

# Periodic Research

## Documentation of Floristic

### Compositions in Ramnagar College

### Campus, Purba Medinipur, West Bengal

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#### Abstract

Ramnagar College is situated at the lap of the Bay of Bengal. The climate of this region is of tropical type. Though the seasonal variation is not sound enough, there develops a wide spectrum of habit groups. Present communications recorded altogether 170 species (wild 128 & planted 42) of angiosperms (144 dicots & 26 monocots) under 151 genera (126 dicots & 25 monocots) and 64 families (48 dicots & 16 monocots) from this campus. The ratio of monocots and dicots is 1: 5.53. The percentage of herbs, shrubs, trees, Twiners, Tendril climbers, Scramblers, Ramblers and Liana is 43.52%, 12.35%, 25.89%, 8.82%, 4.11%, 3.52 %, 1.17% and 0.59% respectively. The dominant families in the campus are Acanthaceae, Amaranthaceae, Apocynaceae, Araceae, Arecaceae, Asteraceae, Cucurbitaceae, Euphorbiaceae, Fabaceae, Moraceae, Rubiaceae and Verbenaceae. Species showing poor frequency are: *Streblus asper*, *Solanum trilobatum*. Fast growing invasion of alien weeds i.e. *Argemone mexicana*, *Blumea lacera*, *Mikania micrantha*, *Parthenium hysterophorus* are causing major threats to the normal growth of the other plant species in this campus. Among the important medicinal herbs, *Andrographis paniculata*, *Hydrocotyle asiatica* and *Hygrophila auriculata* etc are common in the campus. From germplasm conservation point of view ornamental and medicinal gardens have already been established within the campus. Generally the vegetation pockets are the major source of information for the preparation of data bank of flora, rare, endangered, keystone species, etc. So overall information collected from vegetation survey the Academicians, Researchers as well as Conservators can be benefitted to a certain extent for their further studies.

**Keywords:** Documentation, Floristic Elements, Conservation.

#### Introduction

To know the floristic elements at Ramnagar College Campus and the same time for their documentation an initiative has been taken. Vegetation survey is one of the best methods to know the floral components of a particular area or a region. This information ultimately gives the sphere to construct a data bank and subsequently this data bank will be utilised for the preparation of district, state and regional flora, etc.

Literature survey reflects that a number of workers, plant explorers, researchers have done their works from time to time from Midnapore districts [Mukherjee & Banerjee, 1968; Rao *et al.*, 1970; Maji & Sikdar, 1983; De, 2002; Samanta & Panda, 2011; Das & Samanta, 2006; Das, 2009; Das & Ghosh, 2014; Das, 2017; Pal & Jain, 1998; Samanta & Das, 2003; Bhakat, 2003; Bhakat & Sen, 2015; Pant *et al.*, 1993; Paria, 2005; Samanta & Biswas, 2009; Sasmal *et al.*, 2009; Panda & Samanta, 2012, 2014; Samanta & Panda, 2012, 2016; Bhakta, 2017]. Present initiatives have been taken as prerequisite for the formation of coastal zone flora.

#### Study Area

For the preparation of overall floristic database, Ramnagar College Campus covering an area of (7927, sq Mts.) was selected as study area. Ramnagar College is situated in between 21.7182° N latitude and 87.5581° E longitudes near by the Bay of Bengal.

The soil of Purba Medinipur district is alluvial type. The maximum temperature varies in the district from 34°C to 44°C during summer and comes down to 9°C during winter. The average annual rainfall is of 1600

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mm. Climate is of tropical type. The climatic set up, physiographic condition etc favours there the formation of a flora of diversified plant groups.

### Materials and Methods

#### Field Survey

Collection of specimens at Ramnagar college campus was done during the year 2017-2019 [at least three times in a year i. e. premonsoon (February to May); monsoon (June-September) and post monsoon (October-January) to record the flowering and fruiting periods] for the preparation of comprehensive database of angiosperms. After the collection, the specimens were properly identified with the relevant literatures of Hooker, 1872-1897; Prain, 1903; FWB, 1997; Haines, 1921-1925; Paul, *et al.*, 2015; Ranjan, *et al.*, 2016. Field and herbarium methods were followed according to Jain and Rao (1977). Finally the voucher specimens were deposited at Ramnagar College Herbarium. For updating species names the website of The Plant List

**Table-1a: Angiospermic flora (Dicot) of Ramnagar College Campus. Symbols used: Fl. = Flowering & Frt. = Fruiting; “-“= Not Recorded; Months: 1= January to 12= December.**

Name of the plant	Family	Local name (s)	Flr. & Frt. periods	Habit & Status	Mode of propagation
<b>MAGNOLIOPSIDA</b>					
<i>Abrus precatorius</i> L.	Fabaceae	Kunch phal (Red)	9-2	Twiner; Wild	Seeds
<i>Acacia nilotica</i> (L.) Delile	Fabaceae	Babla	3-9	Small tree; Wild	Seeds
<i>Acaia auriculiformis</i> Benth.	Fabaceae	Akashmani	4-8	Tree; Planted	Seeds
<i>Acalypha indica</i> L.	Euphorbiaceae	Muktojhuri	1-12	Herb; Wild	Seeds
** <i>Achras sapota</i> L..	Sapotaceae	Sabeda	-	Tree; Planted	Seeds
<i>Achyranthes aspera</i> L.	Amaranthaceae	Apang	1-12	Herb; Wild	Seeds
<i>Aegle marmelos</i> (L.) Correa	Rutaceae	Bel	5-3	Tree; Planted	Seeds
<i>Ageratum conyzoides</i> (L.) L.	Asteraceae	Dochunti	8-11	Herb; Wild	Seeds
<i>Albizia lebbeck</i> (L.) Benth.	Fabaceae	Siris	3-11	Tree; Wild	Seeds
# <i>Allamanda cathartica</i> L.	Apocynaceae	Har-kakra; Allamanda	8-11	Twiner; Planted	Seeds
<i>Alstonia scholaris</i> (L.) R. Br.	Apocynaceae	Chhatim	8-3	Tree; Planted	Seeds
<i>Alternanthera sessilis</i> (L.) R. Br. ex DC.	Amaranthaceae	Chaanchi	1-12	Herb; Wild	Seeds
<i>Alternanthera polygonoides</i> (L.) R.Br. ex Sweet	Amaranthaceae	Ghora-gima	2-4	Herb; Wild	Seeds
<i>Amaranthus spinosus</i> L.	Amaranthaceae	Kanta-notey	1-12	Herb; Wild	Seeds
<i>Amaranthus viridis</i> L.	Amaranthaceae	Ban-notey	10-6	Herb; Wild	Seeds
<i>Ammania baccifera</i> L.	Lythraceae	Dad mari	1-3	Herb; Wild	Seeds
<i>Anacardium occidentale</i> L.	Anacardiaceae	Kajubadam	12-5	Tree; Planted	Seeds
<i>Andrographis paniculata</i> (Burm.f.) Nees	Acanthaceae	Kalmegh	8-3	Herb; Wild	Seeds
<i>Annona reticulata</i> L.	Annonaceae	Nona-ata	5-1	Tree; Wild	Seeds
* <i>Argemone mexicana</i> L.	Papaveraceae	Shialkanta	1-8	Herb; Wild	Seeds
<i>Artocarpus integer</i> Merr. (Thunb.)	Moraceae	Kanthal	8-11	Tree; Planted	Seeds
<i>Azadirachta indica</i> A. Juss.	Meliaceae	Neem	3-7	Tree; Planted	Seeds
<i>Bauhinia purpurea</i> L.	Fabaceae	Kanchan	5-4	Small tree; Planted	Seeds
<i>Blumea lacera</i> (Burm.f.) DC.	Asteraceae	Barokuksima	12-5	Herb; Wild	Seeds
<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Punarnova	6-12	Herb; Wild	Seeds and

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(<http://www.theplantlist.org>.) was consulted. The list of accepted plant names were arranged alphabetically (Table-1a & 1b) along with their family, local name (s), flowering and fruiting periods, habit, status and mode of propagation were presented in tabulated form.

Present attempt has been taken to enumerate the floristic elements of Ramnagar College Campus and subsequently framing a data bank of its own and their probable conservation strategies.

### Observations and Discussion

Present communications recorded altogether 170 species of angiosperms (144 dicots & 26 monocots) under 151 genera (126 dicots & 25 monocots) and belonging to 64 families (48 dicots & 16 monocots) from this campus (Fig.-1). Attempts have also been taken to enumerate the habit groups, flowering and fruiting periods, methods of propagation, dominant families along with listing of exotics, rare plants, ornamental plants and aquatic plants (Table-1a & 1b).

					root-stocks
<b>Bougainvillea spectabilis</b> Willd.	Nyctaginaceae	Baganbilas	-	Scrambler; Planted	-
<b>Bryophyllum pinnatum</b> (Lam.) Oken	Crassulaceae	Patharkuchi	10-3	Herb; Wild	Leaf cuttings
<b>Caesalpinia bonduc</b> (L.) Roxb.	Fabaceae	Natakaranja	8-4	Scrambler; Wild	Seeds
<b>C. pulcherrima</b> (L.) Sw.	Fabaceae	Krishnachura	9-4	Tree; Planted	Seeds
<b>Calotropis gigantea</b> (L.) Dryand.	Asclepiadaceae	Akanda	1-8	Under shrub; Wild	Seeds
<b>Cardiospermum halicacabum</b> L.	Sapindaceae	Shibjhul; Latapthaki	4-1	Tendrill climber; Wild	Seeds
<b>Cassia fistula</b> L.	Fabaceae	Bandarlathi	3-12	Tree; Wild	Seeds
<b>#Casuarina equisetifolia</b> L.	Casuarinaceae	Jhau	2-12	Tree; Planted	Seeds
<b>Catharanthus roseus</b> (L.) G. Don	Apocynaceae	Nayantara	1-12	Shrub; Planted	Seeds
<b>Cayratia trifolia</b> (L.) Domin	Vitaceae	Amal-lata	4-10	Tendrill climber; Wild	Seeds
<b>Celosia argentea</b> L.	Amaranthaceae	Murgijhuti	10-12	Herb; Wild	Seeds
<b>Chenopodium ambrosiodes</b> L.	Chenopodiaceae	Chandan beto	12-3	Herb; Wild	Seeds
<b>Chrozophora rotleri</b> (Geiseler) A.Juss. ex Spreng.	Euphorbiaceae	Shadevi	2-6	Under shrub; Wild	Seeds
<b>Cissus quadrangularis</b> L. [ Fig.-7]	Vitaceae	Harbhanga, Hajora	5-9	Tendrill climber; Wild	Seeds and stem stocks
<b>Cleome viscosa</b> L.	Capparaceae	Hurhure	8-1	Herb; Wild	Seeds
<b>Clerodendrum inerme</b> (L.) Gaertn.	Verbenaceae	Bonjui	1-6	Rambler; Wild	Seeds and stem stocks
<b>C.infortunatum</b> L.	Verbenaceae	Ghetu	2-7	Shrub; Wild	Seeds
<b>Clitoria ternatea</b> L.	Fabaceae	Aparajita	5-12	Twiner; Planted	Seeds
<b>Coccinia grandis</b> (L.) Voigt. [Fig.-10]	Cucurbitaceae	Makal, Telakucha	5-11	Tendrill climber; Wild	Seeds and stem cuttings
<b>Cocculus hirsutus</b> (L.) W.Theob.	Menispermaceae	Huver	11-5	Twiner; Wild	Seeds and stem cuttings
<b>Corchorus olitorius</b> L.	Tiliaceae	Mithapat	7-9	Herb; Wild	Seeds
<b>Crotalaria retusa</b> L.	Fabaceae	Atasi	10-12	Shrub; Wild	Seeds
<b>Croton bonplandianus</b> Baill.	Euphorbiaceae	Churchuri	1-12	Herb; Wild	Seeds
<b>Cuscuta reflexa</b> Roxb.	Cuscutaceae	Swarnalata	1-3	Herb; Wild	Stem cuttings
<b>Dalbergia sissoo</b> DC.	Fabaceae	Sisoo	2-8	Tree; Planted	Seeds
<b>Datura stramonium</b> L.	Solanaceae	Dhutra, Sadadhutra	8-3	Shrub; Wild	Seeds
<b>#Delonix regia</b> (Hook.) Raf.	Fabaceae	Krishna chura	10-6	Tree; Planted	Seeds
<b>Dentella repens</b> (L.) J.R.Forst & G.Forst.	Rubiaceae	Bhuiapat	7-9	Herb; Wild	Seeds
<b>Duranta repens</b> L.	Verbenaceae	Mehedi	3-7	Shrub; Wild	Seeds and stem cuttings
<b>Eclipta prostrata</b> (L.) L.	Asteraceae	Keshut ; lalkeshari	1-12	Herb; Wild	Seeds
<b>Emilia sonchifolia</b> DC. ex Wt.	Asteraceae	-	2-5	Herb; Wild	Seeds
<b>Enydra fluctuans</b> DC.	Asteraceae	Helencha	2-5	Herb; Wild	Stem

					cuttings
<i>Eucalyptus globulus</i> Labill.	Myrtaceae	Eucalyptus	2-7	Tree; Planted	Seeds
<i>Eupatorium odoratum</i> L.	Asteraceae	-	2-5	Shrub ; Wild	Seeds
<i>Euphorbia hirta</i> L.	Euphorbiaceae	Bara karni	2-12	Herb; Wild	Seeds
<i>Evolvulus nummularius</i> (L.) L.	Convolvulaceae	Bhui ankra	6-10	Herb; Wild	Seeds
<i>Ficus bengalensis</i> L.	Moraceae	Bat	2-8	Tree; Wild	Seeds
<i>F. religiosa</i> L.	Moraceae	Ashatha	2-10	Tree; Wild	Seeds
<i>F. semicordata</i> Buch.-Ham.ex Sm.	Moraceae	Domur	6-9	Tree; Wild	Seeds
# <i>Gomphrena celosioides</i> Mart.	Amaranthaceae	Jangli botamphul	12-5	Herb; Wild	Seeds
<i>Heliotropium indicum</i> L.	Boraginaceae	Hatisur	5-11	Herb; Wild	Seeds
<i>Hemigraphis hirta</i> (Vahl) T. Anderson	Acanthaceae	Mushakani	4-8	Herb; Wild	Seeds and root-stocks
<i>Hydrocotyle asiatica</i> L.	Apiaceae	Thankuni	7-1	Twiner; Wild	Stem cuttings
<i>Hygrophila auriculata</i> (Schumach) Heine	Acanthaceae	Kulekhara ; Gokhula jaum	9-2	Shrub; Wild	Stem cuttings
<i>Ipomoea aquatica</i> Forssk.	Convolvulaceae	Kalmishak	9-2	Herb; Wild	Stem cuttings
# <i>I. quamoclit</i> L.	Convolvulaceae	Tarulata	8-12	Twiner; Wild	Seeds
# <i>Ixora coccinea</i> L.	Rubiaceae	Rangan	3-11	Shrub; Planted	Seeds
<i>Jatropha curcas</i> L.	Euphorbiaceae	Sada 4Varendra	3-10	Shrub; Wild	Seeds
<i>J. gossypifolia</i> L. [Fig.-1]	Euphorbiaceae	Lal veranda	4-8	Shrub; Wild	Seeds
<i>Justicia adhatoda</i> L. [Fig.-6]	Acanthaceae	Basak	4-10	Shrub; Planted	Seeds and stem cuttings
<i>J. gendarussa</i> Burm.f.	Acanthaceae	Jagadmadan	8-10	Herb; Wild	Seeds and stem cuttings
# <i>Lagerstroemia speciosa</i> (L.) Pers.	Lythraceae	Jarool	3-10	Tree; Planted	Seeds
* <i>Lantana camara</i> L.	Verbenaceae	Bhutbhiravi	1-12	Scrambler; Wild	Seeds and stem cuttings
<i>Leucas aspera</i> (Willd.) Link	Lamiaceae	Swetodrone	2-8	Herb; Wild	Seeds
<i>Lippia javanica</i> (Burm.f.) Spreng.	Verbenaceae	Bannebu	3-12	Herb; Wild	Seeds
<i>Ludwigia adscendens</i> (L.) H.Hara	Onagraceae	Keshardam	9-2	Herb; Wild	Seeds
<i>Luffa cylindrica</i> (L.) M.Roem.	Cucurbitaceae	Purul	5-12	Tendrill climber; Wild	Seeds
<i>Lysiloma latisiliquum</i> (L.) Benth.	Fabaceae	Subabul	11-3	Small tree; Planted	Seeds
<i>Mangifera indica</i> L.	Anacardiaceae	Aam; UI	12-6	Tree; Planted	Seeds
<i>Melochia corchorifolia</i> L.	Sterculiaceae	Bilpat	9-12	Herb; Wild	Seeds
<i>Micrococca mercurialis</i> (L.) Benth.	Euphorbiaceae	-	4-7	Herb; Wild	Seeds
* <i>Mikania micrantha</i> Kunth.	Asteraceae	Taralata	1-12	Twiner; Wild	Seeds
<i>Mimosa pudica</i> L.	Fabaceae	Lajjabati	1-12	Scrambler; Wild	Seeds
<i>Moringa pterygosperma</i> Gaertn.	Moringaceae	Sajney	11-2	Tree; Planted	Seeds and stem cuttings
<i>Murraya paniculata</i> (L.) Jack	Verbenaceae	Kamini	2-12	Shrub; Planted	Seeds and stem cuttings
# <i>Nyctanthes arbor—tristis</i> L.	Oleaceae	Seuli; Sapon	9-12	Small tree; Planted	Seeds

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<b><i>Nymphaea nouchali</i></b> Burm.f.	Nymphaeaceae	Saluk	6-9	Herb; Wild	Seeds
<b><i>Ocimum canum</i></b> Sims	Lamiaceae	Naya tulsi	8-12	Herb; Wild	Seeds
<b><i>O. sanctum</i></b> L.	Lamiaceae	Tulsi	1-12	Herb; Planted	Seeds
<b><i>Oldenlandia diffusa</i></b> (Willd.) Roxb.	Rubiaceae	Khetpapra	11-5	Herb; Wild	Seeds
<b><i>O. paniculata</i></b> L.	Rubiaceae	Khetpapra	3-6	Herb; Wild	Seeds
<b><i>Oxalis corniculata</i></b> L.	Oxalidaceae	Amrul	6-12	Herb; Wild	Seeds
<b>*<i>Parthenium hysterophorus</i></b> L.	Asteraceae	Jayadrath	1-12	Herb; Wild	Seeds
<b>#<i>Peltophorum pterocarpum</i></b> (DC.) K. Heyne	Fabaceae	Arunjyati	3-1	Tree; Planted	Seeds
<b><i>Pergularia daemia</i></b> (Forssk.) Chivo.	Asclepiadaceae	Dudhilata	9-6	Twiner; Wild	Seeds
<b><i>Phyla nodiflora</i></b> (L.) Greene	Verbenaceae	Bhuiokra	9-3	Herb; Wild	Seeds
<b><i>Pithecolobium dulce</i></b> (Roxb.) Benth.	Fabaceae	Bengri	2-6	Tree; Planted	Seeds
<b>*<i>Pluchea indica</i></b> (L.) Less. [Fig.-5]	Asteraceae	Bagan tulsi	3-11	Herb; Wild	Seeds and stem cuttings
<b><i>Plumeria rubra</i></b> L.	Apocynaceae	Garurchampa	5-10	Tree; Planted	Seeds
<b><i>Polygonum chinensis</i></b> L.	Polygonaceae	-	5-12	Herbs; Wild	Seeds
<b><i>Polyalthia longifolia</i></b> (Sonn.) Thwaites	Annonaceae	Devdaru	3-9	Tree; Planted	Seeds
<b><i>Psidium guajava</i></b> L.	Myrtaceae	Peyara	9-3	Tree; Planted	Seeds
<b><i>Quisqualis indica</i></b> L.	Combretaceae	Raganbel	1-12	Liana; Wild	Seeds
<b>#<i>Rauvolfia tetraphylla</i></b> L. [Fig.-8]	Apocynaceae	Sarpagandha	3-5	Shrub; Wild	Seeds
<b><i>Ricinus communis</i></b> L.	Euphorbiaceae	Reri	9-3	Shrub; Wild	Seeds
<b>#<i>Ruellia tuberosa</i></b> L.	Acanthaceae	Chotpoty	7-12	Herb; Wild	Seeds
<b><i>Rungia pectinata</i></b> (L.) Nees	Acanthaceae	Pindi	5-12	Herb; Wild	Seeds
<b><i>Scoparia dulcis</i></b> L.	Scrophulariaceae	Mithapata	5-12	Herb; Wild	Seeds
<b><i>Senna alata</i></b> (L.) Roxb.	Fabaceae	Dadmardan	8-3	Shrub; Wild	Seeds
<b><i>S. alexandrina</i></b> Mill.	Fabaceae	Sena	1-3	Under shrub; Wild	Seeds
<b><i>S. occidentalis</i></b> (L.) Link	Fabaceae	Kalkasunda	7-12	Shrub; Wild	Seeds
<b><i>Sida cordifolia</i></b> L.	Malvaceae	Swetberela	8-1	Herb; Wild	Seeds
<b><i>Syzygium cumini</i></b> (L.) Skeels	Myrtaceae	Jamkul	7-9	Tree; Wild	Seeds
<b><i>Solanum nigrum</i></b> L.	Solanaceae	Kakmachi	7-2	Herb; Wild	Seeds
<b><i>Solanum sisymbriifolium</i></b> Lam.	Solanaceae	Sada kantikar	5-12	Under shrub; Wild	Seeds
<b>**<i>S. trilobatum</i></b> L. [Fig.-4]	Solanaceae	Lata-begun	7-10	Scrambler; Wild	Seeds
<b><i>Spermacoce articularis</i></b> (L.f.) F.N. Williams	Rubiaceae	Madanhanti	7-12	Herb; Wild	Seeds
<b><i>Stephania hernandifolia</i></b> (Willd.) Walp.	Menispermaceae	Kanadi	9-3	Twiner; Wild	Seeds
<b><i>Sterculia foetida</i></b> L.	Sterculiaceae	Baksa-badam-	3-2	Tree; Planted	Seeds
<b>**<i>Streblus asper</i></b> Lour.	Moraceae	Seorah	6-11	Tree; Wild	Seeds
<b>**<i>Swietenia macrophylla</i></b> King	Meliaceae	Mahogini	3-10	Tree; Planted	Seeds
<b><i>S. mahagoni</i></b> (L.) Jacq.	Verbenaceae	Mahogani	4-12	Tree; Planted	Seeds
<b>#<i>Tecoma stans</i></b> (L.) Juss. ex Kunth.	Bignoniaceae	Sonapatti	12-2	Shrub; Planted	Seeds and stem cuttings
<b><i>Tectona grandis</i></b> L.f.	Verbenaceae	Segun	7-1	Tree; Planted	Seeds
<b><i>Tephrosia purpurea</i></b> (L.) Pers.	Fabaceae	Banee	10-3	Herb; Wild	Seeds

<i>Thevetia peruviana</i> (Pers.) Schum.	Apocynaceae	Karabi	1-12	Small tree; Planted	Seeds and stem cuttings
<i>Tinospora sinensis</i> (Lour.) Merr. [Fig.-9]	Menispermaceae	Gulanha	3-12	Twiner; Wild	Seeds and stem cuttings
<i>Tragia involucrata</i> L.	Euphorbiaceae	Bichuti	10-1	Twiner; Wild	Seeds and root-stocks
<i>Trichosanthes cucumerina</i> L.	Cucurbitaceae	Banchichinga	7-12	Tendrill climber; Wild	Seeds
<i>T. dioica</i> (Roxb.) Sw.	Cucurbitaceae	Bon-patol	6-11	Tendrill climber; Wild	Seeds
<i>Tridax procumbens</i> (L.) L.	Asteraceae	Tridaksha	1-12	Herb; Wild	Seeds
<i>Triumfetta rhomboidea</i> Jacq.	Tiliaceae	Bon okra	8-11	Herb; Wild	Seeds
<i>Urena lobata</i> L.	Malvaceae	Kunguiya	10-12	Herb; Wild	Seeds
<i>Vallisneria spiralis</i> L.	Hydrocharitaceae	-	4-9	Herb; Wild	Seeds
<i>Vernonia coerulea</i> J. Kost.	Asteraceae	Choto-kukshim	1-12	Herb; Wild	Seeds
<i>Vincetoxicum indicum</i> (Burm.f.) Mabb.	Asclepiadaceae	Antamul	10-2	Twiner; Wild	Seeds and stem cuttings
<i>Vitex negundo</i> L.	Verbenaceae	Nishinda	3-10	Small tree; Wild	Seeds and stem cuttings
<i>Ziziphus oenoplia</i> (L.) Mill.	Rhamnaceae	Shiakul	4-12	Scrambler; Wild	Seeds

\*Fast growing invasive alien species

Table-1b: Angiospermic flora (Monocots) of Ramnagar College Campus [. Symbols used: Fl. = Flowering & Frt.= Fruiting; “-“= Not Recorded; Months: 1= January to 12= December.

Name of the plant	Family	Vernacular name (s)	Flr. & Frt. &	Habit & status	Mode of propagation
LILIOPSIDA					
<i>Acorus calamus</i> L.	Acoraceae	Bach	5-8	Herb; Planted	Root-stocks
<i>Agave sisalina</i> Perrine	Agavaceae	Sisal	10-3	Herb; Planted	Root-stocks
<i>Amorphophilus angulatus</i> Hett. & A.Vogel	Araceae	Koochu	4-12	Herb; Wild	Rhizome
<i>Andropogon aciculatus</i> Retz.	Poaceae	Chorkanta	1-5	Herb; Wild	Seeds; Root-stocks
<i>Areca catechu</i> L.	Arecaceae	Supari	-	Tree; Planted	Seeds
** <i>Bambusa tulda</i> Roxb.	Poaceae	Bans	11-12	Herb; Wild	Root-stocks
<i>Borassus flabellifer</i> L.	Arecaceae	Tal	2-8	Tree; Planted	Seeds
<i>Cocos nucifera</i> L.	Arecaceae	Narikel	8-11	Tree; Planted	Seeds
<i>Commelina benghalensis</i> L.	Commelinaceae	Kanchira	8-12	Herb; Wild	Root-stocks
# <i>Costus speciosus</i> (J. Koenig) Sm.	Zingiberaceae	Keu	6-11	Herb; Wild	Rhizome
<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Durba	1-12	Herb; Wild	Seeds and root-stocks
<i>Cyperus rotundus</i> L.	Cyperaceae	Golmutha	6-10	Herb; Wild	Seeds and rhizome
<i>Dioscorea bulbifera</i> L.	Dioscoreaceae	Ban alu	9-12	Twiner; Wild	Root-stocks
<i>D. pentaphylla</i> L.	Dioscoreaceae	Shuaralu	9-12	Twiner; Wild	Root-stocks
<i>Eichhornia crassipes</i> (Mart.) Solms	Pontederiaceae	Kachuri pana	1-12	Herb; Wild	Root-stocks
<i>Eragrostis tenella</i> (L.) Beauv..	Poaceae	-	6-10	Herb; Wild	Seeds
<i>Gloriosa superba</i> L. [Fig.-2]	Liliaceae	Ulatchandal	7-12	Rambler; Wild	Seeds and root-stocks
<i>Monochoria hastata</i> (L.) Solms	Pontederiaceae	Neelopalam, tirpatipana	2-10	Herb; Wild	Rhizome
<i>Musa paradisiaca</i> L.	Musaceae	Kanch-kala	1-12	Herb; Wild	Rhizome
<i>Phoenix dactylifera</i> L.	Arecaceae	Khenjur	12-6	Tree; Planted	Seeds
<i>Pistia stratiotes</i> L.	Araceae	Tokapana	5-10	Herb; Wild	Seeds and root-

					stocks
** <i>Ravenala madagascariensis</i> Sonn.	Strelitziaceae	Panthapadap; Travellers' Tree	1-12	Herb; Planted	Rhizome
#** <i>Roystonea regia</i> (Kunth) O.F.Cook	Arecaceae	Rajpalm	8-12	Tree; Planted	Seeds and root-stocks
<i>Scindapsus officinalis</i> (Roxb.) Schott	Araceae	-	7-9	Herb; Wild	Root-stocks
<i>Smilax zeylanica</i> L. [Fig.-3]	Smilacaceae	Kumarika	7-12	Herb; Wild	Seeds
<i>Vanda tessellata</i> (Roxb.) Hook. ex G.Don	Orchidaceae	Rasna	4-8	Herb; Wild	Seeds and root-stocks

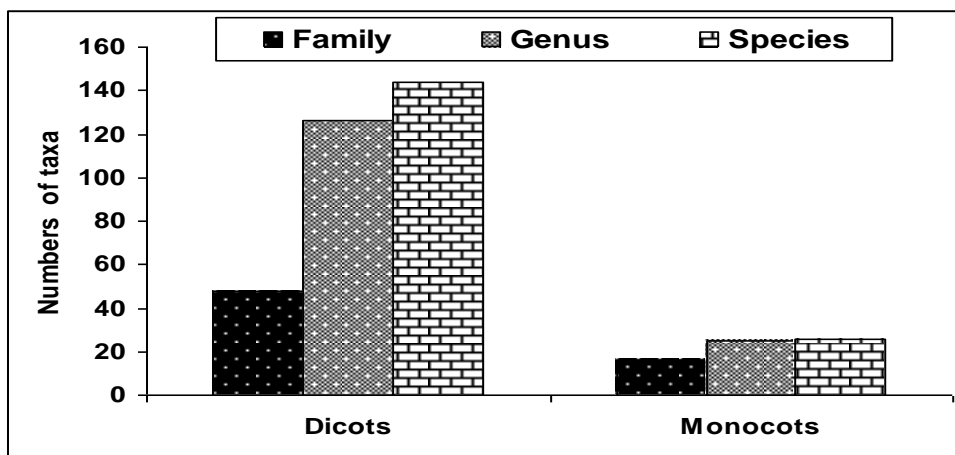
#Ornamental plants; \*\* Rare plants

Table- 2: Dominant families with number of species

Sl. No.	Families	Total No. of genus	Total No. of species
1.	Fabaceae	16	20
2.	Asteraceae	11	11
3.	Verbenaceae	9	10
4.	Acanthaceae & Euphorbiaceae	6	7
5.	Amaranthaceae	4	7
6.	Apocynaceae	6	6
7.	Araceae & Arecaceae	4	4
8.	Moraceae and Rubiaceae	3	5
9.	Solanaceae	2	4
10.	Cucurbitaceae	3	4

Table-3: List of exotic (alien) plants

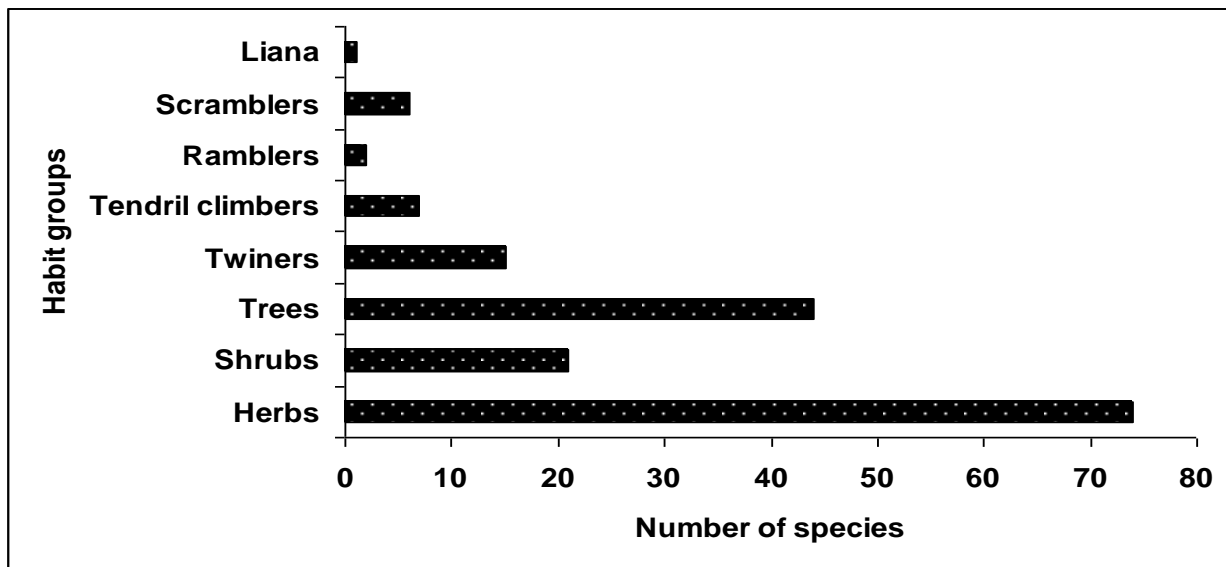
Name of the species	Family	Native place/origin
1. <i>Achras sapota</i> L.	Sapotaceae	Central America
2. <i>Ageratum conyzoides</i> L.	Asteraceae	South America
3. <i>Allamanda cathartica</i> L.	Apocynaceae	Central America
4. <i>Alternanthera polygonoides</i> (L.) R.Br. ex Roem. & Schult.	Amaranthaceae	Brazil
5. <i>Annona reticulata</i> L.	Annonaceae	Central Tropical America
6. <i>Argemone mexicana</i> L.	Papaveraceae	Mexico
7. <i>Cardiospermum halicacabum</i> L.	Sapindaceae	Tropical America
8. <i>Casuarina equisetifolia</i> Forst.	Casuarinaceae	Australia
9. <i>Catharanthus roseus</i> (L.) G. Don	Apocynaceae	Madagascar
10. <i>Chenopodium ambrosioides</i> L.	Chenopodiaceae	Central America
11. <i>Eichhornia crassipes</i> (Mart.) Solms	Pontederiaceae	Brazil
12. <i>Emilia sonchifolia</i> DC. ex Wt.	Asteraceae	Afro-Asia
13. <i>Eucalyptus globulus</i> Labill.	Myrtaceae	Australia
14. <i>Eupatorium odoratum</i> L.	Asteraceae	Central & South America
15. <i>Gomphrena celosioides</i> Mart.	Amaranthaceae	Tropical South America
16. <i>Ipomoea aquatica</i> Forssk.	Convolvulaceae	Old World
17. <i>Jatropha curcas</i> L.	Eupobiaceae	Tropical America
18. <i>J. gossypifolia</i> L.	Eupobiaceae	Brazil
19. <i>Lantana camara</i> L.	Verbenaceae	Tropical America
20. <i>Lysiloma latisiliquum</i> (L.) Benth	Fabaceae	America
21. <i>Mikania micrantha</i> Kunth.	Asteraceae	Subtropical zones of N., C. & S. America
22. <i>Parthenium hysterophorus</i> L.	Asteraceae	Central Tropical America
23. <i>Ravenala madagascariensis</i> Sonn.	Strelitziaceae	Malagasy
24. <i>Ricinus communis</i> L.	Euphorbiaceae	Tropical Africa
25. <i>Ruellia tuberosa</i> L.	Acanthaceae	Tropical America
26. <i>Senna alata</i> (L.) Roxb.	Fabaceae	Tropical America
27. <i>Senna occidentalis</i> (L.) Link	Fabaceae	South America
28. <i>Solanum sisymbriifolium</i> Lam.	Solanaceae	Central America
29. <i>Spermacoce articularis</i> (L.f.) F.N.Williams	Rubiaceae	South & Central America
30. <i>Tridax procumbens</i> (L.) L.	Asteraceae	South America



**Fig.-1: Numerical break up of taxa according to their habit groups occurring at Ramnagar College Campus.**

With the keen review it was revealed that out of recorded 170 plant species at Ramnagar College Campus, only 74 species are herbs, 21 species are shrubs, 44 species are trees, 15 species are twiners,

7 species are tendril climbers, 6 species are scramblers, 2 species are ramblers and only 1 species is liana (Fig.-2).



**Fig.-2: Numerical break up of taxa according to their habit groups occurring at Ramnagar College Campus**

Regarding the flowering and fruiting periods 3 sessions have been selected i.e. Pre-monsoon, Mon-soon and Post-monsoon. From this calendar it was found that in Pre-monsoon total 363 species show flowering and fruiting periods, out of which 83 species in February, 94 species in March, 88 species in April and 98 species in May. In the Mon-soon periods there are 435 species show flowering and fruiting activity, out of which 99 species in June, 102 species in July, 114 species in August and 120

species in September. In Post-monsoon periods only 407 species show flowering and fruiting activities, out of which 120 species in October, 110 species in November, 104 species in December and 73 species in January. From the above observation it was concluded that the species showing highest flowering and fruiting activities in monsoon season (in both the months September and October) followed by post-monsoon season and pre-monsoon season (in between January and February) [Fig-3a & 3b].



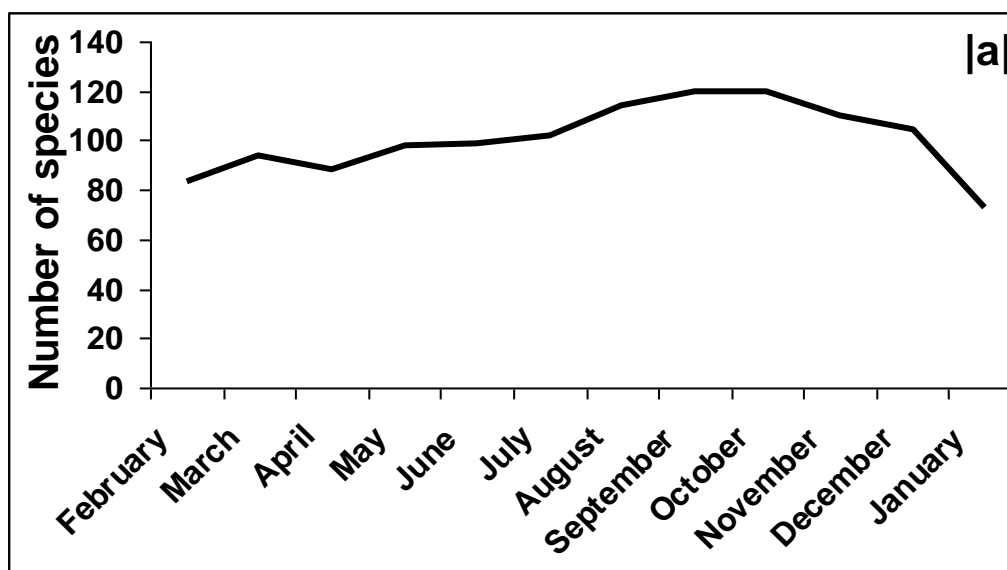


Fig-3a: Showing Flowering and fruiting periods monthwise as against their numbers.

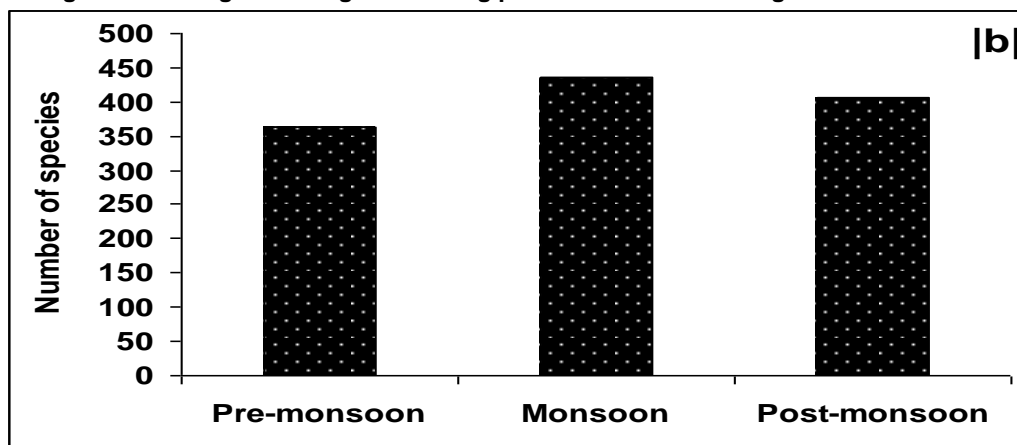


Fig-3b: Showing Flowering and fruiting periods in Pre-monsoon, Mon-soon and Post- monsoon as against their total numbers of species.

In general the survival of the species is carried out by the process of reproduction. They can reproduce following different methods (Table-1a & 1b). From the above survey report it was found that out of 170 species, only 125 species reproduces by the agent of seed; 10 species through seeds and root-stocks; 16 species by seeds and stem cuttings; 6 species each by root-stocks and rhizomes; 5 species by stem cuttings and other 1 species each through leaf-cuttings and seeds and rhizome.

Out of recorded 48 families, 10 dominant families showing their highest number of genus and species. In the (Table-2 ) regarding the number of species and genus, it was found that the family Fabaceae is scoring highest (20/16) followed by Asteraceae (11/11); Verbenaceae (9/10); Acanthaceae and Euphorbiaceae (6/7); Amaranthaceae (4/7); Apocynaceae (6/6); Moraceae and Rubiaceae (3/5); Araceae and Arecaceae (4/4); Solanaceae (2/4) and Cucurbitaceae (3/4).

In this survey, there reports 30 alien species (Table-3). Out of which, 19 species are the native places of America; 3 species from Brazil; 2 species

from Australia and 1 each from Mexico, Madagascar, Afro-Asia, Tropical Africa, Malagasy and from the Old world.

Regarding the aquatic plants, 9 species were recorded from this campus. They are *Eichhornia crassipes*, *Enydra fluctuans*, *Hygrophila auriculata*, *Ipomoea aquatica*, *Ludwigia adscendens*, *Monochoria hastata*, *Nymphaea nouchali*, *Polygonum chinensis* and *Vallisneria spiralis* (Table-1a & 1b).

### Conclusion

As the vegetation plays a key role for maintaining the stability of an ecosystem but also the major sources of food, fodder, medicines, building goods, fuels, etc. So information gathers from vegetation survey the Academicians, Researchers as well as Conservators can be benefitted to a certain extent for their further studies. On critical observation it was found that some of the species are not existed in this campus, due to the expansion of the institutional buildings, unauthorised grazing, calamities like super cyclones and also abrupt climate change etc possibly are the prime factors for their gradual disappearance. For the interests of a

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sustainable development, existence of future generation, rare, endangered and economically potent species should be maintained in different way I suggest the establishment of a Germplasm Preservation Centre (ex-situ or in situ conservation) within this campus.

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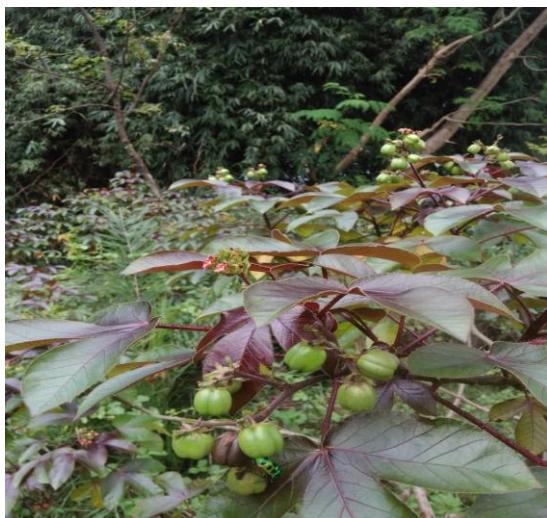
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## Some of the Photographs from Study Area



**Fig-1:** *Jatropha gossypifolia* L.



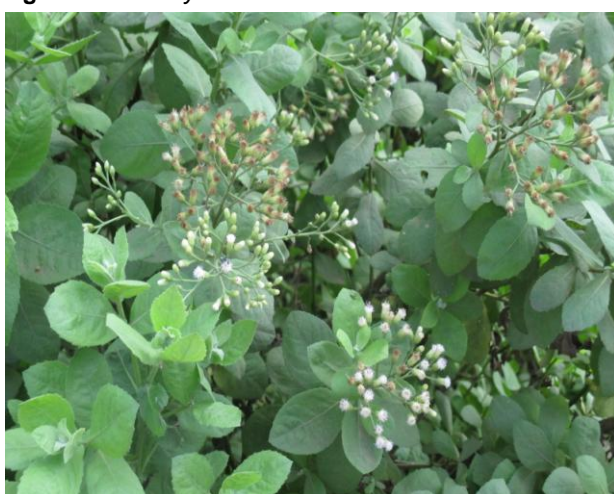
**Fig-2:** *Gloriosa superba* L.



**Fig-3:** *Smilax zeylanica* L.



**Fig-4:** *Solanum trilobatum* L.



**Fig-5:** *Plucea indica* (L.) Less.



**Fig-6:** *Justicia adhatoda* L.





**Fig.-7:** *Cissus quadrangularis* L.



**Fig.-8:** *Rauvolfia tetraphylla*



**Fig.-9:** *Tinospora sinensis* (Lour.) Merr.



**Fig.-10:** *Coccinia grandis* (L.) Voigt.