Bio Palembanica 1(2): 86-90 (2024)
This journal is available online at: https://ejournal.uigm.ac.id/

An Annotated Checklist of the Non-native Plants Species of Campus of Universitas Indo Global Mandiri, Palembang, Sumatra

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Received 8 October 2024 | Accepted by *M. Iqbal*: 11 November 2024 | Published online 24 December 2024.

Abstract
The research on the inventory of invasive alien species in the area of Universitas Indo Global Mandiri (UIGM) aims to identify the alien and invasive species present on campus, so that the potential impacts of their presence can be assessed. The method used in this activity is the exploration method, where the researcher will explore the area around the campus to collect data on plants. The results obtained from this research indicate that there are 77 plant species consisting of 40 families. The families with the highest number of species are Apocynaceae and Araceae (7 species). Among the species identified, there are 42 alien species, 26 native species, and 9 invasive species.

Keywords: alien, distribution, invasive, native, urban.

Introduction

One of the countries known for its high biodiversity and the largest number of plant and animal species in the world is Indonesia (Setiawan *et al.* 2022). Along with the complexity of transportation technology and the advancement of the times, there are also threats to the diversity and richness of Indonesia's flora and fauna (Dawson *et al.* 2017). The danger is the presence of many foreign species or invasive species that can endanger the existence of native species (Burgiel & Muir 2010). The presence of this species can lead to many negative impacts on the environment, socio-economics, and other adverse effects. (Tjitrosoedirjo *et al.* 2016).

An alien or non-native species is an introduced species that enters a natural ecosystem (CBD-UNEP 2014). This species can be potentially as an invasive species that has a significant impact on their habitat and cause harm to the environment, economy, or humans (Iqbal *et al.* 2024). Invasive Alien Species (IAS) have been documented in the Indonesian Archipelago for a long time, and have great negative impacts on several important key biodiversity areas and smaller islands in the country, from Sabang (Aceh, Sumatra) to Merauke (Papua Selatan, West Papua) (Iqbal *et al.* 2019; Iqbal *et al.* 2020). A group of non-native and invasive species is called invasive alien species or IAS (CBD-UNEP 2014).

The purpose of this research is to collect preliminary information on plants species present in the Universitas Indo Global Mandiri University (UIGM) campus, particularly the presence of alien or non-native species. It aims to assess the status of plant species on the UIGM campus, to evaluate the possible threats posed by non-native alien species, and assess the value of native species on the UIGM campus.

Methods

Study Site

The study site of this research was the Campus of Universitas Indo Global Mandiri (UIGM). This campus was located in central of Palembang City (02°57'S, 104°44'E), South Sumatra Province. The typical habitat of this campus is an urban area, with many human structures, such as commercial buildings, houses, roads, bridges, etc. (Iqbal *et al.* 2023). UIGM is one of the leading universities in Indonesia that is concerned to the Sustainable Development Goals (SDGs). This University has a strong commitment to continuing to evaluate the university Impact Rankings assessment which is carried out based on several indicators of research, service delivery, socialization, and teaching in supporting the 17 SDGs (Alam & Ammar 2023). For this reason, a survey to inventory species of flora diversity was conducted at campus UIGM.

Data Collection

A survey was conducted by observing the area around the UIGM campus. The survey was carried out, and all plant species were recorded. The presence of the plant species are primarily recorded using mobile phone cameras. The survey was conducted in the morning to noon between 7:30 AM and 11:00 AM WIB. The period of the survey depends on the weather conditions and the presence of various types of plants and animals. The types of plants and animals are selected directly in the field. For several species that could not be accurately identified, re-identification was carried out using a species identification book.

Results and Discussion

A total of 77 species of flora and 10 species of fauna were documented during the survey. Based on the research conducted at the Indo Global Mandiri University campus in Palembang, the results include an inventory of plant species as summarized in Table 1

Table 1. An annotated checklist of plant species at the campus of Universitas Indo Global Mandiri in Palembang.

No	Scientific name	Common name	Family	Origin	Note
1.	*Asystasia intrusa*	Gandarusa	Achantaceae	Wild	Alien
2.	*Hemigraphis alternata*	Sambainggetih	Achantaceae	Planted	Native
3.	*Polyalthia longifolia*	Glodokan tiang	Annonaceae	Planted	Alien
4.	*Mangifera indica*	Mangga	Anacardiaceae	Planted	Alien
5.	*Kalanchoe pinnata*	Cocor bebek	Apiaceae	Planted	Alien
6.	*Centella asiatica*	Pegagan	Apiaceae	Planted	Invasive
7.	*Adenium obesum*	Kamboja jepang	Apocynaceae	Planted	Alien
8.	*Plumeria alba*	Kamboja kuning	Apocynaceae	Planted	Alien
9.	*Plumeriaobtuse*	Kamboja pink	Apocynaceae	Planted	Alien
10.	*Alstonia scholaris*	Pulai	Apocynaceae	Wild	Native
11.	*Catharanthus roseus*	Tapak dara	Apocynaceae	Planted	Alien
12.	*Tabernaemontana corymbosa*	Rombusa	Apocynaceae	Planted	Alien
13.	*Allamanda cathartica*	Alamanda	Apocynaceae	Planted	Alien
14.	*Aglaoneaa* sp.	Aglonema	Araceae	Planted	Native
15.	*Anthurium plowmanii*	Gelombang cinta	Araceae	Planted	Alien
16.	*Spathiphyllum wallisii*	Lili perdamaian	Araceae	Planted	Alien
17.	*Alocasia sanderiana*	Kuping kelinci	Araceae	Planted	Alien
18.	*Alocasia macrorrhizos*	Bira	Araceae	Planted	Native
19.	*Caladium bicolor*	Keladi merah	Araceae	Planted	Alien
20.	*Typhonium flagelliforme*	Keladi tikus	Araceae	Alami	Native
21.	*Polyscias scutellaria*	Mangkokan varigata	Araliaceae	Planted	Alien
22.	*Polyscias filicifolia*	Daun cakra-cikri	Araliaceae	Planted	Alien
23.	*Araucaria heterophylla*	Cemara norfolk	Araucariaceae	Planted	Alien
24.	*Salacca zalacca*	Salak	Arecaceae	Alami	Native

25.	*Cyrtostachys renda*	Palem merah	Arecaceae	Planted	Native
26.	*Phoenix roebelenii*	Palem phoenix	Arecaceae	Planted	Native
27.	*Roystonea regia*	Palem raja	Arecacaea	Planted	Alien
28.	*Dypsis lutescens*	Palem kuning	Arecaceae	Planted	Alien
29.	*Sansevieria* sp.	Sanseviera	Asparagaceae	Planted	Alien
30.	*Cordyline fruticose*	Hanjuang merah	Asparagaceae	Planted	Alien
31.	*Furcraea gigantean*	Agave putih	Asparagaceae	Planted	Alien
32.	*Dracaena* sp.	Bambu jepang	Asparagaceae	Planted	Alien
33.	*Aloe vera*	Lidah buaya	Asphodelaceae	Planted	Alien
34.	*Gymnanthmum amygdalinum*	Daun afrika	Asteraceae	Planted	Alien
35.	*Mikania micrantha*	Blukar	Asteraceae	Wild	Invasive
36.	*Handroanthus chrysotrichus*	Tabebuya kuning	Bignoniaceae	Planted	Alien
37.	*Impatiens balsamina*	Pacar cina	Balsaminaceae	Planted	Native
38.	*Cleome rutidospermae*	Mama nungu	Capparaceae	Wild	Alien
39.	*Rhoeo discolor*	Nanas kerang	Commelinaceae	Planted	Alien
40.	*Terminalia mantaly*	Ketapang kencana	Combretaceae	Planted	Alien
41.	*Terminalia catappa*	Ketapang	Combretaceae	Planted	Native
42.	*Pedilanthus tithymaloides*	Pohon zig-zag	Euphorbiaceae	Planted	Alien
43.	*Mimosa pudica*	Putri malu	Fabaceae	Wild	Invasive
44.	*Coleus* sp.	Miana	Lamiaceae	Planted	Native
45.	*Orthosiphon aristatus*	Kumis kucing	Lamiaceae	Planted	Alien
46.	*Stromanthe sanguinea*	Sabuk jingga	Marantaceae	Planted	Alien
47.	*Clidemiahirta*	Harendong bulu	Melastomataceae	Wild	Invasive
48.	*Artocarpus integer*	Cempedak	Moraceae	Wild	Native
49.	*Ficus microcarpa*	Beringin cina	Moraceae	Planted	Alien
50.	*Ficus elastic*	Karet kebo	Moraceae	Planted	Alien
51.	*Ficusbenjamina*	Beringin	Moraceae	Planted	Native
52.	*Ficus altissima*	Sunting	Moraceae	Planted	Native
53.	*Moringa oleifera*	Kelor	Moringaceae	Planted	Alien
54.	*Syzygium myrtifolium*	Pucuk merah	Myrtaceae	Planted	Native
55.	*Syzygium aqueum*	Jambu air	Myrtaceae	Planted	Native
56.	*Psidium guajava*	Jambu biji	Myrtaceae	Planted	Invasive
57.	*Syzygium malaccense*	Jambu jamaica	Myrtaceae	Planted	Native
58.	*Syzygium polyanthum*	Salam	Myrtaceae	Planted	Native
59.	*Bougainvillea spectabilis*	Kembang kertas	Nyctaginaceae	Planted	Alien
60.	*Pisonia grandis*	Kol banda	Nyctaginaceae	Planted	Native
61.	*Spathoglottis plicata*	Anggrek tanah	Orchidaceae	Planted	Native
62.	*Oxalis corniculata*	Asam kecil	Oxalidaceae	Wild	Invasive
63.	*Rivina humilis*	Getih-getihan	Petiveriaceae	Planted	Invasive
64.	*Phyllanthus urinaria*	Meniran	Phyllanthaceae	Wild	Invasive
65.	*Piper ornatum*	Sirih merah	Piperaceae	Planted	Native
66.	*Pennisetum purpureum*	Rumput gajah	Poaceae	Planted	Invasive
67.	*Morinda citrifolia*	Mengkudu	Rubiacea	Wild	Native
68.	*Citrus sinensis*	Jeruk	Rutaceae	Wild	Alien
69.	*Evodia suaveolens*	Zodia	Rutaceae	Planted	Native
70.	*Nephelium lappaceum*	Rambutan	Sapindacaceae	Planted	Native
71.	*Manilkara zapota*	Sawo	Sapotaceae	Planted	Alien
72.	*Smilax* sp.	Gadung cina	Smilacaceae	Wild	Native
73.	*Solanum torvum*	Cempokak	Solanaceae	Wild	Alien
74.	*Capsicum annuum*	Cabe rawit	Solanaceae	Wild	Alien
75.	*Lantana camara*	Tembelekan	Verbenaceae	Planted	Invasive
76.	*Curcuma domestica*	Kunyit	Zingiberaceae	Planted	Alien
77	*Costus spicatus*	Pacing pentul	Zingiberaceae	Planted	Wild

Based on the table above, it can be seen that 77 types of plants were obtained during the data collection. There are 40 families of this plant. The families with the highest number of species are Apocynaceae and Araceae (7 species), Moraceae and Myrtaceae (5 species), Asparagaceae and Arecaceae (4 species), while other families only have 1 species each (24 families). The plants on the UIGM campus are planted for various purposes such as shade trees, ornamental flowers, horticultural plants, carbon absorbers, fruit producers, and medicinal plants. An example of a medicinal plant is the Meniran species, which is an exotic species that is also a medicinal plant (Hidayat & Napitupulu, 2015). Plants include trees, shrubs, bushes, and herbs.

The types of plants found mostly come from foreign (introduced) species, meaning they are not native plants that spread to Indonesia. Foreign species often enter Indonesia for various reasons, such as utilization (medicinal purposes, environmental services, and ornamental plants), by humans (seeds distributed through transportation means), through the air, other animals, and human activities that bring them in. This disease is transmitted spontaneously by the seeds of certain plants.

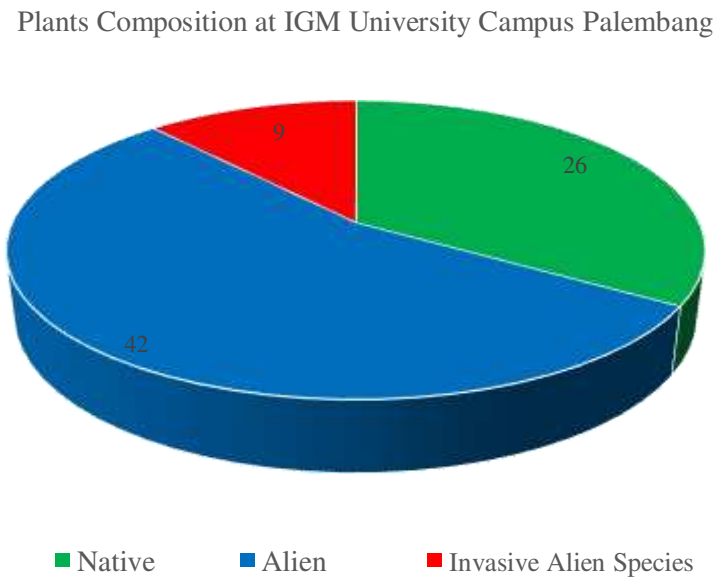

Figure 1. Composition of plant species at campus of UIGM in Palembang.

The composition of plant species at UIGM includes 26 native species, 42 foreign species, and 9 imported species (Figure 1). Non-native species are organisms that are not part of an ecosystem but do not pose a threat, while invasive non-native species are organisms that are not part of an ecosystem and cause damage to the ecosystem, environment, economy, or living conditions, as well as to biodiversity and humanity health (BKP 2020).

Non-native and exotic plant species are threatened in Indonesia, especially for their use as medicinal plants, shade plants, carbon absorbers, and ornamental plants. The difference between foreign plants and invasive foreign plants lies in their superior and quicker adaptation abilities, reproductive capacity, and survival skills, such as protection against physical issues and thorns, water, or allelopathy, and their ability to grow from other plants. It still exists, thus reducing competition for the plant itself.

Plants, including native and non-native species, are grown to eliminate carbon and air pollution, including golden gorse, rambutan, yellow tabebuia, banyan and norfolk pine (Hakim, 2014). In addition to protection, the aforementioned plants have a better ability to absorb carbon (high absorption capacity) and reduce air pollution as well as mitigate the effects of global warming. Currently, there are many ornamental plants that can absorb carbon dioxide at night, such as snake plants, pomegranates, *Aglaonema* and *Anthurium*.

Acknowledgments
We thank Universitas Indo Global Mandiri (UIGM) for supporting our survey on alien species within UIGM campus.

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