

PLANT INVENTORY OF CAMPUS AREA AT UNIVERSITAS SYIAH KUALA, BANDA ACEH

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ABSTRAK

Universitas Syiah Kuala merupakan salah satu uiversitas negeri di Banda Aceh, yang setiap unit perkantornya memiliki Ruang Terbuka Hijau (RTH). Ruang hijau tersebut ditanami oleh tumbuhan, baik yang sengaja maupun yang tumbuh liar. Terdapat beberapa habitus tumbuhan yang tumbuhan meliputi; herba, semak, perdu dan pohon. Belum ada informasi daftar spesies flora kampus Universitas Syiah Kuala oleh sebab itu, perlu dilakukan inventarisasi spesies tumbuhan yang ada di kawasan kampus. Studi dilakukan dengan menggunakan metode survei pada 21 lokasi pengamatan. Hasil survey menunjukkan adanya 130 spesies yang berasal dari 41 famili. Spesies dengan jumlah spesies terbanyak adalah dari famili Poaceae, Asteraceae dan Areaceae. Habitus yang paling banyak ditemukan adalah pohon (50,77%), herba (28,46%), perdu (16,92%) dan semak (3,86%). Spesies yang banyak ditemui merupakan pohon yang sengaja ditaman untuk keperluan fungsi RTH sebagai peneduh atau tempat berlindung.

Kata Kunci: Daftar flora, Universitas Syiah Kuala, ruang terbuka hijau.

ABSTRACT

Syiah Kuala University is one of the public universities in Banda Aceh, where each office unit has an Open Green Space (OGS). The green space is planted by plants, both intentionally and wildly. There are several plant habitus, including herbs, shrubs, and trees. There is no information on the list of flora species on the campus of Syiah Kuala University. Therefore, it is necessary to carry out an inventory of plant species in the campus area has been carried out. The study was conducted using a survey method at 21 observation sites. The survey results show that there are 130 species from 41 families. Species with the highest number of species were Poaceae, Asteraceae, and Areaceae. The most common habitats found were trees (50.77%), herbs (28.46%), shrubs (16.92%), and bush (3.86%). The species are trees intentionally planted for the open green space to function as a shade or shelter.

Keywords: Flora list, Universitas Syiah Kuala, open green space.

PENDAHULUAN

Syiah Kuala University is one of Banda Aceh's public universities, with 125 hectares of land and Open Green Space (OGS) in every building unit. Open Green Space is a type of open space that contains plants and vegetation. According to the study's findings, Syiah Kuala University had four outstanding green space office units (>40%), three suitable office units (>30%), eight low-class office units, and five defective office units. More attention was required for the OGS campus to create an environmentally friendly green campus environment [1]. Plant function supports the green space, namely the area's security, comfort, welfare, and beauty [2] [3].

Although each building unit has the potential for open green space, the flora of the campus area has not been appropriately utilized in lecture activities; therefore, an inventory of campus flora is required as information data on plants on campus and can be used as learning media, particularly for biology education students. Plant systematics, also known as taxonomy,

is a field of study that aims to create an inventory of the world's flora, provide methods for identification and communication, create an integrated classification system, and provide a single scientific name in Latin for each group of plants on the planet, both living and fossilized [4].

Flora information must be recorded to document any plants that have ever existed on the Syiah Kuala University campus. Biodiversity informatics is the use of technology to collect data containing biodiversity information. Biodiversity informatics has been around for twelve years and aims to foster a spirit of discovering new ideas and insights that benefit living beings. In biodiversity informatics data, there are three types of activities: (1) data mining and retrieval, (2) data collection, and (3) data presentation. (3) data presentation and visualization Data were gathered by searching for specimen records and filtering them by taxon name or geographic location [5] [6][7].

METHOD

The survey method was used to conduct the research from January to February 2020 on the Syiah Kuala University campus. Data were collected in 21 units, including the Faculty of Teacher Training and Education (FTTE), the Faculty of Mathematics and Natural Sciences (FMNS), the Faculty of Medicine (FM), the Faculty of Veterinary Medicine (FVM), the Faculty of Nursing (FN), the Faculty of Economics and Business (FEB), the Faculty of Social and Political Science (FSPS), the Faculty of Engineering (FE), the Faculty of Dentistry (FD), the Faculty of Law (FL), the Faculty of Agriculture (FA), the Education Hospital of Universitas Syiah Kuala (EHUSK).

Species identification books and herbariums include Flora in Schools (Van Steenis), Flora of Java, and Weeds of Rice in Indonesia. The roaming method was used to retrieve

data, exploring 21 office units designated as data collection locations. Figure 1 shows the location site plan.

RESULTS AND DISCUSSION

Based on research on flora composition at twenty-one observation stations, it was discovered that as many as 130 species comprised 41 families, as shown in Table 1. *B. vulgaris* Schrad., *E. indica* Gaertn., *D. ciliaris* (Retz.) Koel., *E. amabilis* OK, *I. cylindrica* Beauv. var. major Hubb., *P. repens* L., *T. arguens* L. Hack., *P. purpureum* cv. Mott., *L. hexandra* Swartz., *C. barbata* (L.) Swartz., *A. compressus* (Swartz.) Beauv., *S. diander* (Retz.) Beauv., and *O. sativa* L. The Poaceae family has the most species and the ability to adapt to its environment. Poaceae is divided into three subtribes: Bambusoideae, Pooideae, and Panicoideae [5][8]. The Poaceae family is a grass tribe that grows wild and cultivated on various types of soil.

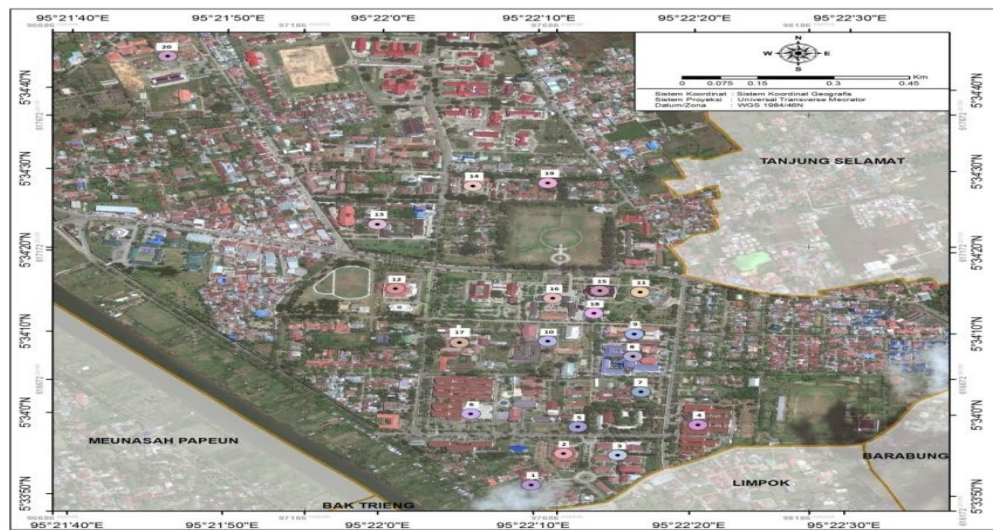


Figure 1. Research Location

The Poaceae family is a grass tribe that grows wild and cultivated on various types of soil. The grass can grow in low to high light intensity conditions with high humidity to dry. Grass typically grows in clumps and is rarely solitary. Stems are creeping at ground level, segmented, stolons dragging below ground level; the inside of the stem is hollow and not woody. Roots grow in segments, with single leaves scattered alternately, in the shape of an elongated round shape, lanceolate or ribbon, parallel leaf bones, sometimes hairy surface, midrib, and false stalks, compound flowers, grains, bunches, or panicles at the terminal [9], [10].

Bamboo and grass both have potential and advantages; for instance, certain bamboo types can be used of

bamboo can be utilized to make handicrafts, building materials, household products, vegetables, and more. Grass also has economic value due to its use as animal feed, paper, construction material, essential oil, and medicine. [11][12].

The family with the most other species is the Poaceae which contains as many as 13 species, followed by Asteraceae and Arecaceae, with 11 species, which contain as many as 11 species. Compared to the number of species present at the research station, groups in this family have relatively better tolerance than other families. The results showed that six species had the highest percentage presence at 21 research stations, namely *T. procumbens*, L. (Asteraceae; 95,24%), and *P. indicus* Willd. (Fabaceae;

90,48%), *C. barbata* (L.) Swartz. (Poaceae; 90,48%), *S. mahagoni* Jacq. (Meliaceae; 81.95%) and *N. oleander* L. (Apocynaceae; 71.43%) indicates that the species is present at more than 11 research stations or is known as a frequently present species. The pictures of the species can be seen in Figure 3.

The state of the ecosystem in balance indicates that the ecosystem has been stable, in this case, an open green space located in the campus area to reach a high point, that an ecosystem has great endurance to face a variety of disturbances that befall it. The adaptability of an ecosystem is that its age resolved it. There is a term in ecology called competence, which refers to an ecosystem's capacity to recover after being disturbed. The

faster the ecosystem recovers, the more distortions can be resolved, resulting in increased resilience. The nature of an ecosystem that allows it to recover to its reliability and sustainability after disturbances are identified as resilience [13][15].

Communities that are incredibly stable, regionally widespread, and homogeneous have lower species diversity compared to exceedingly rare or regionally forested communities and are excessively disturbed by fire, wind, flooding, disease, and human intervention. After the disturbance has passed, there is usually an exponential rise in species diversity to the point where a few long-lived and large species represent, reversing the tendency to decline in a variety [16].

Table 1. Data of Flora at Universitas Syiah Kuala

Local Names	Scientific Names	Families	Habitus	Percentage
Gletang	<i>Tridax procumbens</i> L.	Asteraceae	Herbs	95.24
Rumput goyang	<i>Chloris barbata</i> (L.) Swartz.	Poaceae	Herbs	90.48
Angsana	<i>Pterocarpus indicus</i> Willd	Fabaceae	Tree	90.48
Mahoni	<i>Swietenia mahagoni</i> Jacq.	Meliaceae	Tree	81.95
Oleander	<i>Nerium oleander</i> L.	Apocynaceae	Shrub	71.43
Trembesi	<i>Samanea saman</i> (Jacq.) Merr.	Mimosaceae	Tree	71.43
Jotang kuda	<i>Synedrella nodiflora</i> (L.) Gaertn.	Asteraceae	Herbs	66.67
Tanjung	<i>Mimusops elengi</i> L.	Sapotaceae	Tree	61.90
Putri malu coklat	<i>Mimosa pudica</i> L.	Mimosaceae	Herbs	57.14
Asoka	<i>Ixora Paludosa</i> Kurz.	Rubiaceae	Shrub	57.14
Palem raja	<i>Roystonea regia</i>	Arecaceae	Tree	57.14
Palem kuning	<i>Chrysalidocarpus lutezens</i>	Arecaceae	Tree	57.14
Asam jawa	<i>Tamarindus indica</i> L.	Caesalpiniaceae	Tree	57.14
Tempuh wiyang	<i>Emilia sonchifolia</i> (L.) DC. ex-Wight.	Asteraceae	Herbs	52.38

Plant Inventory of Campus Area at Universitas Syiah Kuala, Banda Aceh

Palem putri	<i>Veitchia merillii</i>	Arecaceae	Shrub	47.62
Glodokan tiang	<i>Polyathia longifolia</i>	Annonaceae	Tree	47.62
Kelapa	<i>Cocus nucifera</i> L.	Arecaceae	Tree	42.86
Cemara laut	<i>Casuarina equisetifolia</i> L.	Casuarinaceae	Tree	42.86
Rumput teki	<i>Cyperus rotundus</i> L.	Cyperaceae	Herbs	38.10
Rumput pait	<i>Axonopus compressus</i>	Poaceae	Herbs	38.10
Jati	<i>Tectona grandis</i>	Verbenaceae	Tree	38.10
Tapak liman	<i>Elephantopus scaber</i> L.	Asteraceae	Herbs	33.33
Belulang	<i>Eleusine indica</i> Gaertn.	Poaceae	Herbs	33.33
Cakar ayam	<i>Digitaria ciliaris</i> (Retz.) Koel.	Poaceae	Herbs	33.33
Emprit-empiritan	<i>Digitaria ciliaris</i> (Retz.) Koel.	Nyctaginaceae	Herbs	33.33
Lampuyangan	<i>Panicum repens</i> L.	Poaceae	Herbs	33.33
Bunga kertas	<i>Bougainvillea spectabilis</i> Willd	Poaceae	Shrub	33.33
Kelapa sawit	<i>Elaeis guineensis</i> L.	Arecaceae	Tree	33.33
Karet kebo	<i>Ficus elastica</i> Roxb.	Moraceae	Tree	33.33
Teki udel-udelan	<i>Kyllinga monocephala</i> Rottb.	Cyperaceae	Herbs	28.57
Mangga	<i>Mangifera indica</i> L.	Anacardiaceae	Tree	28.57
Palem kipas	<i>Livistona saribus</i>	Arecaceae	Tree	28.57
	<i>Hyophorbe lagenicaulis</i> (L.)			
Palem botol	Bailey	Arecaceae	Tree	28.57
Ketapang	<i>Terminalia catappa</i> L.	Combretaceae	Tree	28.57
Mimba	<i>Azadirachta indica</i> Juss.	Meliaceae	Tree	28.57
Bayam berduri	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Herbs	23.81
Bandotan	<i>Ageratum conyzoides</i> L.	Asteraceae	Herbs	23.81
Bambu kuning	<i>Bambusa vulgaris</i> Schrad.	Poaceae	Herbs	23.81
Cemara kipas	<i>Thuja orientalis</i> Linn.	Cupressaceae	Tree	23.81
Pepaya	<i>Carica papaya</i> L.	Caricaceae	Bush	23.81
Patikan kebo	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Herbs	19.05
Rumput merak	<i>Themeda arguens</i> L. Hack.	Poaceae	Herbs	19.05
	<i>Sporobulus diander</i> (Retz.)			
Rumput telur	Beauv.	Poaceae	Herbs	19.05
Pulai	<i>Alstonia scholaris</i> (L.) R. Br.	Apocynaceae	Tree	19.05
Cemara norfolk	<i>Araucaria heterophylla</i>	Araucariaceae	Tree	19.05
Pinang	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Tree	19.05
Ki Acret	<i>Spathodea campanulata</i> P.B.	Bignoniaceae	Tree	19.05
Ketapang kencana	<i>Terminalia mantaly</i>	Combretaceae	Tree	19.05
Akasia daun telinga	<i>Acasia auriculiformis</i>	Mimosaceae	Tree	19.05
Meniran	<i>Phyllanthus niruri</i> L.	Euphorbiaceae	Herbs	14.29
Rumput pada rawa	<i>Leersia hexandra</i> Swartz.	Poaceae	Herbs	14.29
Sidaguri	<i>Sida rhombifolia</i> L.	Malvaceae	Shrub	14.29
Kembang sepatu	<i>Hibiscus rosa-sinensis</i> L.	Malvaceae	Shrub	14.29
Sinyo nakal	<i>Duranta erecta</i> L.	Verbenaceae	Shrub	14.29
Kedondong	<i>Spondias dulcis</i> Soland. Ex Park.	Anacardiaceae	Tree	14.29
Flamboyan	<i>Delonix regia</i>	Moraceae	Tree	14.29
Ara suci	<i>Ficus religiosa</i> L.	Moraceae	Tree	14.29
Beringin	<i>Ficus benjamina</i> L.	Moraceae	Tree	14.29
Tumbuhan libo	<i>Ficus variegata</i> Blume	Moraceae	Tree	14.29
Jamblang	<i>Syzygium cumini</i> Druse.	Myrtaceae	Tree	14.29
Kayu putih	<i>Eucalyptus camaldulensis</i> L.	Myrtaceae	Tree	14.29
Kerai payung	<i>Filicium decipiens</i> Thw.	Sapindaceae	Tree	14.29
Ceri atau kersen	<i>Muntingia calabura</i> L.	Tiliaceae	Tree	14.29
Urang-aring	<i>Eclipta prostrata</i> (L.)	Asteraceae	Herbs	9.52
Adam hawa	<i>Rhoeo discolor</i> Hance.	Commelinaceae	Herbs	9.52
Putri malu hijau	<i>Mimosa invisa</i> Mart.	Mimosaceae	Herbs	9.52
Pisang	<i>Musa paradisiaca</i> L.	Musaceae	Herbs	9.52
Ilalang	<i>Plumeria alba</i> L.	Appocynaceae	Herbs	9.52
Rumput gajah	<i>Dyopsis decaryi</i> (Fri.) Beentje	Arecaceae	Herbs	9.52
Bunga terompet	<i>Allamanda cathartica</i> L.	Appocynaceae	Shrub	9.52
Bunga matahari	<i>Helianthus annuus</i> L.	Asteraceae	Shrub	9.52
Kembang merak	<i>Caesalpinia pulcherrima</i> (L.) Swartz.	Caesalpinaceae	Shrub	9.52

Singkong	<i>Manihot esculenta</i> Crantz <i>Leucana leucocephala</i> (Lmk) De	Euphorbiaceae	Shrub	9.52
Petai cina	Wit	Mimosaceae	Shrub	9.52
Tahi ayam	<i>Lantana camara</i> L.	Verbenaceae	Shrub	9.52
Sirsak	<i>Aleurites moluccanus</i> Willd.	Euphorbiaceae	Tree	9.52
Kenanga	<i>Canangium orodatum</i> Baill.	Annonaceae	Tree	9.52
Kamboja	<i>Plumeria acuminata</i> W.T. Ait.	Appocynaceae	Tree	9.52
Kamboja putih	<i>Plumeria alba</i> L.	Appocynaceae	Tree	9.52
Palem segitiga	<i>Dypsis decaryi</i> (Jum.)	Arecaceae	Tree	9.52
Tabebuya kuning	<i>Handroanthus chrysotrichus</i>	Bignoniaceae	Tree	9.52
Johar	<i>Cassia siamea</i> Lmk.	Caesalpiniaceae	Tree	9.52
Kemiri	<i>Aleurites moluccanus</i> Willd.	Euphorbiaceae	Tree	9.52
Cermai	<i>Phyllanthus acidus</i> (L.) Skeels.	Euphorbiaceae	Tree	9.52
Dadap merah	<i>Erythrina crista-galli</i> L.	Fabaceae	Tree	9.52
Nyamplung	<i>Calophyllum inophyllum</i> L.	Guttiferae	Tree	9.52
Jambu klutuk	<i>Psidium guajava</i> L.	Myrtaceae	Tree	9.52
Belimbing wuluh	<i>Averrhoa bilimbi</i> L.	Oxalidaceae	Tree	9.52
Mengkudu	<i>Morinda citrifolia</i> L.	Rubiaceae	Tree	9.52
Tapak dara	<i>Catharanthus roseus</i> (L.) G. Don.	Apocynaceae	Bush	9.52
Beluntas	<i>Pluchea indica</i> (L.) Less.	Asteraceae	Herbs	4.76
Nanas	<i>Ananas comosus</i> Merr.	Bromeliaceae	Herbs	4.76
Bunga tasbih	<i>Canna hybrida</i> L. <i>Orthosiphon aristatus</i> (Blume)	Cannaceae	Herbs	4.76
Kumis kucing	Miq.	Lamiaceae	Herbs	4.76
Pisang Kipas	<i>Ravenala madagascariensis</i> Sonn	Musaceae	Herbs	4.76
Padi	<i>Oryza sativa</i> L.	Poaceae	Herbs	4.76
Cabai rawit	<i>Capsicum annum</i>	Solanaceae	Herbs	4.76
Kunyit	<i>Curcuma longa</i> Linn.	Zingiberaceae	Herbs	4.76
Jahe	<i>Zingiber officinale</i> L.	Zingiberaceae	Herbs	4.76
Rumput mijangan	<i>Eupatorium odoratum</i> L.	Asteraceae	Shrub	4.76
Tahi ayam	<i>Tegetes erecta</i> L.	Asteraceae	Shrub	4.76
Kembang telang	<i>Clitoria ternatea</i> L.	Fabaceae	Shrub	4.76
Tarum	<i>Indigofera tinctoria</i> L.	Fabaceae	Shrub	4.76
Tarum	<i>Indigofera sumatran</i> Gaertn.	Fabaceae	Shrub	4.76
Delima	<i>Punica granatum</i> L.	Punicaceae	Shrub	4.76
Kopi	<i>Coffea arabica</i> L.	Rubiaceae	Shrub	4.76
Mussaenda	<i>Mussaenda erythrophylla</i> Schum	Rubiaceae	Shrub	4.76
Rimbang	<i>Solanum torvum</i> Sw.	Solanaceae	Shrub	4.76
Srikaya	<i>Annona squamosa</i> L.	Annonaceae	Tree	4.76
Palem merah	<i>Cyrtostachys renda</i> Becc.	Arecaceae	Tree	4.76
Gebang	<i>Corypha utan</i> L.	Arecaceae	Tree	4.76
Jarak	<i>Ricinus communis</i> L.	Euphorbiaceae	Tree	4.76
Saga pohon	<i>Adenanthera pavonina</i> L.	Fabaceae	Tree	4.76
Cempaka	<i>Michelia Campaka</i> L.	Magnoliaceae	Tree	4.76
Kapuk randu	<i>Ceiba pentandra</i> Gaertn.	Malvaceae	Tree	4.76
Mahoni cina	<i>Toona sinensis</i> (Juss.) Rom.	Meliaceae	Tree	4.76
Nangka	<i>Artocarpus heterophylla</i> Lmk.	Moraceae	Tree	4.76
Sukun	<i>Artocarpus altilis</i> (Park.)	Moraceae	Tree	4.76
Jambu air	<i>Syzygium aquea</i> Burm.f.	Myrtaceae	Tree	4.76
Jambu bol	<i>Syzygium malaccensis</i> L.	Myrtaceae	Tree	4.76
Ampupu	<i>Eucalyptus urophylla</i> ST Blake.	Myrtaceae	Tree	4.76
Belimbing bintang	<i>Averrhoa carambola</i> L.	Oxalidaceae	Tree	4.76
Jeruk bali	<i>Citrus maxima</i> Merr.	Rutaceae	Tree	4.76
Rambutan	<i>Nephelium lappaceum</i> L.	Sapindaceae	Tree	4.76
Sawo kecil	<i>Manilkara kauki</i> dub.	Sapotaceae	Tree	4.76
Laban	<i>Vintex pubescens</i> Vahl.	Verbenaceae	Tree	4.76
Orok-orok	<i>Crotalaria striata</i> DC	Fabaceae	Bush	4.76
Melati	<i>Jasminum sambac</i> Ait.	Oleaceae	Bush	4.76
Ranti or lenca	<i>Solanum nigrum</i> L.	Solanaceae	Bush	4.76

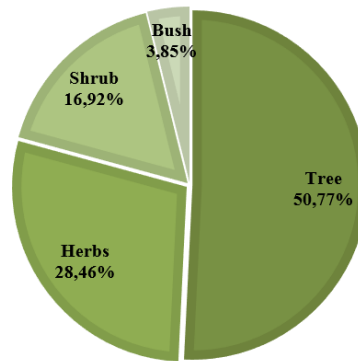


Figure 2. Habitus Percentage of Flora

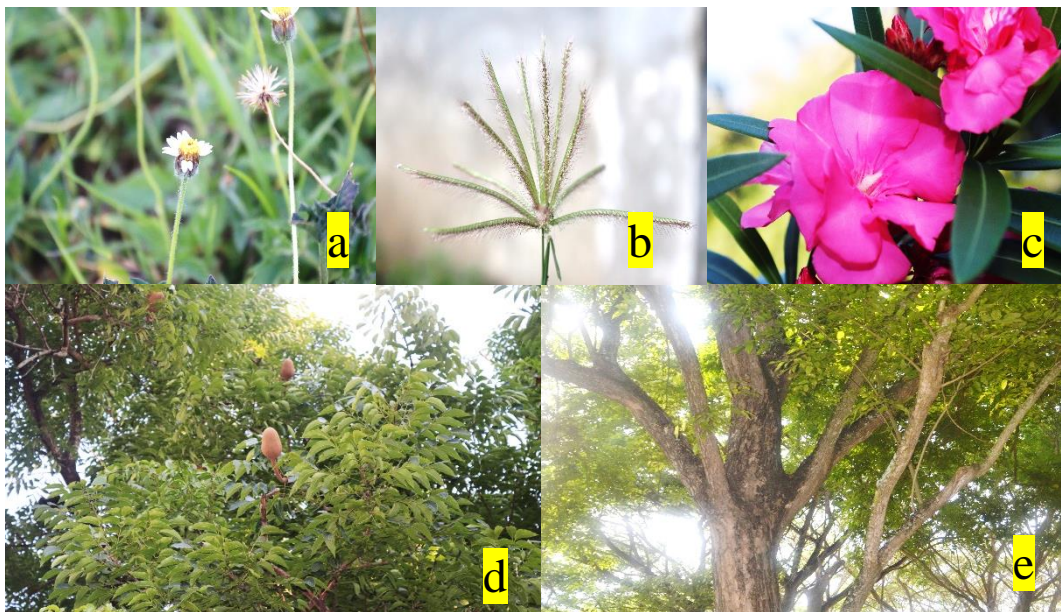


Figure 3. The Most Frequent Species in The Study Location
 Information: a. *T. procumbens*, b. *C. barbata*, c. *N. oleander*, d. *S. mahagoni*, e. *P. indicus*

The findings show percentages of the number of species in 21 research locations. The Faculty of Agriculture has the most plant species, 77 in total. Some plants have species labels or nameplates to help with identification. The built-in green space can have functions suitable for the location in addition to supplying oxygen. According to 94% of respondents, the

availability of information facilities at the Faculty of Agriculture at Universitas Gadjah Mada (UGM) to improve the function of education in green spaces is essential," such as green open spaces on campus, which should support educational activities such as giving a nameplate to each tree so that students can recognize the types of trees in the campus area. As many as

90% of the total strongly agreed that the information facility is in the form of a name tag showing the plant's local and Latin names. According to a survey prescribed to the entire academic world of the Faculty of Agriculture in UGM, 52% of respondents said they knew most of the local names of plants. In comparison, 98% said they were unfamiliar with most of the Latin names of plants in the Faculty [17].

In Figure 2, it can be seen that trees have the highest percentage because tree habitus is a popular habitus in the campus area. This is

CONCLUSION

Based on the results of the study, it can be concluded that: (a) 131 species were found belonging to 41 families, (b) The most significant attendance percentage is *T. procumbens*, *L.*, *P. indicus* Willd., *C. barbata* (L.) Swartz., *S. mahagoni* Jacq. and *N. oleander* L., *S. saman* (Jacq.) Merr. (c) Faculty of Agriculture has the highest number of species, namely 77

related to the ecological function of trees, which can be a shade for students on campus. On campus, open green spaces sespacesre usually made around large trees as places to sit, rest, and study students. The large canopy and tree height are why the tree has this function. Trees play an important role in green open space; apart from being shade trees, they have another part, namely as a place to live for animals such as birds. Several tree species, such as *P. indicus*, *T. Catappa*, and *C. Odoratum*, can be Pb-absorbing in air purification [17]–[20].

species, and Language Center has the lowest percentage, 12 species. Plants with the most significant percentage have high adaptations to survive in the environment. Families Poaceae has the highest number of species, namely 13 species, followed by Families Asteraceae and Arecaceae with 11 species. The most habitus found is tree form, the percentage more than 50%.

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