (D.Don) Sweet.	S	July-Sept.	Pale-yellow
<i>Desmodium sambuense</i> (D.Don) DC.	S	July-Sept.	Pink-purple
<i>Desmodium tiliaefolium</i> G. Don	S	June-Sept.	Pink
<i>Desmodium triflorum</i> (L.) DC.	H	Sept.-Oct.	Blue
<i>Erythrina suberosa</i> Roxb.	T	Mar.-April	Red
<i>Indigofera atropurpurea</i> Buch.-Ham. ex Hornem	S	Mar.-May	Purple
<i>Indigofera cassioides</i> Rottler ex DC.	S	Mar.-June	Pinkish-blue
<i>Indigofera dosua</i> Buch.-Ham. ex D.Don	S	May-June	Pinkish-purple
<i>Indigofera heterantha</i> Wall. ex Brandis	S	May-June	Pink-purple
<i>Indigofera linifolia</i> (L.f.) Retz.	H	Aug.-Sept.	Bright red
<i>Indigofera trifoliata</i> L.	H	July-Aug.	Red
<i>Lespedeza Junecea</i> (L.f.) Persoon	S	Aug.-Oct.	Pale-yellow
<i>Moghania fruticulosa</i> (Wall.) Mukerjee	H	Aug.-Oct.	Pink
<i>Moghania vestita</i> (Grah.) O. Kuntze	H	Aug.-Oct.	Bright-red
<i>Shuteria densiflora</i> Benth.	H	Sept.-Nov.	Pale-yellow
<i>Smithia ciliata</i> Royle	H	July-Sept.	Blue-White
<i>Trifolium repens</i> L.	H	April-July	White-pink
<i>Vicia hirsuta</i> (L.) S. F. Gray	H	Aug.-Sept.	White-blue
<i>Vigna calcorata</i> (Roxb.) Kuntze	H	Aug.-Sept.	Pinkish-white
<i>Vigna mungo</i> (L.) Hepper	H	July-Aug.	Yellow
<i>Vigna vexillata</i> (L.) A. Richard	H	Aug.-Sept.	Pink



Caesalpinaceae			
<i>Bauhinia racemosa</i> L.	T	Sept.-Feb.	Pale-yellow
<i>Bauhinia variegata</i> L.	T	Feb.-April	Whitish-purple
<i>Cassia absus</i> L.	H	Aug.-Sept.	Yellow
<i>Cassia fistula</i> L.	T	Mar.-June	Yellow
<i>Cassia gluca</i> Lamk.	PT	April-Aug.	Yellow
<i>Cassia hochstetteri</i> Ghesq.	H	Mar.-Aug.	Yellow
<i>Cassia occidentalis</i> L.	S	July-Sept.	Yellow
<i>Cassia wallichiana</i> (L.) A. Rich	H	July-Aug.	Yellow
Mimosaceae			
<i>Albizia chinensis</i> (Osbeck) Merrill	T	May-June	Yellowish-white
<i>Albizia mollis</i> Boivin.	T	April-May	Pink
Rosaceae			
<i>Agrimonia pilosa</i> Ledebour	H	July-Sept.	Yellow
<i>Cotoneaster affinis</i> Lindley	S	April-June	White
<i>Potentilla fragarioides</i> L.	H	July-Aug.	Yellow
<i>Potentilla indica</i> (Ander.) Walf.	H	July-Aug.	Yellow/red
<i>Prunus cerasoides</i> D.Don	T	April-May	Pink
<i>Prunus cerasus</i> L.	T	Mar.-April	White
<i>Pyrus pashia</i> Buch.-Ham. ex D.Don	T	Mar.-April	White
<i>Rubus ellipticus</i> Smith	S	Mar.-April	White
<i>Rubus fasciculatus</i> Duthie	S	Mar.-April	White
<i>Rubus foliolosus</i> D.Don	S	Feb.-May	Pink
<i>Rubus niveus</i> Thunb.	S	Feb.-May	Pinkish-red
<i>Rubus paniculatus</i> Smith	S	April-May	White
Saxifragaceae			
<i>Bergenia ciliata</i> (Royle) Raizada	H	Mar.-April	White-pink
Crassulaceae			
<i>Kalanchoe integra</i> (Medikus) O. Kuntze	H	Sept.-Oct.	Yellow
<i>Sedum multicaule</i> Wall. ex Lindley	H	July-Aug.	White-yellow
<i>Sedum rosulatum</i> Edgew.	H	April-June	Greenish-White
Combretaceae			
<i>Terminalia tomentosa</i> (Roxb.)W. & A.	T	July-Aug.	White
Melastomaceae			
<i>Osbeckia stellata</i> Wall. Ex D.Don	S	Aug.-Sept.	Pink-purple
Lythraceae			
<i>Woodfordia fruticosa</i> (L.) Kurz	S	Feb.-May	Red
Punicaceae			
<i>Punica granatum</i> L.	T	April-May	Orange-red
Onagraceae			
<i>Epilobium roseum</i> Schreb.	H	July-Sept.	Pale-pink
<i>Hartmannia rosea</i> G.Don	H	July-Sept.	Rose
Cucurbitaceae			
<i>Cucumis sativus</i> L.	CIH	July-Aug.	Pale-yellow
<i>Trichosanthes dioica</i> Roxb.	H	July-Sept.	White
Begoniaceae			
<i>Begonia picta</i> Smith	H	Aug.-Sept.	Pink
<i>Begonia tenella</i> D.Don	H	Aug.-Sept.	Pale-pink
Apiaceae			
<i>Apium leptophyllum</i> (Persoon) Mull. ex Benth	H	Aug.-Sept.	Whitish-yellow
<i>Bulpleurum falcatum</i> L.	H	July-Aug.	Yellow
<i>Bulpleurum hamiltonii</i> Balakrishnan	H	July-Aug.	Yellow



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<i>Centella asiatica</i> (L.) Urban	H	May-June	Reddish-brown
<i>Pimpinella diversifolia</i> DC.	H	July-Sept.	White
Cornaceae			
<i>Benthامidia capitata</i> (Wall. ex Roxb.) Hara	T	April-Sept.	Yellowish-green
<i>Cornus macrophylla</i> Wallich	T	April-Oct.	Cream-white
<i>Cornus oblonga</i> Wallich	T	Aug.-Oct.	White
Rubiaceae			
<i>Argostemma sarmentosum</i> Wallich	H	July-Aug.	White
<i>Argostemma verticillatum</i> Wallich	H	July-Aug.	White
<i>Borreria brachystema</i> (R.Br. ex Benth.) Val.	H	July-Oct.	White/pale-blue
<i>Borreria stricta</i> (L.) Schum.	H	Aug.-Sept.	White
<i>Galium aparine</i> L.	H	July-Aug.	White
<i>Galium asperifolium</i> Wallich ex Roxb.	H	July-Aug.	Reddish-pink
<i>Galium rotundifolium</i> L.	H	July-Aug.	White
<i>Galium vestitum</i> D. Don	H	July-Aug.	White
<i>Hamiltonia suaveolens</i> Roxb.	S	Sept.-Oct.	Blue
<i>Hedyotis corymbosa</i> (L.) Lam.	H	July-Aug.	White
<i>Leptodermis lanceolata</i> Wallich	S	July-Sept.	Pink-white
<i>Oldenlandia coccinea</i> Royle	H	Aug.-Sept.	Red
<i>Oldenlandia nudicaulis</i> Roth.	H	Aug.-Sept.	White
<i>Randia tetrasperma</i> (Roxb.) Brand.	S	Mar.-April	Cream-yellow
<i>Rubia cordifolia</i> L.	CIH	July-Oct.	Red
Valerianaceae			
<i>Valeriana jatamansi</i> (DC.) Jones	H	Mar.-May	White
<i>Valeriana hardwickii</i> Wall.	H	July-Sept.	White-Pink
<i>Valeriana</i> sp.	H	June-Aug.	Pale-Yellow
Dipsacaceae			
<i>Dipsacus mitis</i> D. Don	H	July-Oct.	White
Asteraceae			
<i>Ageratum conyzoides</i> L.	H	Sept.	Pale-blue
<i>Ainsliaea aptera</i> DC.	H	Sept.	Pink-white
<i>Ainsliaea pteropoda</i> DC.	H	Mar.-April	Purplish-white
<i>Anaphalis busua</i> (Buch.-Ham. ex D. Don) DC.	H	Sept.-Oct.	White
<i>Anaphalis margaritacea</i> (L.) Benth.	H	Sept.-Oct.	White
<i>Artemisia capillaris</i> Thunb.	H	Sept.-Oct.	Greenish-yellow
<i>Artemisia indica</i> Willd.	H	Aug.-Oct.	Yellowish-green
<i>Aster peduncularis</i> Wallich ex Ness	H	Aug.-Nov.	Bluish-white
<i>Bidens bipinnata</i> L.	H	July-Sept.	Yellow
<i>Bidens tripartita</i> L.	H	July-Sept.	Yellow-white
<i>Blainvillea latifolia</i> DC.	H	Aug.	Yellow
<i>Carpesium cernuum</i> L.	H	Aug.-Oct.	Yellow
<i>Cichorium intybus</i> L.	H	July-Aug.	Blue
<i>Conyza japonica</i> (Thunb.) Lessing ex DC.	H	April-Oct.	Pale-yellow
<i>Conyza stricta</i> Willd.	H	July-Aug.	Yellow
<i>Crepis japonica</i> Benth.	H	July-Oct.	Pale-yellow
<i>Echinops niveus</i> Wallich ex Royle	H	Aug.-Sept.	Whitish-blue
<i>Erigeron alpinus</i> L.	H	June-Sept.	Purple-white
<i>Erigeron canadensis</i> L.	H	May-Sept.	Red-purple
<i>Erigeron karvinskianus</i> DC.	H	April-Aug.	White-pink
<i>Eschenbachia ruffa</i> (Wall. ex DC.) Raizada	H	July-Oct.	Yellow
<i>Eupatorium glandulosum</i> H.B.K.	H	July-Sept.	Pale-white
<i>Galinsoga ciliata</i> (Raf.-Schm.) Blake	H	July-Oct.	White-yellow



<i>Galinsoga parviflora</i> Cav.	H	May-Oct.	White-yellow
<i>Gerbera gossypina</i> (Royle) G. Beauv.	H	May-Nov.	Pale-pink
<i>Inula cappa</i> (Buch.-Ham. ex D.Don) DC.	S	July-Oct.	Yellow
<i>Inula cuspidata</i> (DC.) C.B. Clarke	S	July-Oct.	Yellow
<i>Myriactis wallichii</i> Lessing	H	July-Sept.	Yellow
<i>Parthenium hysterophorous</i> L.	H	July-Sept.	White
<i>Saussurea heteromalla</i> (D.Don) Hand-Mazz.	H	April-Aug.	Purple-red
<i>Senecio alatus</i> Wallich ex DC.	H	Aug.-Oct.	Yellow
<i>Senecio nudicaulis</i> Buch.-Ham. ex D.Don	H	May-June	Yellow
<i>Serratula pallida</i> DC.	H	May-July	Purple
<i>Siegesbeckia orientalis</i> L.	H	Aug.-Sept.	Yellow
<i>Sonchus brachyotus</i> DC.	H	May-Oct.	Yellow
<i>Tagetes erecta</i> L.	H	Aug.-Sept.	Red-yellow
<i>Tagetes minuta</i> L.	H	Aug.-Sept.	Pale-yellow
<i>Taraxacum officinale</i> Weber	H	Mar.-Nov.	Yellow
<i>Tridax procumbens</i> L.	H	June-Sept.	Pale-yellow
<i>Vernonia cinerea</i> (L.) Lessing	H	April-Dec.	Purple
<i>Xanthium strumarium</i> L.	H	April-Nov.	White
<i>Youngia japonica</i> (L.) DC.	H	April-June	Pale-purple
Campanulaceae			
<i>Campanula colorata</i> Wallich	H	June-Sept.	Pale-yellow
Ericaceae			
<i>Lyonia ovalifolia</i> (Wallich) Drude	T	April-May	White
<i>Rhododendron arboreum</i> Smith	T	Mar.-April	Red
Plumbaginaceae			
<i>Plumbago zeylanica</i> L.	S	July-Sept.	White
Primulaceae			
<i>Anagallis arvensis</i> L.	H	April-May	Bluish-purple
<i>Androsace lanuginosa</i> Wall.	H	May-June	Rose-purple
<i>Androsace umbellata</i> (Lour.) Merrill	H	April-Aug.	White
<i>Lysimachia lobelioides</i> Wallich	H	July-Aug.	Pale-purplish
<i>Primula floribunda</i> Wallich	H	Dec.-April	Yellow
Oleaceae			
<i>Jasminum humile</i> L.	S	May-June	Yellow
<i>Nyctanthes arbor-tristis</i> L.	T	Aug.-Oct.	Orange-white
Asclepiadaceae			
<i>Asclepias curassavica</i> L.	H	Mar.-Sept.	Orange-yellow
<i>Calotropis procera</i> (Aiton) Aiton f.	H	May-July	Lilac/purple
<i>Hoya longifolia</i> Wallich ex Wight	S	July-Aug.	White
Loganiaceae (Buddlejaceae)			
<i>Buddleja asiatica</i> Lour.	S	April-May	White
Gentianaceae			
<i>Gentiana argentea</i> (D.Don) C.B. Clarke	CIH	April-May	Blue
<i>Swertia alata</i> (Royle ex D.Don) C.B. Clarke	H	Sept.-Oct.	Green-yellow
<i>Swertia lurida</i> Royle	H	Aug.-Sept.	Pink-green
<i>Swertia paniculata</i> Wallich	H	Sept.-Oct.	Purplish-white
Boraginaceae			
<i>Cynoglossum glochidiatum</i> Wallich ex Benth.	H	June-Sept.	Blue
<i>Cynoglossum nervosum</i> Benth. ex Cl.	H	June-Sept.	Blue
<i>Cynoglossum zeylanicum</i> (Vahl ex Hornem.) Thunb. ex Lehmann	H	June-Sept.	Blue
<i>Myosotis silvatica</i> Ehrh. ex Hoffm.	H	Aug.-Sept.	Pale-blue



Floristic composition of Agrakhal-Kunjapuri area

Ehretiaceae			
<i>Cordia vestita</i> Hook. f. & Thomson	T	Mar.-April	White
Convolvulaceae			
<i>Evolvulus alsinoides</i> (L.) L.	H	Aug.-Sept.	White or blue
<i>Ipomoea dichroa</i> (Romer & Schult.) Choisy	H	Aug.-Sept.	Pale-blue
<i>Ipomoea eriocarpa</i> R. Br.	H	Aug.-Sept.	Pink
<i>Ipomoea purpurea</i> (L.) Roth	H	Aug.-Oct.	Pink
Solanaceae			
<i>Datura stramonium</i> L.	S	July-Sept.	White
<i>Nicandra physalodes</i> (L.) Gaertner	H	July-Sept.	Pale-blue
<i>Physalis minima</i> L.	H	July-Sept.	Yellow
<i>Physalis peruviana</i> L.	H	July-Sept.	Yellow
<i>Solanum hispidum</i> Persoon	S	Aug.-Sept.	White
<i>Solanum incanum</i> L.	H	July-Aug.	Blue
<i>Solanum indicum</i> L.	S	May-Sept.	Blue
<i>Solanum nigrum</i> L.	H	Aug.-Sept.	Blue
<i>Solanum surattense</i> Burm. f.	S	May-Oct.	White
<i>Solanum viarum</i> Dunal	S	July-Sept.	White
Scrophulariaceae			
<i>Bacopa procumbens</i> (Miller) Greenman	H	Aug.-Sept.	Pale-yellow
<i>Buchnera hispida</i> Buch.-Ham. ex D. Don	H	Aug.-Sept.	White/pale-purple
<i>Lindenbergia indica</i> (L.) O. Kuntze	H	July-Oct.	Yellow-red
<i>Lindenbergia macrostachya</i> (Benth.) Benth.	H	July-Oct.	Yellow
<i>Lindernia nummularifolia</i> (D. Don) Wettst.	H	Sept.-Oct.	Red-purple
<i>Pedicularis bifida</i> (Buch.-Ham. ex D. Don) Pennell	H	July-Sept.	Bluish-pink
<i>Striga asiatica</i> (L.) O. Kuntze	H	July-Aug.	Red-purple
<i>Torenia cordifolia</i> Roxb.	H	July-Sept.	Pale-lilac
<i>Verbascum thapsus</i> L.	H	May-Sept.	Yellow
<i>Veronica persica</i> Poiret	H	Sept.-Oct.	Blue
Orobanchaceae			
<i>Aeginetia indica</i> L.	PS	Sept.-Oct.	Purple
Gesneriaceae			
<i>Chirita bifolia</i> D. Don	H	July-Sept.	Purple-blue
<i>Didymocarpus pedicellatus</i> R. Br.	H	Aug.-Sept.	Purple
<i>Platystemma violoides</i> Wallich	H	July-Aug.	Violet
<i>Rhynchoglossum obliquum</i> Blume	H	Aug.-Sept.	Blue
Acanthaceae			
<i>Adhatoda vasica</i> Nees	S	Mar.-April	White
<i>Aechmanthera tomentosa</i> Nees	S	Oct.-Dec.	Pale-blue
<i>Barleria cristata</i> L.	S	July-Nov.	Purplish
<i>Dicliptera roxburghiana</i> Nees	H	May-Dec.	Pink
<i>Eranthemum nervosum</i> (Vahl) R. Br.	S	Mar.-April	Blue
<i>Hemigraphis rupestris</i> Heyne ex T. Anders.	H	Aug.-Sept.	Pale-brown
<i>Lepidagathis cuspidata</i> Nees	S	Mar.-April	White
<i>Lepidagathis incurva</i> Buch.-Ham. ex D. Don	S	Mar.-May	White
<i>Lepidagathis purpuricaulis</i> Nees	H	Mar.-May	White
<i>Perilepta auriculata</i> (Nees) Bremekamp	S	Nov-Jan.	Pale-white
<i>Peristrophe speciosa</i> (Roxb.) Nees	S	Feb.-Mar.	Pink
<i>Pseudaechmanthera glutinosa</i> (Nees) Brem.	S	Jan-Mar.	Pale-blue
<i>Pteracanthus angustifrons</i> (Clarke) Brem.	S	Sept.-Dec.	Pale-purple
<i>Rostellularia japonica</i> Thunb.	H	July-Oct.	Pinkish-blue



<i>Rungia parviflora</i> Nees	H	July-Aug.	Blue
<i>Strobilanthes dalhousianus</i> Nees	H	Aug.-Oct.	Pale-purple
Verbenaceae			
<i>Caryopteris grata</i> (Wallich) Benth.	S	Mar.-April	White
<i>Caryopteris wallichiana</i> Schauer	S	April-June	White-blue
<i>Holmskioldia sanguinea</i> Retz.	S	Oct.-Nov.	Orange-red
<i>Lantana indica</i> Roxb.	S	July-Oct.	Pinkish-red
Lamiaceae			
<i>Acrocephalus capitatus</i> (Roth) Benth.	H	Aug.-Sept.	Pale-purple
<i>Ajuga bracteosa</i> Wallich ex Benth.	H	Mar.-Oct.	Blue
<i>Ajuga lobata</i> D.Don.	H	Mar.-Oct.	Blue
<i>Ajuga parviflora</i> Benth.	H	Mar.-Oct.	Blue
<i>Anisomeles indica</i> (L.) O. Kuntze	H	Aug.-Sept.	White
<i>Clinopodium umbrosum</i> (M. B.) C. Koch.	H	July-Sept.	Pink
<i>Clinopodium vulgare</i> L.	H	July-Sept.	Pink
<i>Coleus forskohlii</i> (Willd.) Briquet	H	Aug.-Oct.	Blue
<i>Craniotome furcata</i> (Link) O. Kuntze	H	July-Sept.	White/pink-yellow
<i>Leucas lanata</i> Benth.	H	July-Oct.	White
<i>Micromeria biflora</i> (Buch.-Ham. ex D.Don) Benth.	H	April-Oct.	Pink
<i>Nepeta graciliflora</i> Benth.	H	Oct.-Nov.	Pink
<i>Nepeta hindostana</i> (Roth) Haines	H	April-Aug.	Bluish-purple
<i>Nepeta leucophylla</i> Benth.	H	July-Oct.	Lilac
<i>Ocimum basilicum</i> L.	H	Sept.-Oct.	Pink-purple
<i>Origanum vulgare</i> L.	H	Aug.-Oct.	Pink
<i>Plectranthus coetsa</i> Buch.-Ham.	H	Sept.-Oct.	White
<i>Plectranthus japonicus</i> (Burm. f.) Kuntze	H	Aug.-Sept.	Violet
<i>Plectranthus rugosus</i> Wallich	H	Mar.-Oct.	White
<i>Plectranthus striatus</i> Benth.	H	Aug.-Oct.	White
<i>Pogostemon benghalense</i> (Burm. f.) Kuntze	S	Jan-Feb.	White-pink
<i>Salvia mukerijeei</i> Bennett & Raizada	H	July-Oct.	Yellow
<i>Salvia nubicola</i> Wallich ex Sweet	H	Aug.-Oct.	Yellow
<i>Scutellaria discolor</i> Coleb.	H	June-July	Purple
<i>Scutellaria grossa</i> Wallich ex Benth.	H	June-Aug.	Blue
<i>Scutellaria scandens</i> Buch.-Ham. ex D.Don	H	June-July	Yellow
<i>Teucrium quadrifarium</i> Buch.-Ham. ex D.Don	H	Aug.-Sept.	White-purple
<i>Teucrium royleanum</i> Wallich ex Benth.	H	June-July	White
Nyctaginaceae			
<i>Boerhavia diffusa</i> L.	H	April-May	Pink
Amaranthaceae			
<i>Achyranthes aspera</i> L.	H	Sept.-Oct.	Pink
<i>Achyranthes betendifolia</i> L.	H	Sept.-Oct.	Pink
<i>Aerva scandens</i> Wallich	ST	Aug.-Sept.	White
<i>Alternanthera pungens</i> Humb.	H	Mar.-April	White
<i>Amaranthus gracilis</i> Desfontaines	H	July-Sept.	Pale-green
<i>Amaranthus spinosus</i> L.	H	July-Sept.	Greenish-yellow
<i>Cyathula tomentosa</i> (Roth) Moq.	S	Aug.-Oct.	Pale-yellow
<i>Gomphrena celosioides</i> Martius	H	Aug.-Sept.	White
Polygonaceae			
<i>Polygonum capitatum</i> Buch.-Ham.	H	July-Aug.	Pink
<i>Polygonum nepalensis</i> (Meissn.) H. Gross	H	July-Oct.	Purple-pink
<i>Rumex hastatus</i> D.Don	H	Oct.-Nov.	Greenish-purple
<i>Rumex nepalensis</i> Sprengel	H	Oct.-Nov.	Greenish-red



Floristic composition of Agrakhal-Kunjapuri area

Loranthaceae			
<i>Taxillus vestitus</i> (Wallich) Danser	PS	April-Oct.	Brownish-red
Euphorbiaceae			
<i>Euphorbia geniculata</i> Ortega	H	April-May	Pale-green
<i>Euphorbia hirta</i> L.	H	June-Aug.	Green
<i>Euphorbia hypericifolia</i> L.	H	July-Sept.	Green-yellow
<i>Euphorbia royleana</i> Boissier	S	June-July	Greenish-yellow
<i>Mallotus philippensis</i> (Lam.) Muell.-Arg.	T	Oct.-Nov.	Greenish-yellow
<i>Phyllanthus parvifolius</i> Buch.-Ham. ex D.Don	S	Aug.-Sept.	Brown-purple
<i>Sapium insigne</i> (Royle) Benth. ex Trimen	T	Feb.-Mar.	Yellowish-green
Moraceae			
<i>Ficus auriculata</i> Lour.	T	April-May	(Figs) Yellow
<i>Ficus religiosa</i> L.	PIT	April-May	(Figs) Purple
Urticaceae			
<i>Boehmeria macrophylla</i> D.Don	S	July-Oct.	Green
<i>Boehmeria scabrella</i> (Roxb.) Gaudich.	S	July-Sept.	Pale-yellow
<i>Debregeasia velutina</i> Gaudich.	S	July-Aug.	Green
<i>Fleurga interrupta</i> Gaudich.	H	Aug.-Sept.	Greenish-white
<i>Girardinia heterophylla</i> (Vahl) Decne.	H	Aug.-Sept.	Green
<i>Gonostegia hirta</i> (Blume) Miquel	H	Aug.-Sept.	Green
<i>Pilea kingii</i> C. Fischer	H	July-Sept.	Green
<i>Pilea scripta</i> (Buch.-Ham. ex D.Don) Wedd.	H	June-Sept.	Green
<i>Urtica parviflora</i> Roxb.	H	Aug.-Sept.	Green
Juglandaceae			
<i>Engelhardtia spicata</i> Leschenault ex Blume	T	Mar.-April	Green
<i>Juglans regia</i> L.	T	Mar.-May	Green
Myricaceae			
<i>Myrica esculenta</i> Buch.-Ham. ex D.Don	T	May-Dec.	Green
Fagaceae			
<i>Quercus leucotrichophora</i> A. Camus	T	April-May	Pale-green
Monocotyledons			
Orchidaceae			
<i>Dendrobium amoenum</i> Wallich ex Lindley	EpH	April-June	Purplish-white
<i>Dendrobium crepidatum</i> Lindley	EpH	April-May	White-yellow
<i>Eria griminifolia</i> Lindley	TrH	July-Sept.	White
<i>Eulophia herbacea</i> Lindley	TrH	June-July	White
<i>Habenaria graveolens</i> Duthie	TrH	July-Aug.	Pale-green
<i>Habenaria pubescens</i> Lindley	TrH	July-Aug.	Greenish-yellow
<i>Habenaria stenopetala</i> Lindley	TrH	Aug.-Sept.	Pale-brown
<i>Herminium lanceum</i> (Thunb. ex Sw.) Vuijk	TrH	Sept.	Green
<i>Malaxis acuminata</i> D.Don	TrH	July-Aug.	Yellowish-green
<i>Nervillia aragoana</i> Gaud.	TrH	June	Pale-green
<i>Pecteilis gigantea</i> (J. E. Smith) Rafin.	TrH	June-July	Whitish-green
<i>Vanda testacea</i> (Lindley) Reichb. f.	EpH	Aug.-Sept.	Yellowish-green
Zinziberaceae (Scitamineae)			
<i>Cautleya spicata</i> (J.E. Smith) Baker	H	July-Sept.	Yellow
<i>Globba racemosa</i> Smith	H	Aug.-Sept.	Yellow
<i>Hedychium acuminatum</i> Roscoe	H	Aug.	Yellow
<i>Hedychium ellipticum</i> Buch.-Ham. ex Smith	H	Aug.	Crimson
<i>Roscoea alpina</i> Royle	H	June-July	Dark-purple
<i>Roscoea procera</i> Wallich	H	Aug.-Sept.	Lilac
Haemodoraceae			



<i>Ophiopogon intermedius</i> D.Don	H	July-Aug.	White
Hypoxidaceae			
<i>Curculigo orchioides</i> Gaertner	H	July-Aug.	Yellow
<i>Hypoxis aurea</i> Lour.	H	July-Aug.	Yellow
Agavaceae			
<i>Agave cantula</i> Roxb.	S	Aug.-Sept.	White-yellow
<i>Agave wightii</i> Drummond & Prain	S	Aug.-Sept.	Pale-white
Dioscoreaceae			
<i>Dioscorea belophylla</i> (Prain) Voigt ex Hain.	TH	Aug.-Sept.	Pale-green
<i>Dioscorea bulbifera</i> L.	TH	July-Aug.	Pale-green
<i>Dioscorea deltoidea</i> Wallich ex Grisebach	TH	May-July	Pale-green
<i>Dioscorea melanophyma</i> Prain & Burkill	TH	Aug.-Sept.	Pale-green
Pontederiaceae			
<i>Monochoria vaginalis</i> (Burm. f.) C.B. Presl	H	Oct.-Nov.	Greenish
Liliaceae			
<i>Asparagus adscendens</i> Buch.-Ham. ex Roxb.	SS	Aug.-Nov.	White
<i>Asparagus curillus</i> Buch.-Ham.	SS	Feb.-Oct.	White
<i>Asparagus gracilis</i> Royle	S	June-Aug.	White
Commelinaceae			
<i>Cyanotis cristata</i> (L.) D.Don	H	July-Sept.	Blue
Palmae			
<i>Phoenix humilis</i> Royle	S	Oct.-Nov.	Pale-yellow
Araceae			
<i>Arisaema flavum</i> (Forsk.) Schott.	H	June-July	Green-yellow
<i>Arisaema tortuosum</i> (Wallich) Schott.	H	May-Aug.	Pale-green
<i>Colocasia esculenta</i> (L.) Schott.	H	Aug.-Sept.	Pale-green
<i>Remusatia vivipara</i> (Roxb.) Schott.	H	May-July	Yellow-green
Cyperaceae			
<i>Carex condensata</i> Nees ex Wight	H	Sept.-Oct.	Brown
<i>Carex filicina</i> Nees ex Wight	H	Sept.-Oct.	Reddish-brown
<i>Carex setigera</i> D.Don	H	July-Sept.	Pale-brown
<i>Cyperus cuspidatus</i> H.B.K.	H	Sept.-Oct.	Reddish-yellow
<i>Cyperus niveus</i> Retz.	H	May-June	White
<i>Cyperus pangorie</i> Rottboell	H	Aug.-Sept.	Brownish-red
<i>Eriophorum comosum</i> (Wall.) Wallich ex Nees	H	Aug.-Sept.	Red-brown
<i>Fimbristylis falcata</i> (Vahl) Kunth	H	July-Aug.	Pale-brown
<i>Kyllinga brevifolia</i> Rottboell	H	Aug.-Sept.	Green
<i>Kyllinga squamulata</i> Thonning ex Vahl	H	Aug.-Sept.	Brown-green
<i>Mariscus sieberianus</i> Nees ex C.B. Clarke	H	Aug.-Sept.	Dark-brown
Poaceae (Gramineae)			
<i>Alloteropsis cimicina</i> (L.) Stapf.	H	Aug.-Sept.	White-green
<i>Apluda mutica</i> L.	H	Aug.-Sept.	Green
<i>Apluda varia</i> Hack.	H	May-Sept.	Green
<i>Arundinella bengalensis</i> (Sprengel) Druce.	H	July-Aug.	Green
<i>Arundinella falcata</i> Nees	H	Sept.-Oct.	Greenish-purple
<i>Arundinella nepalensis</i> Trinius	H	Oct.	Brown-purple
<i>Arundinella pumila</i> (Hochst. ex Rich.) Steudel	H	Aug.-Sept.	Greenish-purple
<i>Arundinella spathiflora</i> Trinius	H	Aug.-Sept.	Green
<i>Avena fatua</i> L.	H	June	Yellowish-green
<i>Bothriochloa ischaemum</i> (L.) Keng.	H	Aug.-Sept.	Purple
<i>Brachiaria ramosa</i> (L.) Stapf.	H	Aug.-Sept.	Green
<i>Capillipedium assimile</i> (Steudel) A. Camus	H	Sept.-Oct.	Green



Floristic composition of Agrakhal-Kuniapuri area

<i>Chrysopogon distans</i> W. Watson	H	Aug.-Sept.	Purple
<i>Chrysopogon echinulatus</i> (Nees) W. Watson	H	Aug.-Oct.	Purple
<i>Chrysopogon martini</i> (Roxb.) Watson	H	Sept.-Oct.	Pale-purple
<i>Chrysopogon serrulatus</i> Trinius	H	Sept.-Oct.	Brown
<i>Cynodon dactylon</i> (L.) Persoon	H	May-Sept.	Green
<i>Digitaria biformis</i> Willd	H	Aug.-Sept.	Silvery-white
<i>Digitaria cruciata</i> (Nees ex Steudel) A. Camus	H	July-Aug.	Green
<i>Digitaria granularis</i> (Trinius) Henrard	H	Aug.-Sept.	Green
<i>Digitaria sanguinalis</i> (L.) Scop.	H	Aug.-Sept.	Green
<i>Digitaria setigera</i> Roth ex Roemer & Schult.	H	July-Sept.	Green
<i>Eragrostis atrovirens</i> (Desf.) Trinius ex Steud.	H	Aug.-Sept.	Green
<i>Eragrostis poaeoides</i> P. Beauv.	H	Aug.-Sept.	Pale-green
<i>Helictotrichon virescens</i> (Nees ex Steudel) Henrard	H	July-Sept.	Green/yellow
<i>Heteropogon contortus</i> (L.) P. Beauv. ex Roemer & Schultes	H	Aug.-Sept.	Green
<i>Koeleria cristata</i> (L.) Persoon	H	Sept.-Oct.	Green
<i>Microstegium nudum</i> (Trinius) A. Camus	H	Sept.-Oct.	Green
<i>Microstegium vimineum</i> (Trinius) A. Camus	H	Sept.-Oct.	Green
<i>Muhlenbergia himalayensis</i> Hack. ex Hook. f.	H	Oct.-Nov.	Pale-green
<i>Neyraudia arundinacea</i> (L.) Henrard	H	Sept.-Oct.	Pale-purple
<i>Oplismenus compositus</i> (L.) P. Beauv.	H	Aug.-Sept.	Green
<i>Oplismenus undulatifolius</i> (Ardoino) P. Beauv.	H	Aug.-Sept.	Green
<i>Paspalidium flavidum</i> (Retz.) A. Camus	H	Aug.-Sept.	Purplish-green
<i>Paspalum dilatatum</i> Poir.	H	April-Sept.	Green
<i>Paspalum distichum</i> L.	H	April-Oct.	Pale-pink
<i>Pennisetum flaccidum</i> Grisebach	H	July-Oct.	Purplish-green
<i>Pennisetum orientale</i> L. C. Richard	H	Sept.-Oct.	Green
<i>Pogonatherum paniceum</i> (Lam.) Hackel	H	Dec.-Mar.	Pale-yellow
<i>Saccharum bengalensis</i> Retz.	H	Sept.-Oct.	Pale-purple
<i>Saccharum spontaneum</i> L.	H	Sept.-Nov.	Grey-white
<i>Setaria gluca</i> (L.) P. Beauv.	H	Sept.-Oct.	Yellow
<i>Setaria pallide-fusca</i> (Schumach) Stapf. et. C. E. Hubb.	H	June-Aug.	Greenish-yellow
<i>Setaria tomentosa</i> (Roxb.) Kunth.	H	Aug.-Sept.	Green
<i>Sporobolus diander</i> (Retz.) P. Beauv.	H	Sept.-Oct.	Green
<i>Sporobolus indicus</i> (L.) R. Br.	H	Sept.-Oct.	Green
<i>Thysanolaena maxima</i> (Roxb.) O. Kuntze	H	Sept.-Oct.	Greenish-yellow
<i>Tripogon filiformis</i> Nees ex Steud	H	Aug.-Sept.	Purplish-green
Pinaceae			
<i>Cedrus deodara</i> (Royle ex D. Don) G. Don	PIT	Aug.-Nov.	
<i>Pinus roxburghii</i> Sargent	T	Jan-June	
Ferns : Adiantaceae			
<i>Adiantum incisum</i> Forrsk	Tf	-	-
<i>Adiantum venustum</i> D. Don	Tf	-	-
Aspidiaceae			
<i>Tectaria coadunata</i> (Wall. ex Hook. et. Grev.) C. Chr.	Tf	-	-
Athyriaceae			
<i>Athyrium pectinatum</i> (Wall. ex Mett.) Moore	Tf/Ep	-	-
<i>Athyrium schimperi</i> Mougl. ex Fee	Tf/Ep	-	-
Cheilanthaceae			
<i>Cheilanthes farinosa</i> (Forsk) Kaulf	Tf	-	-



Dryopteridaceae			
<i>Dryopteris caroli-hopei</i> Fr.-Jenkins	Tf	-	-
<i>Polystichum squarrosus</i> (D.Don) Fee	Tf	-	-
Polypodiaceae			
<i>Lepisorus amaurolepida</i> (Sledge) Bir. et Trikha.	Ep	-	-
<i>Lepisorus contortus</i> (Christ) Ching	Ep/Tf	-	-
<i>Microsorium membranaceum</i> (D.Don) Ching	Ep/Tf	-	-
<i>Polypodium microrhizoma</i> Clarke	Tf	-	-
<i>Pyrrosia flocculosa</i> (D.Don) Ching	Ep/Tf	-	-
Pteridaceae			
<i>Pteris quadriaurita</i> Retz.	Tf	-	-
fern-allies: Selaginellaceae			
<i>Selaginella chrysorhizos</i> Spring.	Tf	-	-

H= Herb S= Shrub T= Tree PIT= Planted tree CIS= Climbric shrub CIH= Climbric herb PS= Parasitic shrub EpH= Epiphitic herb TrH= Terristrial herb SS= Scand shrub TH= Twining herb Tf= Terristrial fern Ep= Epiphitic fern.

Table 2. Vegetational status of the study area

HABITS	NUMBER OF SPECIES
Herbs	320
Shrubs	84
Trees	37
Ferns	14
Ferns-Allies	01

Table3. Number of species on each study site (with road side) of the study area

SITES	NUMBER OF SPECIES
South-East	359
North-West	268
North	264
North-East	274
South	237
South-West	253
Road-Side	344

Table 4. Plant diversity of the study area

SN.	PLANTS GROUPS	GENERA	SPECIES	FAMILIES
1.	Angiosperms			
A.	Dicotyledons	218	343	71
B.	Monocotyledons	75	96	13
2.	Gymnosperms	02	02	01
3.	Pteridophytes			
A.	Ferns	10	14	09
B.	Fern-allies	01	01	01
	TOTAL	306	456	95



Table 5. List of ten dominant families of the study area

SN.	FAMILIES	GENERA	SPECIES
1	Poaceae	27	48
2	Asteraceae	31	42
3	Papilionaceae	14	34
4	Lamiaceae	16	28
5	Acanthaceae	13	16
6	Rubaceae	09	15
7	Rosaceae	07	12
8	Orchidaceae	09	12
9	Cyperaceae	06	11
10	Ranunculaceae	05	10

Table 6. List of dominant genera of the study area

SN .	GENERA	NUMBER OF SPECIES
1	<i>Desmodium</i>	08
2	<i>Cassia</i>	06
3	<i>Indigofera</i>	06
4	<i>Solanum</i>	06
5	<i>Rubus</i>	05
6	<i>Arundinella</i>	05
7	<i>Digitaria</i>	05

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