Floristic composition and life form spectrum analysis of vascular plants growing in Gargi College campus, University of Delhi, Delhi-49

Article · November 2020

DOI: 10.32381/JPSR.2020.36.1-2.22

3 authors:

Vera Kapai
Gargi College
6 PUBLICATIONS **39** CITATIONS
SEE PROFILE

Renu Soni
Gargi College
15 PUBLICATIONS **84** CITATIONS
SEE PROFILE

Renu Puri
University of Delhi
2 PUBLICATIONS **6** CITATIONS
SEE PROFILE

Jour Pl Sci Res **36 (1-2)** 167-175 2020

Floristic composition and life form spectrum analysis of vascular plants growing in Gargi College campus, University of Delhi, Delhi-49

Renu Soni[1]*, Renu Puri[1] and Vera Yurngamla Kapai[1]

[1]*Department of Botany, Gargi College, Delhi University, Delhi-110007*

[*]*Corresponding author e-mail : renu_mundhara@yahoo.co.in*

Floristic diversity is specific for an ecological area and plays an important role in every ecosystem. The present study deals with floristic composition and life form analysis of vascular plants, which grow in Gargi college campus and are compared with Raunkiaer's life form spectrum. The whole campus area was surveyed during 2018 to 2019 for the record of plant specimens. Plant species growing wild as well as cultivated have been listed belonging to vascular plants (angiosperm, gymnosperm and pteridophyte). A total of 199 plant species of 172 genera and 69 families were recorded, including 2 pteridophytes, 7 gymnosperms and 190 angiosperms (23% monocots and 77% dicots). Fabaceae was found as the most dominant family in the flora of the project area that contributed 17 species, followed by Apocynaceae (10 species), Asteraceae, Euphorbiaceae, Moraceae and Poaceae (9 species), Asparagaceae and Malvaceae (8 species), Arecaceae (7 species) while rest of the families shared 1-6 species. It was recorded that herbs were dominating fraction in the floristic composition that contributed 38%, followed by trees (32%), shrubs (16%), climbers (5%) and shrub to trees (4%), whereas rest of 4 categories were in the range of 3- 0.005%. Phanerophytes were the most abundant life form that constituted 55.28% of the total flora, followed therophytes by (29.15%), chamaephytes (6.53%), geophytes (5.03%) hemicryptophytes (3.02%), and hydrophytes (1.01%).

Keywords: Analysis, Campus, Diversity, Floristic, Habit, Life Form, and Spectrum

INTRODUCTION

Floristic study deals with the information of plant diversity under specific environmental conditions. This study is required to know the dynamic nature of community (Maitreya, 2015). The vegetation of an area is governed by the complex environmental factors including climate, soil, biota and phytosociological history(Thakur & Puri, 2016). Conservation of biodiversity is of immense importance and understanding the distribution of plants is central to conserving biodiversity and managing ecosystems for long term viability and sustainability (Kuralarasi *et al.,* 2017). Plants provide many ecosystem services thus acquiring floristic data becomes necessary to determine the plant wealth of a region(Wagay *et al.,* 2015). Raunkiaer's (1934) system is based primarily on the position of perennating buds or organs and plants are classified into five main classes: Phanerophytes, Chamaephytes, Hemicryptophytes, Cryptophytes and Therophytes. The life form represents the sum of adaptive features of plant species to climate and is a significant physiognomic characteristic which specifies micro and macroclimate of a particular area and have been widely used in vegetation studies (Shimwell 1971).

The percentage of different life form classes in any floristic community is known as the biological spectrum (Ambasht & Ambasht, 2002). Study of floristic composition and life forms is important to find out phytoclimatic zones of a particular area (Sidanand & Kotresha 2012). The aim of this study is to give a complete list of plant species growing in study area.

Gargi College was established in the year 1967 affiliated to University of Delhi, Delhi, India. It is situated in the southern part of Delhi at 77.2191° E Longitude and 28.5550° N Latitude. The College has a built up area of 37224.306 sq. m. spread over 9.198 acres of land. In the present study, we provide and

DOI:-https://doi.org/10.32381/JPSR.2020.36.1-2.22

discuss the floristic survey of the college.

MATERIAL AND METHODS

During July 2018-July 2019, catalogue of Vascular Plants was prepared by floristic survey in Gargi College. Species were identified using The Flora of Delhi (Maheshwari, 1963), "Flowering Plants of India, Nepal and Bhutan" (Naithani & Hooker, 1990) and Trees of Delhi: A Field guide (Kishen, 2006). The validity of names of the taxa was checked using IPNI (2011) and APGIII classification (APG III 2009).

Data on floristic composition, life form and habit of the constituent species were recorded. Vascular Plants were grouped in here as Angiosperms, Gymnosperms and Pteridophytes. Number of species was recorded in each group. Number of dicots and monocots, number of species per family and per genus were recorded. All the species were assigned a suitable life form such as Phanerophytes (Ph), Chamaephytes (Ch), Hemicryptophytes (Hc), Hydrophytes (H), Geophytes (G) and Therophytes (Th). A biological spectrum was prepared by calculating the percentage of species in each group. The spectrum was compared with the Raunkiaer's (1934) normal biological spectrum.

RESULTS AND DISCUSSION

A total of 199 plant species of 172 genera and 69 families were recorded from the study area. Different life form classes were assigned based on the Raunkiaer's system of classification (Table 1). These include 2 pteridophytes, 7 gymnosperms, 190 angiosperms and within angiosperms 146 dicot and 44 monocots. It was recorded that herbs were dominating fraction in the floristic composition that contributed 38%, followed by trees (32%), shrubs (16%), climbers (5%) and shrub to trees (4%), whereas rest of 4 categories were in the range of 3-0.005%.

In terms of species strength, Fabaceae with 17 species was found as the most dominant family in the flora of the study area, followed by Apocynaceae with 10 species, Asteraceae, Euphorbiaceae, Moraceae and Poaceae had 9 species each, Asparagaceae and Malvaceae had 8 species each, Arecaceae had 7 species, Brassicaceae, Rutaceae had 6 species each, Amaranthaceae, Lamiaceae and Solanaceae with 5 species each, Rubiaceae, Araceae and Myrtaceae with 4 species each, while rest of the families shared 1-3 species (Fig.1). In terms of species, *Ficus* had maximum number of species (7), followed by *Euphorbia* which had 6 species, and *Asparagus, Calotropis, Citrus, Clerodendrum, Cycas, Datura, Eragrostis, Murraya, Oxalis, Phyllanthus, Plumeria, Portulaca, Sansevieria, Senna, Tradescantia, Washingtonia* each had two species while rest of the genera had one species.

In the biological spectrum, the trend of life forms in present study sites observed as Phanerophytes were the most abundant life form that constituted 55.28% of the total flora, followed Therophytes by (29.15%), Chamaephytes (6.53%), Geophytes (5.03%), Hemicryptophytes (3.02%), and Hydrophytes (1.01%). The biological spectrum of the study area was compared with Raunkiaer's (1934) normal biological spectrum (Table 2). Analysis of the present work reveals the phytoclimate to be of Phanero-therophytic type. The Phanerophytes and Therophytes together constitute 84.43% of the life-forms proportion. In the study area, higher percentage of phanerophytes and therophytes, as compared to other life forms, may be due to a response to topographic variations, the dry and hot climatic conditions and human interferences (Dabgar *et al.,* 2010). Both Phanerophytes and Therophytes depicts warm moist and warm dry climate. It is experienced that vegetation in a stress of biotic pressure gradually increase the percentage of therophytes leading to change in the biological spectrum to thero-phanerophytic bioclimate (Thakur 2015). Similar phytoclimatic conditions are reported earlier (Thakur & Khare 2011).These life-forms are affected by the bioclimate and human disturbances, in a specific area and also indicate the tolerance and ecological amplitude of a species (Durrani *et al.,* 2010).

CONCLUSIONS

In this study, dominance of Phanerophytes and Therophytes indicates their adaptive nature and their survival in adverse conditions. These results were also

Table 1: Floristic composition, life form, and habit of the species in the study area (Gargi college, Delhi)

Name of the Plant	Vasculars Plants	D/M	Common name	Family	Habit	Life forms
Abutilon indicum (Link) Sweet	A	D	Indian mallow	Malvaceae	Shrub	Ph
Acacia auriculiformis A.Cunn. ex Benth.	A	D	Ear leaf acacia	Fabaceae	Tree	Ph
Acalypha indica L.	A	D	Indian Nettle	Euphorbiaceae	Herb	Th
Achyranthes aspera L.	A	M	Prickly chaff flower	Amaranthaceae	Herb	Th
Aegle marmelos (L.) Corrêa	A	D	Stone apple	Rutaceae	Tree	Ph
Ageratum conyzoides L.	A	D	Goatweed	Asteraceae	Herb	Th
Alcea rosea L.	A	D	Hollyhock	Malvaceae	Herb	Ch
Aloe vera (L.) Burm. f.	A	M	Guar Patta	Asphodelaceae	Herb	Ch
Alstonia scholaris (L.) R.Br.	A	D	Indian Devil Tree	Apocynaceae	Tree	Ph
Alternanthera pungens Kunth	A	D	Joyweed	Amaranthaceae	Herb	Ch
Amaranthus viridis L.	A	D	Green Amaranth	Amaranthaceae	Herb	Th
Araucaria columnaris (J.R.Forst.) Hook.	G		Cook's Pine	Araucariaceae	Tree	Ph
Argemone Mexicana L.	A	D	Mexican Poppy	Papavaraceae	Herb	Th
Artocarpus heterophyllus Lam.	A	D	Jackfruit	Moraceae	Tree	Ph
Asparagus densiflorus(Kunth) Jessop	A	M	Asparagus fern	Asparagaceae	Herb	Ch
Asparagus racemosus Willd.	A	M	Shatavari	Asparagaceae	Herb	Th
Asphodelus tenuifolius Cav.	A	M	Onion weed	Asphodelaceae	Herb	Ch
Azadirachta indica A.Juss.	A	D	Indian lilac	Meliaceae	Tree	Ph
Bauhinia variegata (L.) Benth.	A	D	Orchid tree	Fabaceae	Tree	Ph
Beaucarnea recurvata Lem.	A	D	Ponytail palm	Asparagaceae	Tree	Ph
Boerhaavia diffusa L.	A	D	Common Hogweed	Nyctaginaceae	Herb	Hc
Bombax ceiba L.	A	D	Silk Cotton Tree	Malvaceae	Tree	Ph
Bougainvillea spectabilis Willd	A	D	Booganbel	Nyctaginaceae	Vine (climber)	Ph
Bryophyllum pinnatum (Lam.) Oken	A	D	Miracle leaf	Crassulaceae	Herb	G
Butea monosperma (Lam.) Taub.	A	D	Flame of the forest	Fabaceae	Tree	Ph
Caladium sp.	A	M	Elephant ear	Araceae	Herb	G
Calendula officinalis L.	A	D	Pot marigold	Asteraceae	Herb	Th
Calliandra haematocephala Hassk.	A	D	Red Powder puff	Fabaceae	Shrub	Ph
Calotropis gigantea (L.) Dryand.	A	D	Crown flower	Apocynaceae	Shrub	Ph
Calotropis procera (Aiton) W.T.Aiton	A	D	Sodom apple	Apocynaceae	Shrub	Ph
Canna indica L.	A	M	African arrowroot	Cannaceae	Herb	Th
Cannabis sativa L.	A	D	Marijuana, Bhang	Cannabaceae	Herb	Th
Capsella bursa-pastoris (L.) Medik	A	D	Shepherd's purse	Brassicaceae	Herb	Th
Cardamine hirsuta L.	A	D	Hairy bittercress	Brassicaceae	Herb	Th
Carica papaya L.	A	D	Papaya	Caricaceae	Tree	Ph
Carissa carandas L.	A	D	Crane Berry	Apocynaceae	Shrub	Ph
Caryota urens L.	A	M	Fishtail Palm	Arecaceae	Tree	Ph
Cascabela thevetia (L.) Lippold	A	D	Yellow oleander	Apocynaceae	Shrub to small tree	Ph
Cassia fistula L.	A	D	Golden shower	Fabaceae	Tree	Ph

Casuarina equisetifolia L.	A	D	Whistling Pine	Casuarinaceae	Tree	Ph
Catharanthus roseus (L.) G.Don	A	D	Cape periwinkle	Apocynaceae	Herb/ under Shrub	Th
Cenchrus ciliaris L.	A	M	Buffel grass	Poaceae	Herb	Hc
Chenopodiastrum murale (L.) S.Fuentes, Uotila & Borsch	A	M	Nettleleaf goosefoot	Amaranthaceae	Herb	Th
Chenopodium album L.	A	M	Lamb's quarters	Amaranthaceae	Herb	Th
Chlorophytum comosum (Thunb.) Jacques	A	M	Spider plant	Asparagaceae	Herb	Th
Citrus aurantifolia (Christm. & Panz.) Swingle	A	D	Kagzi nimbu	Rutaceae	Shrub to Small tree	Ph
Citrus limon (L.) Burm. F.	A	D	Lemon	Rutaceae	Shrub to Small tree	Ph
Clematis paniculata J.F.Gmel.	A	D	Juhi Bel	Ranunculaceae	Vine (climber)	Ph
Clerodendrum phlomidis L.f	A	D	Arni	Lamiaceae	Shrub	Ph
Clerodendrum splendens G.Don	A	D	Flaming glory blower	Lamiaceae	Vine (climber)	Ph
Combretum indicum (L.) DeFilipps	A	D	Rangoon creeper	Combretaceae	Vine (climber)	Ph
Commelina benghalensis L.	A	M	Benghal dayflower	Commelinaceae	Herb	Th
Consolida ajacis (L.) Schur	A	D	Rocket larkspur	Ranunculaceae	Herb	Th
Corchorus aestuans L.	A	D	East Indian Mallow	Malvaceae	Herb	Th
Cordia dichotoma G.Forst.	A	D	Indian cherry	Boraginaceae	Tree	Ph
Coronopus didymus (L.) Sm.	A	D	Swine cress	Brassicaceae	Herb	Th
Crinum asiaticum L.	A	M	Spider lily	Amaryllidaceae	Herb	G
Cycas rumphii Miq.	G	-	Queen sago palm	Cycadaceae	Tree	Ph
Cycas revoluta Thunb.	G	-	Sago Palm	Cycadaceae	Tree	Ph
Cynodon dactylon (L.) Pers.	A	M	Bermuda grass, Dhoob	Poaceae	Herb	Hc
Cyperus rotundus L.	A	M	Nut sedge,	Cyperaceae	Herb	Th
Dalbergia sissoo Roxb.	A	D	North Indian rosewood	Fabaceae	Tree	Ph
Datura metel L.	A	D	Devil's trumpet	Solanaceae	Shrub	Ch
Datura stramonium L.	A	D	Jimsonweed	Solanaceae	Shrub	Ch
Delonix regia (Boj. ex Hook.) Raf.	A	D	Royal Poinciana, Gulmohar	Fabaceae	Tree	Ph
Dendrocalamus strictus (Roxb.) Nees	A	M	Calcutta bamboo	Poaceae	Tree	Ph
Digitaria ciliaris (Retz.) Koeler	A	M	Tropical crabgrass	Poaceae	Herb	Hc
Dioscorea bulbifera L.	A	M	Air potato	Dioscoreaceae	Vine (climber)	Ph
Dracaena sp.	A	M	Dracaena	Asparagaceae	Herb/ Shrub	Ph
Duranta erecta L.	A	D	Golden Dew Drop	Verbenaceae	Shrub	Ph
Dypsis lutescens (H.Wendl.) Beentje & J.Dransf.	A	M	Areca Palm	Arecaceae	Tree	Ph
Eclipta prostrata (L.) L.	A	D	False daisy	Asteraceae	Herb	Th

Eichhornia crassipes (Mart.) Solms	A	M	Water hyacinth	Pontederiaceae	Herb	H
Elaeocarpus sp.	A	D	Rudraksha	Elaeocarpaceae	Tree	Ph
Eleusine indica (L.) Gaertn.	A	M	Goosegrass	Poaceae	Herb	Th
Epipremnum aureum (Linden & André) G.S. Bunting	A	M	Devil's ivy	Araceae	Vine (climber)	Ch
Equisetum sp.	P	-	Horsetail	Equisetaceae	Herb	Hc
Eragrostis amabilis (L.) Wight & Arn. ex Nees	A	M	Japanese lovegrass	Poaceae	Herb	Th
Eragrostis minor Host	A	M	Little Lovegrass	Poaceae	Herb	Th
Eucalyptus camaldulensis Dehnh.	A	D	Red gum	Myrtaceae	Tree	Ph
Euphorbia heterophylla L.	A	D	Wild Poinsettia	Euphorbiaceae	Herb	Th
Euphorbia hirta L.	A	D	Asthma herb	Euphorbiaceae	Herb	Th
Euphorbia milii Des Moul.	A	D	Crown of thorns	Euphorbiaceae	Shrub	Th
Euphorbia prostrata Aiton	A	D	Prostrate sand mat	Euphorbiaceae	Herb	Th
Euphorbia thymifolia L.	A	D	Dwarf spurge	Euphorbiaceae	Herb	Th
Euphorbia tirucalli L.	A	D	Pencil Cactus	Euphorbiaceae	Shrub	Th
Ficus virens Aiton	A	D	White fig	Moraceae	Tree	Ph
Ficus racemosa L.	A	D	Cluster fig	Moraceae	Tree	Ph
Ficus benghalensis L.	A	D	Banyan	Moraceae	Tree	Ph
Ficus benjamina L.	A	D	Weeping fig	Moraceae	Tree	Ph
Ficus carica L.	A	D	Fig	Moraceae	Tree	Ph
Ficus religiosa L.	A	D	Sacred fig	Moraceae	Tree	Ph
Ficus retusa L.	A	D	Indian Laurel fig	Moraceae	Tree	Ph
Gossypium arboreum L.	A	D	Cotton	Malvaceae	Shrub	Ph
Grevillea robusta A.Cunn. ex R.Br.	A	D	Silky Oak	Proteaceae	Tree	Ph
Hamelia patens Jacq.	A	D	Fire Bush	Rubiaceae	Shrub	Ph
Hibiscus rosa-sinensis L.	A	D	China Rose	Malvaceae	Shrub	Ph
Holoptelea integrifolia Planch	A	D	Indian Elm	Ulmaceae	Tree	Ph
Hydrilla verticillata (L.f.) Royle	A	M	Water thyme	Hydrocharitaceae	Herba ceous	H
Hymenocallis littoralis(Jacq.) Salisb.	A	M	Beach spider lily	Amaryllidaceae	Herb	G
Iberis amara L.	A	D	Candytuft	Brassicaceae	Herb	Th
Ixora coccinea L.	A	D	jungle flame	Rubiaceae	Shrub	Th
Jasminum officinale L.	A	D	Jasmine	Oleaceae	Climber	Ph
Jatropha integerrima Jacq.	A	D	Jatropha	Euphorbiaceae	Shrub	Ph
Juniperus sp.	G	-	Juniper	Cupressaceae	Conif erous tree	Ph
Justicia adhatoda L.	A	D	Malabar nut	Acanthaceae	Shrub	Ch
Lantana camara L.	A	D	Common Lantana	Verbenaceae	Shrub	Ph
Latania lontaroides (Gaertner) H.E.Moore	A	M	Red Latan Palm	Arecaceae	Palm tree	Ph
Launaea nudicaulis (L.) Hook.f	A	D	Bold-leaf Launaeae	Asteraceae	Herb	Th
Lawsonia inermis L.	A	D	Henna	Lythraceae	Shrub	Ph
Leucaena leucocephala (Lam.) de Wit	A	D	Lead tree	Fabaceae	Shrub to tree	Ph

Limonia acidissima L.	A	D	Wood Apple	Rutaceae	Tree	Ph
Livistona chinensis (Jacq.) R.Br. ex Mart.	A	M	Chinese Fan Palm	Arecaceae	Palm tree	Ph
Lobularia maritima (L.) Desv.	A	D	Sweet alyssum	Brassicaceae	Herb	Th
Madhuca longifolia (J.Konig) J.F.Macbr.	A	D	Indian Butter Tree	Sapotaceae	Tree	Ph
Magnolia champaca (L.) Baill. ex Pierre	A	D	Champa	Magnoliaceae	Tree	Ph
Malva parviflora L.	A	D	Small flowered mallow	Malvaceae	Herb	Th
Mangifera indica L.	A	D	Mango	Anacardiaceae	Tree	Ph
Manilkara zapota (L.) P.Royen	A	D	Sapodilla	Sapotaceae	Tree	Ph
Mansoa alliacea Gentry.	A	D	Garlic vine	Bignoniaceae	Vine (climber)	Ph
Mazus pumilus (Burm. f.) Steenis	A	D	Japanese mazus	Mazaceae	Herb	Th
Melaleuca viminalis (Sol. ex Gaertn.) Byrnes	A	D	Bottle Brush	Myrtaceae	Large shrub or small tree	Ph
Melia azedarach L.	A	D	Chinaberry tree	Meliaceae	Tree	Ph
Mimosa pudica L.	A	D	Touch-me-not	Fabaceae	Herb	Ch
Mimusops elengi L.	A	D	Bullet wood	Sapotaceae	Tree	Ph
Monstera deliciosa Liebm.	A	M	Fruit salad plant	Araceae	Epiphyte	Ph
Moringa oleifera Lam.	A	D	Drum Stick tree	Moringaceae	Tree	Ph
Morus nigra L.	A	D	Black mulbery	Moraceae	Tree	Ph
Murraya koenigii (L.) Sprengel	A	D	Curry leaf	Rutaceae	Shrub	Ph
Murraya paniculata (L.)Jacq.	A	D	Jasmine orange	Rutaceae	Shrub to small tree	Ph
Musa x *paradisiaca* L.	A	M	Banana	Musaceae	tree-like herb-	Ph
Neolamarckia cadamba (Roxb.) Bosser	A	D	Burflower-tree	Rubiaceae	Tree	Ph
Nephrolepis sp.	P		Swordfern	Nephrolepidaceae	Herb	G
Nerium oleander L.	A	D	Indian Oleander	Apocynaceae	Shrub	Ph
Nicotiana plumbaginifolia Viv.	A	D	Tex-Mex Tobacco	Solanaceae	Herb	Th
Nyctanthes arbor-tristis L.	A	D	Harshringar	Oleaceae	Shrub to small tree	Ph
Ocimum tenuiflorum L.	A	D	Holy basil	Lamiaceae	Sub shrub/ Herb	Th
Hedyotis corymbosa (L.) Lam.	A	D	Diamond Flower	Rubiaceae	Herb	Th
Opuntia stricta (Haw.) Haw	A	D	Erect prickly pear	Cactaceae	Shrub	Ph
Oxalis corniculata L.	A	D	Indian Sorrel	Oxalidaceae	Herb	Ch
Oxalis debilis var. corymbosa (DC.) Lourteig	A	D	Pink Wood Sorrel	Oxalidaceae	Herb	G
Parthenium hysterophorus L.	A	D	Congress grass	Asteraceae	Herb	Th
Petrea volubilis L.	A	D	Purple wreath	Verbenaceae	Vine	Ph
Phyllanthus fraternus G.L.Webster	A	D	Gulf Leaf-Flower	Phyllanthaceae	Herb	Th
Phyllanthus emblica L.	A	D	Indian gooseberry	Phyllanthaceae	Tree	Ph

Pinus roxburghii Sarg.	G	-	Chir Pine	Pinaceae	Tree	Ph
Platycladus orientalis (L.) Franco	G	-	Biota	Cupressaceae	Conifer ous tree	Ph
Plumeria obtusa L.	A	D	White frangipani	Apocynaceae	Shrub	Ph
Plumeria rubra L.	A	D	Pagoda Tree	Apocynaceae	Shrub to small tree	Ph
Poa annua L.	A	M	Annual meadow grass	Poaceae	Herb	Th
Polyalthia longifolia Sonn.	A	D	False Ashoka	Annonaceae	Tree	Ph
Portulaca grandiflora Hook.	A	D	Moss-rose purslane	Portulacaceae	Herb	Th
Portulaca oleracea L.	A	D	Common purslane	Portulacaceae	Herb	Th
Portulacaria afra Jacq.	A	D	Dwarf Jade plant	Didiereaceae	Shrub	Th
Prosopis cineraria (L.) Druce	A	D	Shami tree	Fabaceae	Tree	Ph
Prunus persica (L.) Batsch	A	D	Peach	Rosaceae	Tree	Ph
Psidium guajava L.	A	D	Guava	Myrtaceae	Tree	Ph
Pterocarpus santalinus L.f.	A	D	Red sandalwood	Fabaceae	Tree	Ph
Punica granatum L.	A	D	Pomegranate	Lythraceae	Shrub	Ph
Putranjiva roxburghii Wall.	A	D	Putranjiva	Putranjivaceae	Tree	Ph
Ricinus communis L.	A	D	Castor bean	Euphorbiaceae	Shrub	Ph
Rosa sp.	A	D	Rose	Rosaceae	Shrub	Ph
Ruscus aculeatus L.	A	M	Butcher's-broom	Asparagaceae	Shrub	Ge
Sabal palmetto (Walt.) Lodd.	A	M	Cabbage palm	Arecaceae	Tree	Ph
Salvia splendens Sellow ex J.A. Schultes	A	D	Scarlet sage	Lamiaceae	Herb	Th
Sansevieria trifasciata 'Hahnii'	A	M	Bird's Nest Sansevieria	Asparagaceae	Herb	G
Sansevieria trifasciata Prain	A	M	Snake plant	Asparagaceae	Herb	G
Sapindus mukorossi Gaertn.	A	D	Indian soapberry	Sapindaceae	Tree	Ph
Saraca asoca (Roxb.) Willd.	A	D	Sita Ashok	Fabaceae	Tree	Ph
Senegalia catechu (L.f.) P.J.H.Hurter & Mabb.	A	D	Catechu	Fabaceae	Tree	Ph
Senna occidentalis (L.) Link	A	D	Coffee senna	Fabaceae	Under shrub	Th
Senna siamea (Lam.) Irwin et Barneby	A	D	Siamese Cassia	Fabaceae	Tree	Ph
Setaria viridis (L.) P.Beauv.	A	M	Green bristlegrass	Poaceae	Herb	Th
Sisymbrium irio L.	A	D	London Rocket	Brassicaceae	Herb	Th
Solanum nigrum L.	A	D	Black nightshade	Solanaceae	Herb/ Shrub	Th
Sonchus arvensis L.	A	D	Field Sow-thistle	Asteraceae	Herb	Th
Spergula arvensis L.	A	D	Corn spurry	Caryophyllaceae	Herb	Th
Stellaria media (L.) Vill.	A	D	Chickweed	Caryophyllaceae	Herb	Th
Sterculia foetida L.	A	D	Tropical Chestnut,	Malvaceae	Tree	Ph
Strychnos nux-vomica L.	A	D	Poison nut	Loganiaceae	Tree	Ph
Syngonium podophyllum Schott	A	M	Arrowhead plant	Araceae	creeper or climbing plant	Hc

Syzygium cumini (L.) Skeels	A	D	Indian Blackberry	Myrtaceae	Tree	Ph
Tabernaemontana divaricata (L.) R. Br. ex Roem. & Schult.	A	D	Crape jasmine	Apocynaceae	Shrub	Ph
Tagetes sp.	A	D	Marigold	Asteraceae	Herb	Th
Tamarindus indica L.	A	D	Tamarind	Fabaceae	Tree	Ph
Tecoma stans (L.) Juss. ex Kunth	A	D	Yellow Bells	Bignoniaceae	Shrub	Ph
Tectona grandis L.f.	A	D	Teak	Lamiaceae	Tree	Ph
Terminalia arjuna (Roxb.) Wight & Arn.	A	D	Arjun	Combretaceae	Tree	Ph
Tradescantia pallida (Rose) D.R.Hunt	A	M	Purple queen	Commelinaceae	Herb	Ch
Tradescantia spathacea Sw.	A	M	Moses-in-the-cradle	Commelinaceae	Herb	Ch
Trianthema portulacastrum L.	A	D	Giant pigweed	Aizoaceae	Herb	Th
Tribulus terrestris L.	A	D	Puncture vine	Zygophyllaceae	Herb	Th
Tridax procumbens L.	A	D	Coat-button	Asteraceae	Herb	Th
Vachellia farnesiana (L.) Wight et Arn.	A	D	Sweet Acacia	Fabaceae	Tree	Ph
Cyanthillium cinereum(L.) H.Rob.	A	D	Ash colored fleabane	Asteraceae	Herb	Th
Washingtonia filifera (Lindl.) H.Wendl.	A	M	California Fan Palm	Arecaceae	Tree	Ph
Washingtonia robusta H.Wendl.	A	M	Mexican fan palm	Arecaceae	Tree	Ph
Withania somnifera (L.) Dunal	A	D	Indian Ginseng	Solanaceae	Shrub	Ph
Zamia pygmaea Sims	G	-	Red Dwarf cycad	Zamiaceae	Tree	G

Ph- Phanerophytes, Ch- Chamaephytes, Hc- Hemicryptophytes, G-Geophytes or Cryptophytes, Th- Therophytes, H-Hydrophytes, A-Angiosperm, G-Gymnosperm, P-Pteridophyte, D-Dicot, M-Monocot

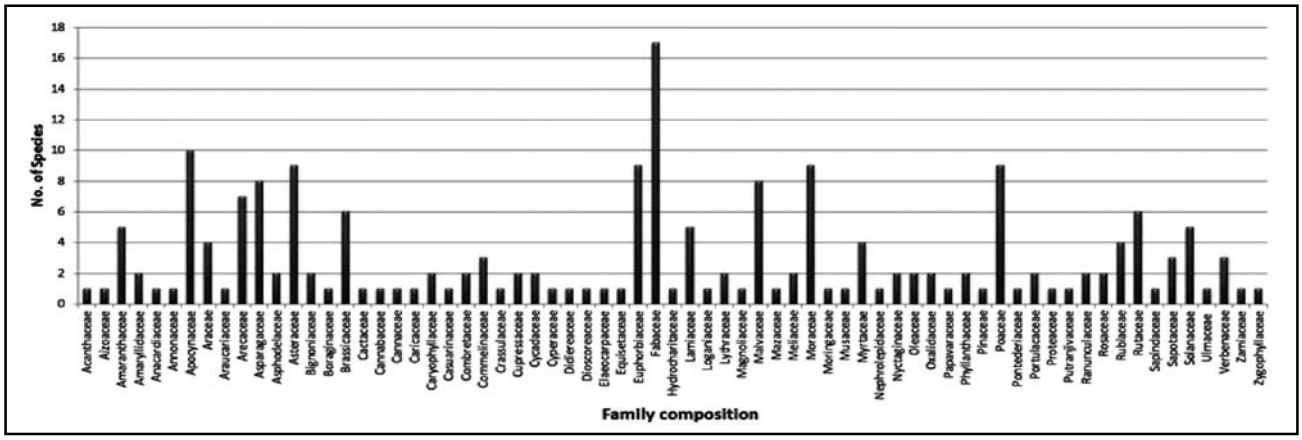

Fig. 1. Family composition of the floristic diversity in the Study Area.

Table 2: Comparison of different Life forms Distribution in study area with that of Raunkiaer's Distribution.

Life form classes	Species recorded	% of species	Raunkiaer's normal % spectrum
Chamaephytes	13	6.53	09
Geophytes	10	5.03	06
Hydrophytes	2	1.01	2
Hemicryptophytes	6	3.02	26
Phanerophytes	110	55.28	46
Therophytes	58	29.15	13

indicative of the interference of biotic factors like anthropogenic activities. Assessing and documenting plant diversity is significant as this information helps in conservation of the biological diversity. Therefore, we suggest maintaining and conserving the flora as much as possible in our study area. This will allow the natural bioclimate and lifeforms balanced.

ACKNOWLEDGEMENTS

The authors are thankful to the authorities of Gargi College for the support in this study.

References

Ambasht RS and Ambasht NK 2002 Applied ecology or biodiversity, Modern trends in Applied terrestrial Ecology (eds Ambasht RS and N.K. Ambasht N), Kluwer Academic Publishers, New York.

Angiosperm Phylogeny Group III (APG III) 2009 *Botanical Journal of the Linnean Society,* 161(2) 105-121.

Dabgar YB Solanki HA Mali MS and Khokhariya BP 2010 *India Plant Archives* 10 589-593.

Durrani MJ Razaq A Muhammad SG and Hussain F *Pakistan Journal of Plant Sciences* 16 (1) 29-36.

IPNI 2011.The International Plant Name Index.http:// www.ipni.org.

Kishen P 2006 *Trees of Delhi: A Field Guide,* Dorling Kindersley (India) Pvt. Ltd., New Delhi, India.

Kuralarasi R Sundarapandi G Sundar M Lingakumar K and Ganesan V 2017 *International Journal of Botany Studies,* 2 (4) 49-53.

Maheshwari JK 1963 *The Flora of Delhi* CSIR, New Delhi.

Maitreya BB 2015 *Indian Journal of Applied Research,* 5, 6.

Naithani HB and Hooker JD 1990 *Flowering plants of India, Nepal and Bhutan:* not recorded in Sir J.D. Hooker's Flora of British India, (First Edition), Surya publications.

Raunkiaer C 1934 The life forms of plants and statistical plant geography Clarendon Press, Oxford.

Shimwell DW 1971 Description and classification of vegetation. Sidgwick and Jackson, London pp. 322.

Sidanand VK and Kotresha K 2012 *Research and Reviews: A Journal of Botany,* 1 (1) 1-28.

Thakur AS and Khare PK 2011 Study of life-forms and biological spectrum of forest of Sagar district, Madhya Pradesh. In Microbial Biotechnology and Ecology, Daya Publishing House, New Delhi, pp. 729–740.

Thakur K and Puri S 2016 *International J. of Advanced Research,* 4 (6) 106-108.

Wagay NA Deshmukh VR and Rothe SP 2015 *International Journal of Life Sciences* 3 (4) 249-254

Received: 28-04-2020

Accepted: 04-05-2020