

Contribution to the Wild Vascular Floristic Diversity of the Campus of G.B Pant University of Agriculture & Technology, Pantnagar, Uttarakhand, India

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Abstract: The paper presents the details of vascular plants found wild in the campus of G.B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India. Out of a total 271 species, 3 are gymnosperms, whereas the remaining 268 species belong to angiosperms representing 204 genera and 69 families. The dominant families are Fabaceae, Asteraceae, Solanaceae, Euphorbiaceae and Poaceae. In enumeration (table I) the species are arranged according to the classification of Bentham & Hooker (1862- 1883) with alphabetical arrangement in respective families. The details include correct binomial with authority, basionym if any, local name in capital in inverted commas if any, habitat and flowering and fruiting period. The information will be helpful to teachers, students, research scholars as a checklist and plants under various categories viz. seasonal plants, fast growing / attractive plants, details of the past vegetation of this vast and second largest university campus in the world. Economic plants growing naturally are dealt separately under various categories and for medicinal plants the uses are given in bracket against each species.

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1. Introduction

India's first Agriculture University after independence was inaugurated by the first Prime Minister Jawaharlal Nehru on the 17th November, 1960 as the Uttar Pradesh Agricultural University (UPAU). Later on the name of the University was changed and renamed as Govind Ballabh Pant University of Agriculture and Technology in 1972 in the memory of great freedom fighter and first Chief Minister of Uttar Pradesh Govind Ballabh Pant. This university has been the site of origin of "Green Revolution" in India with vast and enormous campus having natural and wild floristic diversity covering an area of 12,661 acres (51.24km²), which makes it the second largest university campus in the world in terms of contiguous area. The University lies in the campus town of Pantnagar in the lush green tarai region of Kumaun range of Himalayas in the Udham Singh Nagar district of Uttarakhand state. Geographically the area lies in tarai plains about 30 km southwards of Shivalik range at 29° 03' N latitudes and 79° 29' E longitudes at an altitude of 243 m above sea level. It is 16 km away from Rudrapur, 25 km from Haldwani and 65 km from Nainital. Two National Highways pass through the University campus making it accessible from all over India by road. The nearest railway station is Rudrapur.

The soil is slightly sandy loamy type with 0.67 % of organic matter. This type of soil is good for the plant growth. The climate is subtropical with hot dry summers during March-April, which continues

till June. The cold winter season begins in November and last up to March almost every year. Monsoon sets in the third week of June and continues up to the end of September. In 1954, prior to the establishment of the university, an Indo-American team along with the Vice President of ICAR visited Nainital district to see an area around the tarai state farm as a probable site for the university. The team selected the present area, which was actually a dense forest near Himalayan foothills, conspicuously occupied by the gregarious growth of *Phoenix sylvestris* (L.) Roxb. After 1960, whole topography and vegetational cover have been significantly changed due to development and introduction of various species including flowering shrubs and trees. The ground vegetation is dominated by small herbaceous plants like *Aerva lanata* (L.) Juss. ex Schult.; *Aerva sanguinolenta* (L.) Blume; *Cyperus rotundus* L.; *Boerhavia diffusa* L.; *Dactyloctenium aegyptium* (L.) Willd.; *Euphorbia hirta* L. These herbaceous plants make the campus green during rainy season. Joshi *et al.*, (2012) enumerated the medicinal plants growing only at Medicinal Plant Resources and Development Centre (MRDC), of the university, which is in an area of about 100 acres but the present paper deals with the plants growing all over the campus including those found in nearby areas covering over 12,661 acres.

Seasonal vegetation:

This include those herbs and shrubs as well as weed that grow during the corresponding three distinct seasons of the year viz. winter, rainy and

summer. The annuals complete their life cycle within three to four months. The optimum temperature and moisture condition for plant growth are obtained during the rainy season when the vegetation attains a luxuriant growth. Some of the important plants found during this period are *Celosia argentea* L.; *Desmodium triflorum* (L.) DC. ; *Eclipta prostrata* (L.) L. As the cold season enters, some common plants grow rapidly and make their appearance. These include *Cyperus rotundus* L. ; *Malva parviflora* L.; *Rungia repens* (L.) Nees. As the weather warm up in March, seeds of several annual herbs and weeds that lie dormant in soil throughout the rainy season, now germinate and they successfully occupy the unused grounds, lawns and fields. Such plants are : *Chloris barbata* Sw.; *Echinochloa colonum* (L.) Link; *Dactyloctenium aegyptium* (L.) Willd.; *Alternanthera pungens* Kunth; *Gomphrena celosioides* Mart.; *Hygrophila polysperma* (Roxb.) T. Anderson. They occupy a large area during monsoon period. Grasses are abundant in the campus from July onwards to November and the whole campus remain covered by the green carpeted growth of the following grass: *Chloris barbata* Sw.; *Echinochloa colonum* (L.) Link; *Dactyloctenium aegyptium* (L.) Willd. and *Digitaria ciliaris* (Retz.) Koeler.

Fast growing /attractive plants:

The 'concentric semicircles' or the 'rising sun' plan of the campus-centre was designed by the Department of Architecture of Illinois University, USA. The university campus is often seen as a small and remote tourist destination. Keeping this point in mind and with the aim to maintain green look and shade to the campus, quick growing legumes like *Cassia* species and *Delonix regia* (Bojer ex Hook.) Rafin.; *Bauhinia acuminata* L.; *Albizia lebbek* (L.) Benth.; *Mimosa pudica* L.; *Pithecellobium dulce* (Roxb.) Benth.; *Samanea saman* (Jacq.) Merr. were planted. Although these plants are fast growing but the unfortunate aspect is that these are soft and can not tolerate high velocity of winds. To overcome this problem, it was decided to plant in second row of hardy shrubs and trees which can withstand the natural conditions. This included: *Samanea saman* (Jacq.) Merr.; *Terminalia arjuna* (Roxb. ex DC.) Wight & Arnott; *Ziziphus nummularia* (Burm.f.) Wight & Arnott. The climate and soil of the campus are fairly suitable for the luxuriant growth of palms which give attraction to the campus. They have been planted along roadsides, near college boundaries and hostels gates, etc.

2. Material and Methods

An extensive field survey was started from July 2010 to study the various natural vascular plant species growing in the campus. Every nook and corner of the university was visited in order to search the plant species and the survey was completed by June, 2011. The identification of plant species was done with the help of local, regional and national floras and consulting the herbarium of Nainital University, Nainital. Being Agriculture University, herbarium specimens were not preserved. Information regarding their medicinal and economic uses were gathered through local knowledgeable people and literature. The important references consulted are (Rau, 1975; Shah, 1982; Singh and Jain,1989; Duthie,1903-1929; Anonymous, 1948-1976; Chopra *et al.*,1996; Ambasta, 1992; Kirtikar and Basu,1999; Tiwari,2000; Ahuja,2001).

3. Results

The analysis of vascular plants reveal that monocotyledons are represented by 69 species under 51 genera and 14 families, while 199 species under 153 genera and 56 families are dicotyledons, where as 3 species under 3 genera and 3 families are gymnosperms. Out of a total of 271 vascular plants, 179 are herbs, 40 are shrubs, 13 are climbers and 39 are trees. Economic plants growing naturally are dealt separately under various categories and for medicinal plants uses are given in bracket against each species.

Economic plants:-

The economic uses of plants found in the university campus as gathered from local inhabitants and as given in literature can be broadly categorized as follows:-

❖ Medicinal plants:

Ranunculus sceleratus L. (asthma, rheumatism); *Cissampelos pareira* L. (itching); *Argemone mexicana* L. (ophthalmic problems); *Cleome viscosa* L. (skin disease); *Abutilon indicum* (L.) Sweet (fever & piles); *Corchorus aestuans* L. (stomachic problem); *Corchorus capsularis* L. (gonorrhoea); *Geranium ocellatum* Cambess . (diarrhoea & dysentery) ; *Desmodium triflorum* (L.) DC. (diarrhoea & dysentery) ; *Aegle marmelos* (L.) Correa (diarrhoea & dysentery); *Mucuna pruriens* (L.) DC. (seminal vesicles); *Vicia sativa* L. (diarrhoea); *Cassia fistula* L., *Albizia lebbek* (L.) Benth. & *Mimosa pudica* L. (stomachic); *Terminalia bellirica* (Gaertn.) Roxb., *Terminalia arjuna* (Roxb. ex DC.) Wight & Arnott (cardio tonic); *Psidium guajava* L. (diarrhoea); *Ageratum conyzoides* L. (diarrhoea); *Tagetes erecta* L.(eye troubles); *Tridax procumbens* L.(control of bleeding in wounds); *Anagallis arvensis* L.(leprosy); *Jasminum*

multiflorum (Burm. f.) Andr. (antidote to snake bites); *Catharanthus roseus* (L.) G. Don (diabetes); *Hemidesmus indicus* (L.) R.Br. (urinary disease); *Argyreia nervosa* (Burm. f.) (skin disease); *Ipomoea cairica* (L.) Sweet (purgative); *Solanum nigrum* L. (skin and eye diseases); *Lindernia crustacea* (L.) F.v. Muell. (sores); *Mazus pumilus* (Burm. f.) Steenis (asthma); *Polygonum glabrum* Willd. (febrifuge); *Polygonum hydropiper* L. (bitter tonic); *Acalypha indica* L. (diarrhea); *Euphorbia hirta* L. (asthma & cough); *Phyllanthus amarus* Schumach. & Thonn. (jaundice); *Crinum asiaticum* L. (urinary troubles); *Pancreatium zeylanicum* L. (ear problems) and *Asparagus racemosus* Willd. (rheumatic complaints).

❖ **Fodder plants:**

Lathyrus sativus L.; *Dalbergia sissoo* Roxb.; *Albizia lebbek* (L.) Benth.; *Euphorbia heterophylla* L. and *Ficus religiosa* L.

❖ **Edible fruit trees:**

Mangifera indica L.; *Syzygium cumini* (L.) Skeels; *Ziziphus mauritiana* Lam.; *Aegle marmelos* (L.) Correa; *Citrus medica* L.; *Psidium guajava* L.; *Pithecellobium dulce* (Roxb.) Benth. and *Punica granatum* L. Besides, *Terminalia bellirica* (Gaertn.) Roxb. and *Terminalia arjuna* (Roxb. ex DC.) Wight & Arnott are the other tree species which produce fruits of commercial importance.

❖ **Fibre yielding plants:**

Agave cantala Roxb.; *Abutilon indicum* (L.) Sweet; *Sida cordata* (Burm.f.) Borss. and *Melochia corchorifolia* L.

❖ **Tannin yielding trees:**

Cassia fistula L.; *Terminalia bellirica* (Gaertn.) Roxb. and *Terminalia arjuna* (Roxb. ex DC.) Wight & Arnott.

❖ **Miscellaneous:**

Ficus benghalensis L. and *Ziziphus mauritiana* Lam. are the important dye yielding plant species. *Tectona grandis* L. f.; *Sesamum orientale* L. and *Helianthus annuus* L. are the oil yielding species. *Eichhornia crassipes* (Mart.) Solms are used as green manure. *Polyalthia longifolia* (Sonner.) Thwaites.; *Toona ciliata* M. Roem.; *Dalbergia sissoo* Roxb. and *Tectona grandis* L. f. are the important timber yielding tree species.

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Table 1: Enumeration of plants with botanical names and other details:			
S. No	Botanical Name/ Basionym / Local Name	Habit	Flowering /Fruiting
RANUNCULACEAE			
1.	<i>Delphinium ajacis</i> L. / 'LARKSPUR'	Herb	January - February
2.	<i>Ranunculus sceleratus</i> L. / 'JALDHANIA'	Herb	December - March
ANNONACEAE			
3.	<i>Polyalthia longifolia</i> (Sonner.) Thwaites / <i>Uvaria longifolia</i> Sonner. / 'ASHOK'	Tree	April - August
MENISPERMACEAE			
4.	<i>Cissampelos pareira</i> L. / 'AKANDI'	Climber	July- December
5.	<i>Tiliacora acuminata</i> (Lam.) Miers / <i>Menispermum acuminatum</i> Lam. / 'BEGA'	Climber	April - June
PAPAVERACEAE			
6.	<i>Argemone mexicana</i> L. / 'BHARBAND'	Herb	January - December
7.	<i>Fumaria indica</i> (Hassk.) Pugsley / <i>Fumaria vaillantii</i> Loisel. var. <i>indica</i> Hassk. / 'PITPAPRA'	Herb	December - March
CAPPARACEAE			
8.	<i>Cleome viscosa</i> L. / 'HURHUR'	Herb	Throughout the year
CARYOPHYLLACEAE			
9.	<i>Stellaria media</i> (L.) Villars / <i>Alsine media</i> L.	Herb	November - March
10.	<i>Vaccaria pyramidata</i> Medik. / 'SABUNI'	Herb	March - May
PORTULACACEAE			
11.	<i>Portulaca pilosa</i> L.	Herb	July - October
TAMARICACEAE			
12.	<i>Tamrix dioica</i> Roxb. ex Roth / 'SARAN'	Tree	August - October
MALVACEAE			
13.	<i>Abutilon indicum</i> (L.) Sweet / <i>Sida indica</i> L. / 'KANGI'	Shrub	September - April
14.	<i>Hibiscus rosa sinensis</i> L. / 'GURHAL'	Shrub	Throughout the year
15.	<i>Malva verticillata</i> L. / 'NAR'	Herb	January
16.	<i>Malvastrum coromandelianum</i> (L.) Garcke / <i>Malva coromandeliana</i> L.	Shrub	October - January
17.	<i>Sida cordata</i> (Burm.f.) Borss. / <i>Melochia cordata</i> Burm.f.	Herb	Throughout the year
BOMBACACEAE			
18.	<i>Bombax ceiba</i> L. / 'SEMAL'	Tree	March - June
STERCULIACEAE			
19.	<i>Melochia corchorifolia</i> L.	Herb	May- September
20.	<i>Pterospermum acerifolium</i> (L.) Willd. / <i>Pentapetes acerifolia</i> L.	Tree	September - May
TILIACEAE			
21.	<i>Corchorus aestuans</i> L.	Herb	September - February
22.	<i>Corchorus capsularis</i> L. / 'CHEJA'	Herb	June - November
23.	<i>Corchorus olitorius</i> L.	Herb	September - January
24.	<i>Grewia sapida</i> Roxb. ex DC.	Shrub	April - May
LINACEAE			
25.	<i>Linum usitatissimum</i> L. / 'ALSI'	Herb	October - December
GERANIACEAE			
26.	<i>Geranium mascatense</i> Boiss.	Herb	March - December
OXALIDACEAE			
27.	<i>Oxalis corniculata</i> L. / 'AMRULSAK'	Herb	January - December
28.	<i>Oxalis richardiana</i> Babu	Herb	July - November
RUTACEAE			
29.	<i>Aegle marmelos</i> (L.) Correa / <i>Crateva marmelos</i> L. / 'BAEL'	Tree	April - August
30.	<i>Citrus medica</i> L. / 'BARA NIMBU'	Tree	January - December
31.	<i>Murraya koenigii</i> (L.) Spreng. / <i>Bergera koenigii</i> L. / 'KARIPATTA'	Tree	December - June
MELIACEAE			
32.	<i>Azadirachta indica</i> A. Juss. / 'NEEM'	Tree	April - June
33.	<i>Toona ciliata</i> M. Roem.	Tree	March - April
RHAMNACEAE			
34.	<i>Ziziphus mauritiana</i> Lam. / 'BER'	Tree	November - December
35.	<i>Ziziphus nummularia</i> (Burm.f.) Wight & Arnott / <i>Rhammus nummularia</i> Burm.f. / 'JHARBERI'	Shrub	April - October
ANACARDIACEAE			
36.	<i>Mangifera indica</i> L. / 'AAM'	Tree	February - July

FABACEAE			
37.	<i>Crotalaria medicaginea</i> Lam. / 'GULABI'	Herb	September –April
38.	<i>Dalbergia sissoo</i> Roxb. / 'SHEESHAM'	Tree	July - June
39.	<i>Desmodium gangeticum</i> (L.) DC. / <i>Hedysarum gangeticum</i> L. / 'SARIVAN'	Shrub	July- April
40.	<i>Desmodium triflorum</i> (L.) DC. / <i>Hedysarum triflorum</i> L.	Herb	September –April
41.	<i>Lathyrus aphaca</i> L. / 'JUNGLI MATAR'	Herb	February - April
42.	<i>Lathyrus sativus</i> L. / 'TEORI'	Herb	November - March
43.	<i>Medicago lupulina</i> L.	Herb	March
44.	<i>Medicago polymorpha</i> L.	Herb	January –May
45.	<i>Melilotus alba</i> Desr. / 'RAN METHI'	Herb	February –April
46.	<i>Melilotus indica</i> (L.) All. / <i>Trifolium melilotus</i> L. / 'BAN- METHI'	Herb	December - March
47.	<i>Mucuna pruriens</i> (L.) DC. / <i>Dolichos pruriens</i> L. / 'KENWACH'	Climber	September –May
48.	<i>Vicia hirsuta</i> (L.) S. F. Gray / <i>Ervum hirsutum</i> L.	Herb	November - March
49.	<i>Vicia sativa</i> L. / 'AKRA'	Herb	December - April
50.	<i>Vigna radiata</i> (L.) R. Wilczek / <i>Phaseolus radiatus</i> L. / 'MOONG'	Herb	September - December.
CAESALPINIACEAE			
51.	<i>Bauhinia acuminata</i> L. / 'AHLAD'	Shrub	April - December
52.	<i>Caesalpinia pulcherrima</i> (L.) Sw. / <i>Poinciana pulcherrima</i> L. / 'GULTURRAH'	Shrub	July- April
53.	<i>Cassia fistula</i> L. / 'DHAN BAHAR'	Tree	April - February
54.	<i>Cassia tora</i> L. / 'CHEKOR'	Herb	August - April
55.	<i>Delonix regia</i> (Bojer ex Hook.) Rafin. / <i>Poinciana regia</i> Bojer ex Hook. / 'GULMOHAR'	Tree	April - August
MIMOSACEAE			
56.	<i>Albizia lebbek</i> (L.) Benth. / <i>Mimosa lebbek</i> L. / 'SIRIS'	Tree	March - October
57.	<i>Mimosa pudica</i> L. / 'LAJWANTI'	Herb	August - March
58.	<i>Pithecellobium dulce</i> (Roxb.) Benth. / <i>Mimosa dulce</i> Roxb. / 'JUNGL- JALEBEE'	Tree	January –April
59.	<i>Samanea saman</i> (Jacq.) Merr. / <i>Mimosa saman</i> Jacq. / 'BILAYATI SIRIS'	Tree	March - April
ROSACEAE			
60.	<i>Rosa indica</i> L. / 'ROSE'	Shrub	Throughout the year
COMBRETACEAE			
61.	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight & Arnott / <i>Pentaptera arjuna</i> Roxb. ex DC. / 'ARJUN'	Tree	Fl.; April-May; Fr.; Almost throughout the year
62.	<i>Terminalia bellirica</i> (Gaertn.) Roxb. / <i>Myrobalanus bellirica</i> Gaertn. / 'BAHERA'	Tree	Fl.; April-May; Fr.; Most part of the year
MYRTACEAE			
63.	<i>Callistemon lanceolatus</i> DC. / 'BOTTLE BRUSH'	Tree	March - August
64.	<i>Eucalyptus maculata</i> Hook.	Tree	Almost throughout the year
65.	<i>Psidium guajava</i> L. / 'AMRUD'	Tree	Almost throughout the year
66.	<i>Syzygium cumini</i> (L.) Skeels / <i>Myrtus cumini</i> L. / 'JAMUN'	Tree	May - August
LYTHRACEAE			
67.	<i>Lawsonia inermis</i> L. / 'MEHNDI'	Shrub	April - August
PUNICACEAE			
68.	<i>Punica granatum</i> L. / 'ANAR'	Shrub	March - January
PASSIFLORACEAE			
69.	<i>Passiflora foetida</i> L. / 'PASSION FLOWER'	Climber	November –February
CUCURBITACEAE			
70.	<i>Coccinia grandis</i> (L.) Voigt / <i>Bryonia grandis</i> L. / 'KUNDRU'	Climber	July- December and March - May
71.	<i>Cucurbita maxima</i> Duch. ex Lam. / 'KADDU'	Herb	March - June and May - August
CACTACEAE			
72.	<i>Opuntia elatior</i> Mill. / 'NAGPHANI'	Shrub	March - September
AIZOACEAE			
73.	<i>Trianthema portulacastrum</i> L.	Herb	August
MOLLUGINACEAE			
74.	<i>Mollugo pentaphylla</i> L.	Herb	Throughout the year
RUBIACEAE			
75.	<i>Gardenia gummifera</i> L.f. / 'CHOTTEKURRA'	Tree	March-August

STERACEAE			
76.	<i>Ageratum conyzoides</i> L.	Herb	September –March
77.	<i>Ageratum houstonianum</i> Mill.	Herb	November - December
78.	<i>Bidens biternata</i> (Lour.) Merr. & Sherff. / <i>Coreopsis biternata</i> Lour.	Herb	January - February
79.	<i>Blumea oxyodonata</i> DC.	Herb	January - March
80.	<i>Chrysanthellum americanum</i> (L.) Vatke / <i>Artemisia americana</i> L.	Herb	August - November
81.	<i>Dahlia variabilis</i> Desf.	Herb	November – March
82.	<i>Conyza bonariensis</i> (L.) Cronq. / <i>Erigeron bonariensis</i> L.	Herb	January - February
83.	<i>Conyza canadensis</i> (L.) Cronq. / <i>Erigeron canadensis</i> L.	Herb	December - January
84.	<i>Eclipta prostrata</i> (L.) L. / <i>Verbena prostrata</i> L. / 'BHRINGRAJ'	Herb	Major part of the year
85.	<i>Erigeron sublyratus</i> DC..	Herb	August - February
86.	<i>Gnaphalium polycaulon</i> Pers.	Herb	March - April
87.	<i>Helianthus annuus</i> L.	Herb	December - February
88.	<i>Launaea acaulis</i> (Roxb.) Babcock ex Kerr / <i>Prenanthes acaulis</i> Roxb.	Herb	January - February
89.	<i>Parthenium hysterophorus</i> L. / 'GAJAR GHASS'	Herb	September –October
90.	<i>Pulicaria angustifolia</i> DC. / 'HURHURIA'	Herb	August - November
91.	<i>Sonchus brachyotus</i> DC.	Herb	December –April
92.	<i>Sonchus oleraceus</i> L.	Herb	February - March
93.	<i>Tagetes erecta</i> L. / 'GENDA'	Herb	November - March
94.	<i>Tridax procumbens</i> L.	Herb	Almost throughout the year
95.	<i>Wedelia chinensis</i> (Osbeck.) Merr. / <i>Solidago chinensis</i> Osbeck.	Herb	September –October
96.	<i>Xanthium indicum</i> Koenig	Herb	October - December
PRIMULACEAE			
97.	<i>Anagallis arvensis</i> L.	Herb	December –March
SAPOTACEAE			
98.	<i>Malinkara hexandra</i> (Roxb.) Dubard / <i>Mimusops hexandra</i> Roxb. / 'KHIRNI'	Tree	September –December
OLEACEAE			
99.	<i>Jasminum multiflorum</i> (Burm.f.) Andr. / <i>Nyctanthes multiflora</i> Burm. f. / 'SAFED-CHAMELI'	Shrub	December –June
APOCYNACEAE			
100.	<i>Carissa carandas</i> L. / 'KARODA'	Shrub	May- October
101.	<i>Catharanthus roseus</i> (L.) G. Don. / <i>Vinca rosea</i> L. / 'SADA BAHAR'	Herb	Throughout the year
102.	<i>Nerium indicum</i> Mill. / 'KANER'	Shrub	April - June
103.	<i>Plumaria alba</i> L.	Shrub	March - June
104.	<i>Tabernaemontana heyneana</i> Wall.	Shrub	May - August
105.	<i>Thevetia peruviana</i> (Pers.) K. Schum. / <i>Cerbera peruviana</i> Pers. / 'PILKANER'	Shrub	Throughout the year
106.	<i>Vallisneria spiralis</i> (L.) Kuntze / <i>Peltanthera solanacea</i> Roth / 'RAMSAR'	Shrub	December - April
ASCLEPIADACEAE			
107.	<i>Asclepias curassavica</i> L.	Herb	Throughout the year
108.	<i>Calotropis procera</i> (Aiton) R.Br. / <i>Asclepias procera</i> Aiton / 'MADAR'	Shrub	March - May
109.	<i>Hemidesmus indicus</i> (L.) R.Br. / <i>Periploca indica</i> L. / 'KAPURI'	Climber	August - January
CONVOLVULACEAE			
110.	<i>Argyrea nervosa</i> (Burm. f.) Bojer / <i>Convolvulus nervosus</i> Burm. f. / 'SAMANDAR KA PAT'	Climber	April - September
111.	<i>Evolvulus nummularius</i> (L.) L. / <i>Convolvulus nummularius</i> L.	Herb	August - February
112.	<i>Ipomoea cairica</i> (L.) Sweet / <i>Convolvulus cairicus</i> L. / 'RAILWAY CREEPER'	Climber	June - December
113.	<i>Ipomoea carnea</i> Jacq.	Shrub	Throughout the year
114.	<i>Ipomoea nil</i> (L.) Roth / <i>Convolvulus nil</i> L. / 'MIRCHAI'	Climber	September –March
115.	<i>Ipomoea quamoclit</i> L.	Climber	September –November
SOLANACEAE			
116.	<i>Cestrum diurnum</i> L. / 'DIN KA RAJA'	Shrub	Throughout the year
117.	<i>Cestrum nocturnum</i> L. / 'RAT KI RANI'	Shrub	July- October
118.	<i>Datura stramonium</i> L. / 'DHATURA'	Shrub	November - March
119.	<i>Nicotiana plumbaginifolia</i> Viv.	Herb	November - March
120.	<i>Physalis minima</i> L. / 'RASPBHERRY'	Herb	August - January
121.	<i>Solanum melongena</i> L. / 'BAIGAN'	Herb	Throughout the year
122.	<i>Solanum nigrum</i> L. / 'MAKOI'	Herb	September – February
123.	<i>Solanum virginianum</i> L.	Herb	December - June

SCROPHULARIACEAE			
124.	<i>Antirrhinum orontium</i> L. / 'CORN SNAPDRAGON'	Herb	January - February
125.	<i>Bacopa procumbens</i> (Mill.) Greenm. / <i>Erinus procumbens</i> Mill.	Herb	July- September
126.	<i>Lindernia crustacea</i> (L.) F.v. Muell. / <i>Capraria crustacea</i> L.	Herb	July - November
127.	<i>Mazus pumilus</i> (Burm.f.) Steenis / <i>Lobelia pumila</i> Burm. f.	Herb	November - April
128.	<i>Verbascum chinense</i> (L.) Sant. / <i>Scrophularia chinense</i> L. / 'AKHPHOTI'	Herb	December - June
129.	<i>Verbascum thapsus</i> L.	Herb	December - March
130.	<i>Veronica anagallis-aquatica</i> L.	Herb	November - April
BIGNONIACEAE			
131.	<i>Tecoma stans</i> (L.) Juss. ex Kunth / <i>Bignonia stans</i> L.	Shrub	Often throughout the year
PEDALIACEAE			
132.	<i>Sesamum indicum</i> L. / 'TIL'	Herb	September - October
ACANTHACEAE			
133.	<i>Adhatoda zeylanica</i> Medik.	Shrub	December - March
134.	<i>Hygrophila polysperma</i> (Roxb.) T. Anderson / <i>Justicia polysperma</i> Roxb.	Herb	October - April
135.	<i>Nelsonia canescens</i> (Lam.) Spreng. / <i>Justicia canescens</i> Lam. / 'KHARABHAJII'	Herb	April - June
136.	<i>Ruellia tuberosa</i> L.	Herb	July- September
137.	<i>Rungia pectinata</i> (L.) Nees / <i>Justicia pectinata</i> L. / 'KHARMOR'	Herb	January - April
138.	<i>Rungia repens</i> (L.) Nees / <i>Justicia repens</i> L.	Herb	November - January
139.	<i>Thunbergia alata</i> Bojer ex Sims	Herb	September- February
VERBENACEAE			
140.	<i>Clerodendrum inerme</i> (L.) Gaertn. / <i>Volkameria inermis</i> L. / 'LANJAI'	Shrub	July- January
141.	<i>Clerodendrum viscosum</i> Venten. / 'BHANT'	Shrub	March - June
142.	<i>Duranta repens</i> L.	Shrub	May -December
143.	<i>Lantana camara</i> L. / 'BARAMASI'	Shrub	April - June
144.	<i>Phyla nodiflora</i> (L.) E. Greene / <i>Verbena nodiflora</i> L.	Herb	Throughout the year
145.	<i>Tectona grandis</i> L. f. / 'SAGON'	Tree	August - December
146.	<i>Verbena officinalis</i> L.	Herb	April - October
LAMIACEAE			
147.	<i>Leucas clarkei</i> Hook.f.	Herb	September-March
148.	<i>Leucas cephalotes</i> (Koenig ex Roth) Spreng. / <i>Phlomis cephalotes</i> Koenig ex Roth / 'DHURPI SAG'	Herb	August-April
149.	<i>Mentha spicata</i> L. / 'PUDINA'	Herb	June - July
150.	<i>Ocimum canum</i> Sims / 'BAN TULSI'	Herb	August - March
151.	<i>Ocimum tenuiflorum</i> L. / 'TULSI'	Herb	Almost throughout the year
152.	<i>Salvia plebia</i> R.Br.	Herb	September -April
NYCTAGINACEAE			
153.	<i>Boerhavia diffusa</i> L. / 'PUNARNAVA'	Herb	October -April
154.	<i>Bougainvillea spectabilis</i> Willd. / 'BOQAMBEL'	Climber	Usually during hot season
155.	<i>Commicarpus chinensis</i> (L.) Heimerl. / <i>Valeriana chinensis</i> L.	Shrub	April - December
156.	<i>Mirabilis jalapa</i> L. / 'GULABBAS'	Herb	Throughout the year
AMARANTHACEAE			
157.	<i>Achyranthus aspera</i> L. / 'LATJIRA'	Herb	August - February
158.	<i>Aerva lanata</i> (L.) Juss. ex Schult. / <i>Achyranthus lanata</i> L.	Herb	July - April
159.	<i>Aerva sanguinolenta</i> (L.) Blume / <i>Achyranthus sanguinolenta</i> L.	Herb	July - April
160.	<i>Alternanthera paronychioides</i> St.Hill.	Herb	Throughout the year
161.	<i>Alternanthera pungens</i> Kunth	Herb	Throughout the year
162.	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC. / <i>Gomphrena sessilis</i> L.	Herb	Throughout the year
163.	<i>Amaranthus caudatus</i> L. / 'RAMDANA'	Herb	August - October
164.	<i>Amaranthus spinosus</i> L. / 'KATELI CHAULAI'	Herb	Throughout the year
165.	<i>Amaranthus viridis</i> L. / 'CHAULAI'	Herb	Throughout the year
166.	<i>Celosia argentea</i> L. / 'SILVER'	Herb	August - December
167.	<i>Gomphrena celosoides</i> Mart.	Herb	July- April
168.	<i>Nothosaerva brachiata</i> (L.) Wight / <i>Achyranthus brachiata</i> L.	Herb	October - March
CHENOPODIACEAE			
169.	<i>Chenopodium album</i> L. / 'BADHUA'	Herb	September - March
POLYGONACEAE			
170.	<i>Polygonum barbatum</i> L. / 'AESA'	Herb	March - October

171.	<i>Polygonum glabrum</i> Willd.	Herb	October - April
172.	<i>Polygonum hydropiper</i> L.	Herb	February -September
173.	<i>Polygonum lapathifolium</i> L.	Herb	November - April
174.	<i>Polygonum nepalense</i> Meisn.	Herb	September - March
175.	<i>Polygonum plebeium</i> R.Br. /'CHATTIBHAJI'	Herb	December -April
176.	<i>Rumex dentatus</i> L. /'LALBIBI'	Herb	January - April
PROTEACEAE			
177.	<i>Grevillea robusta</i> A.Cunn. ex R.Br.	Tree	March-April
EUPHORBIACEAE			
178.	<i>Acalypha indica</i> L. /'KUPPI'	Herb	July - November
179.	<i>Codiaeum variegatum</i> (L.) Blume / <i>Croton variegatum</i> L.	Shrub	October - February
180.	<i>Croton bonplandianum</i> Baill.	Herb	March - April
181.	<i>Euphorbia drancunculoides</i> Lam. /'CHAGULPUTPUTI'	Herb	January - April
182.	<i>Euphorbia heyneana</i> Spreng.	Herb	September -October
183.	<i>Euphorbia heterophylla</i> L.	Herb	September - October
184.	<i>Euphorbia hirta</i> L. /'DUDHI'	Herb	August -October
185.	<i>Euphorbia hypericifolia</i> L. /'HAKSHARDANA'	Herb	September - November
186.	<i>Euphorbia thymifolia</i> L.	Herb	Throughout the year
187.	<i>Euphorbia tirucalli</i> L. /'THOR'	Shrub	August-September
188.	<i>Jatropha curcas</i> L. /'RATAN JOT'	Shrub	August - January
189.	<i>Mallotus philippensis</i> (Lam.) Muell Arg. / <i>Croton philippensis</i> Lam.	Tree	October - May
190.	<i>Phyllanthus amarus</i> Schumach.& Thonn. /'JARAMALA'	Herb	August - December
191.	<i>Phyllanthus urinaria</i> L.	Herb	July - November
192.	<i>Phyllanthus virgatus</i> G. Forster	Herb	August - November
193.	<i>Ricinus communis</i> L. /'ARANDI'	Shrub	September - May
CANNABACEAE			
194.	<i>Cannabis sativa</i> L. /'BHANG'	Herb	March - November
MORACEAE			
195.	<i>Ficus benghalensis</i> L. /'BARGAD'	Tree	Throughout the year
196.	<i>Ficus hispida</i> L.f. /'DADURI'	Tree	January -June
197.	<i>Ficus religiosa</i> L. /'PEEPAL'	Tree	April - September
198.	<i>Ficus virens</i> Dryander /'PAKAR'	Tree	April - January
SALICACEAE			
199.	<i>Populus alba</i> L. /'SAFEDA'	Tree	March - July
HYDROCHARITACEAE			
200.	<i>Hydrilla verticillata</i> (L.f.) Royle / <i>Serpicula verticillata</i> L.f.	Herb	November - April
201.	<i>Otelia alismoides</i> (L.) Pers. / <i>Stratiotes alismoides</i> L.	Herb	October - March
202.	<i>Vallisneria natans</i> (Lour.) Hara / <i>Physkium natans</i> Lour.	Herb	December - February
MUSACEAE			
203.	<i>Musa paradisiaca</i> L. /'KELA'	Herb	April - October
CANNACEAE			
204.	<i>Canna indica</i> L.	Herb	Throughout the year
AMARYLLIDACEAE			
205.	<i>Crinum asiaticum</i> L. /'PINDWR'	Herb	May - October
206.	<i>Pancratium zeylanicum</i> L.	Herb	April - May
AGAVACEAE			
207.	<i>Agave cantula</i> Roxb. /'KETAKI'	Herb	January - June
208.	<i>Dracaena elliptica</i> Thunb.	Shrub	March - September
DIOSCOREACEAE			
209.	<i>Dioscorea alata</i> L. /'BHAINSDHATE'	Climber	October - December
210.	<i>Dioscorea bulbifera</i> L. /'DANG KANDA'	Climber	July - November
LILIACEAE			
211.	<i>Asparagus racemosus</i> Willd. /'SATAWAR'	Shrub	August - January
PONTEDERIACEAE			
212.	<i>Eichhornia crassipes</i> (Mart.) Solms / <i>Pontederia crassipes</i> Mart.	Herb	April - November
COMMELINACEAE			
213.	<i>Commelina attenuata</i> J. Koenig ex Vahl	Herb	August - September
214.	<i>Commelina benghalensis</i> L.	Herb	August -January
215.	<i>Commelina diffusa</i> Burm.f.	Herb	June - August
216.	<i>Tonningia cucullata</i> (Roth) Kuntze / <i>Tradescantia cucullata</i> Roth	Herb	August - November
ARECACEAE			
217.	<i>Areca catechu</i> L. /'SUAPRI'	Palm	Throughout the year
218.	<i>Borassus flabellifer</i> L. /'TAD'	Palm	June - December

219.	<i>Phoenix sylvestris</i> (L.) Roxb./ <i>Elate sylvestris</i> L. / 'KHAJURI'	Palm	December- June
TYPHACEAE			
220.	<i>Typha angustifolia</i> L.	Herb	Throughout the year
ARACEAE			
221.	<i>Alocasia macrorrhiza</i> (L.) G. Don / <i>Arum macrorrhizon</i> L. / 'ARVI'	Herb	Not seen
CYPERACEAE			
222.	<i>Cyperus alulatus</i> Kern.	Herb	July- December
223.	<i>Cyperus brevifolius</i> (Rottb.) Hassk. / <i>Kyllinga brevifolia</i> Rottb.	Herb	Throughout the year
224.	<i>Cyperus compressus</i> L.	Herb	July- December
225.	<i>Cyperus cyperoides</i> (L.) Kuntze / <i>Scirpus cyperoides</i> L.	Herb	August –March
226.	<i>Cyperus iria</i> L.	Herb	August – February
227.	<i>Cyperus pumilus</i> L.	Herb	September – November
228.	<i>Cyperus rotundus</i> L. / 'MOTHA'	Herb	July- April
229.	<i>Cyperus tenuispica</i> Steud.	Herb	November –February
230.	<i>Fimbristylis miliacea</i> (L.) Vahl / <i>Scirpus miliaceus</i> L.	Herb	September - December
231.	<i>Scripus squarrosus</i> L.	Herb	October-May
POACEAE			
232.	<i>Apluda mutica</i> L.	Herb	September - November
233.	<i>Avena sativa</i> L.	Herb	November – March
234.	<i>Bambusa arundinacea</i> (Retz.) Willd. / <i>Bambos arundinacea</i> Retz.	Shrub	Not seen
235.	<i>Brachiaria reptans</i> (L.) Gardn. & C.E. Hubb./ <i>Panicum reptans</i> L.	Herb	July – October
236.	<i>Chloris barbata</i> Sw.	Herb	August – January
237.	<i>Coix aquatica</i> Roxb.	Herb	September - December
238.	<i>Cynodon dactylon</i> (L.) Pers. / <i>Panicum dactylon</i> L.	Herb	Throughout the year
239.	<i>Dactyloctenium aegyptium</i> (L.) Willd. / <i>Cynosurus aegyptius</i> L.	Herb	August November
240.	<i>Desmostachya bipinnata</i> (L.) Stapf / <i>Briza bipinnata</i> L.	Herb	August- October
241.	<i>Digitaria ciliaris</i> (Retz.) Keeler / <i>Panicum ciliare</i> Retz.	Herb	August – November
242.	<i>Echinochloa colonum</i> (L.) Link / <i>Panicum colonum</i> L.	Herb	August –April
243.	<i>Echinochloa crusgalli</i> (L.) P. Beauv. / <i>Panicum crusgalli</i> L.	Herb	August – November
244.	<i>Eleusine coracana</i> (L.) Gaertn. / <i>Cynosurus coracanus</i> L.	Herb	August –October
245.	<i>Eleusine indica</i> (L.) Gaertn./ <i>Cynosurus indicus</i> L.	Herb	August – November
246.	<i>Eragrostis tenella</i> (L.) P. Beauv. ex Roem. & Schult. / <i>Poa tenella</i> L.	Herb	July-October
247.	<i>Eragrostis unioides</i> (Retz.) Nees ex Steud. / <i>Poa unioides</i> Retz.	Herb	September –March
248.	<i>Hemarthria compressa</i> (L.f.) R.Br. / <i>Rotboellia compressa</i> L.f.	Herb	September –December
249.	<i>Imperata cylindrica</i> (L.) P. Beauv. / <i>Lagurus cylindricus</i> L.	Herb	August –April
250.	<i>Oplismenus burmannii</i> (Retz.) P. Beauv. / <i>Panicum burmannii</i> Retz.	Herb	July- September
251.	<i>Oryza sativa</i> L. / 'DHAN'	Herb	August- November
252.	<i>Panicum psilopodium</i> Trin.	Herb	July- November
253.	<i>Paspalidium flavidum</i> (Retz.) A.Camus / <i>Panicum flavidum</i> Retz.	Herb	July- September
254.	<i>Paspalidium punctatum</i> (Burm. f.) A. Camus / <i>Panicum punctatum</i> Burm. f.	Herb	August – September
255.	<i>Pennisetum polystachyon</i> (L.) Schult./ <i>Panicum polystachyon</i> L.	Herb	September –November
256.	<i>Pennisetum purpureum</i> Schumach.	Herb	September –November
257.	<i>Phalaris minor</i> Retz.	Herb	January- March
258.	<i>Phragmites karka</i> (Retz.) Trin. ex Steud. / <i>Arundo karka</i> Retz.	Herb	September – November
259.	<i>Polypogon monspeliensis</i> (L.) Desf. / <i>Alopecurus monspeliensis</i> L.	Herb	January- March
260.	<i>Saccharum benghalense</i> Retz.	Herb	October – November
261.	<i>Setaria glauca</i> (L.) P.Beauv. / <i>Panicum glaucum</i> L.	Herb	August –October
262.	<i>Setaria pumila</i> (Poir.) Roem. & Schult. / <i>Panicum pumilum</i> Poir.	Herb	August November
263.	<i>Setaria verticillata</i> (L.) P. Beauv. / <i>Panicum verticillatum</i> L.	Herb	August- October
264.	<i>Sorghum bicolor</i> (L.) Moench / <i>Holcus bicolor</i> L.	Herb	August - October
265.	<i>Sorghum halepense</i> (L.) Pers. / <i>Holcus halepensis</i> L.	Herb	March - April
266.	<i>Sporobolus diander</i> Beauv.	Herb	September - November
267.	<i>Thysanolaena maxima</i> (Roxb.) Kuntze / <i>Agrostis maxima</i> Roxb.	Herb	November - May
268.	<i>Zea mays</i> L.	Herb	July- September
CYCADACEAE			
269.	<i>Cycas revolute</i> Thunb./ 'SAGO CYCAS'	Tree	-
CUPRESSACEAE			
270.	<i>Thuja orientalis</i> L. 'SARA'	Tree	-
PINACEAE			
271.	<i>Pinus longifolia</i> Roxb. 'CHIR PINE'	Tree	-

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