

Comprehensive Study of Ornamental Flowering Plants at Sangam University: A Botanical, Economic and Morphological Analysis

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Abstract:

The present study performed at Sangam University aimed to identify and understand various ornamental members of diverse plant families including Amaryllidaceae, Apocynaceae, Araucariaceae, Araceae, Arceuthobium, Asparagaceae, Asteraceae, Bignoniaceae, Combretaceae, Cupressaceae, Euphorbiaceae, Malvaceae, Moraceae, Nyctaginaceae, Oleaceae, Pandanaceae, Passifloraceae, Rhamnaceae, Rubiaceae, Rutaceae, Solanaceae, Verbenaceae, Zamiaceae, and Zingiberaceae. The concern of the research was on plant identification and exploring the economic importance of these species. Through detail-oriented fieldwork and observation, the identified plants were categorized into their respective families, providing valuable insights into the rich biodiversity of the Sangam University. The economic importance of these plants was thoroughly examined, considering their applications in medicine, landscaping, traditional uses, and potential commercial uses. The morphological analysis was also done in few flowering ornamental plants to comprehend more precisely about the species. This research contributes to the understanding of plant diversity and their economic relevance in a garden setting. The findings underscore the significance of preserving and showcasing these plant families for educational, cultural, and economic purposes. Further investigations and collaborations are recommended to enhance the knowledge base and promote sustainable practices related to the identified plant families.

Keywords: Diversity, Flowering Plants, Economic, Morphological

Introduction:

This research aims to identify and comprehend the diversity of plant species present in the Ornamental Museum of Sangam University Campus. The main motto of selecting the ornamental flowering plants is to highlight the uses of the plants and their species in various industries rather than just beautifying the gardens and landscapes. Background information on the significance of ornamental plants in gardens. Overview of Sangam University Museum Garden and its importance as a botanical and educational resource.

Literature Review:

Review of literature on the role of ornamental plants in enhancing garden aesthetics. Discussion of the environmental benefits of ornamental plants, including air purification, carbon sequestration, and biodiversity support.

Methods:

- **photography.**
- **Sampling strategy for selecting ornamental plant species for analysis.**





The methods used in this research were taking photographs manually of the plants and description of the research methods used, including field observations, plant identification, and the measurement of height, width and various measurements of morphological features of different ornamental flowering plants were also taken manually.

1. Results:

Presentation of findings on the diversity of ornamental plant species in the Sangam University Museum Garden.

- Description of the identified plant species and their uses in the garden.
- Analysis of how these plants contribute to the garden's visual appeal and ecological functions.

In this research, we identified that a total of twenty- four families of ornamental plants are present in the Ornamental Museum of Sangam University Campus. In which Apocynaceae, Arecaceae and Euphorbiaceae have large number of plant species. The frequency of the families occurring is shown below in the form of the chart. The main purpose of this research is to discover the economic uses of the ornamental flowering plants. Through this research, their economic uses are identified and is shown below in the table of each plant.








S.no.	Botanical name	Picture	Family name	Economic importance
1	<i>Polianthes tuberosa</i>		Amaryllidaceae	Polianthes tuberosa flower is predominantly used in the perfume industry due to the presence of aromatic compounds.
2	<i>Allamanda blanchetti</i>		Apocynaceae	It is a pleasant addition to gardens for butterflies and pollinators.
3	<i>Allamanda cathartica</i>		Apocynaceae	In traditional medicine, people use it to treat liver tumors, malaria, splenomegaly, and jaundice. They use it to treat abscesses, ringworm, ulcers, and eczema
4	<i>Cascabela thevetia</i>		Apocynaceae	C. thevetia is considered effective in preparations for eye infections, as well as for fever, leprosy, and hemorrhoids. Bark: Bark preparations are used for fevers, burns, ringworm, and rashes. Bark, Seed: Bark and seeds are used for a purgative and heart tonic.

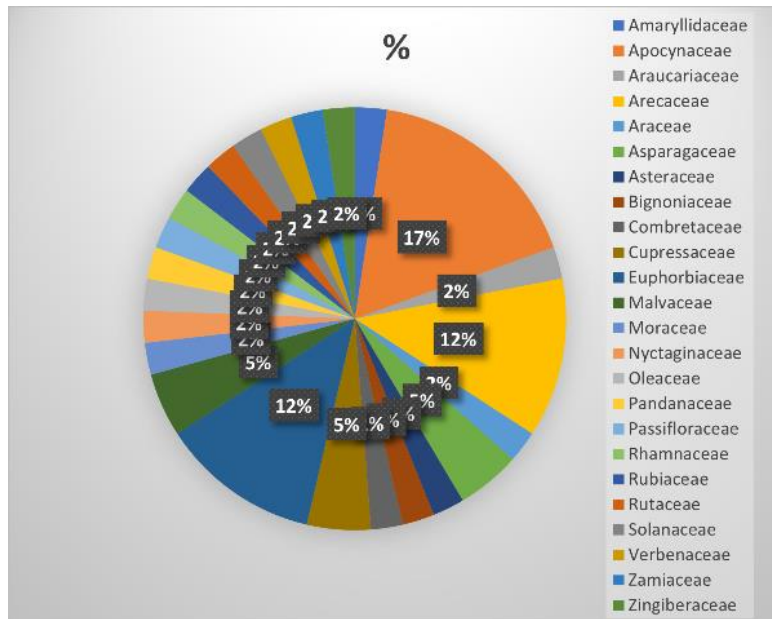
5	<i>Catharanthus roseus</i>		Apocynaceae	Plant is used in cancer and diabetes; root paste is used in septic wounds; root decoction is used in fever; leaves are used in menorrhagia; leaf juice is used in blood dysentery. The decoction of leaf is used for babies in gripping pain while the latex is useful in scabies.
6	<i>Plumeria alba</i>		Apocynaceae	Plumera alba is a traditional and ancient folklore medicine known for its antimicrobial, anti-inflammatory, and antioxidant properties.
7	<i>Plumeria rubra</i>		Apocynaceae	The extract is rich in antioxidant and their antimicrobial activities help combat flu, cures fever, and also improves eyesight. The presence of powerful flavonoids also makes an excellent cure for rheumatoid arthritis . It also alleviates symptoms of health disorders such as gout and vertigo .
8	<i>Tabernaemontana divaricate</i>		Apocynaceae	Tabernaemontana divaricata (TD) from Apocynaceae family offers the traditional folklore medicinal benefits such as an anti-epileptic, anti-mania, brain tonic, and anti-oxidant.
9	<i>Araucaria columnaris</i>		Araucariaceae	Cultivated in gardens for its conical arche structure.
10	<i>Dyopsis lutescens</i>		Arecaceae	Dyopsis Lutescens can significantly improve humidity levels indoors. Reduces indoor pollutants
11	<i>Hyophorbe lagenicaulis</i>		Arecaceae	It can be used along a driveway (in warm areas), along a street side, patio or randomly placed in open areas of the garden.
12	<i>Livistona chinensis</i>		Arecaceae	Livistona chinensis is used in traditional Chinese medicine as an anticancer agent. Experimental

				studies have shown the antiproliferative and antiangiogenic properties of extracts of <i>L. chinensis</i> fruits and seeds.
13	<i>Rhapis excelsa</i>		Arecaceae	<i>Rhapis Excelsa</i> truly purifies and improves the quality of the air in your house, in contrast to other plants that only produce oxygen.
14	<i>Syngonium podophyllum</i>		Araceae	<i>Syngonium</i> plants are not just decorative, they have the ability to cleanse the air you, breathe and act as anti-pollutants.
15	<i>Washingtonia robusta</i>		Arecaceae	They produce edible fruit, which was a minor food source for Native Americans. The fruit is also a food source for birds, who in turn, disperse the seeds. These palms are most often cultivated as ornamental trees.
16	<i>Dracaena marginata</i>		Asparagaceae	Purifies air and is said to be a good luck plant that brings positive energies
17	<i>Leucocrinum montanum</i>		Asparagaceae	The roots of star lily were reportedly used for food by the Crow Indians. The Paiute and Shoshoni Indians used a poultice of the pulverized roots and applied it to sores and swellings.
18	<i>Stephanomeria cichoriaceae</i>		Asteraceae	<i>Stephanomeria cichoriaceae</i> is a popular ornamental plant used in gardens and landscapes. It is also used as a filler in flower arrangements and bouquets.
19	<i>Tecoma stans</i>		Bignoniaceae	It is used in traditional medicine as a remedy for diabetes mellitus, digestive problems, stomach pain, intestinal worms, and snake bite
20	<i>Combretum indicum</i>		Combretaceae	<i>Combretum indicum</i> is widely cultivated as an ornamental, often planted in hedges or allowed to grow over a support. In West

				Africa, the long, flexible stems are used for basketry, fish weir and fish traps.
21	<i>Cupressus macrocarpa</i>		Cupressaceae	It is used for lumber and pulp production, as well as an ornamental or to provide a windbreak
22	<i>Platyclusus orientalis</i>		Cupressaceae	The seeds, sweet to the taste, are used as a sedative in the treatment of minor headache, insomnia, palpitation and as a coagulant.
23	<i>Acalypha indica</i>		Euphorbiaceae	<i>Acalypha indica</i> has the capability to serve as anthelmintic, anti-inflammation, anti-bacterial, anti-cancer, anti-diabetes, anti-hyperlipidemic, anti-obesity, anti-venom, hepatoprotective, hypoxia, and wound healing medicine.
24	<i>Codiaeum variegatum</i>		Euphorbiaceae	aqueous leaf extracts or decoctions of <i>C. variegatum</i> are used in traditional medicine to treat amoebic dysentery and stomach ache while a bath with root decoction or sap is applied in small quantities on skin related infections.
25	<i>Croton tiglium</i>		Euphorbiaceae	It is widely used for defecation, induced labour, treatment of gastrointestinal diseases, headache, as well as rheumatoid arthritis.
26	<i>Euphorbia tithymaloides</i>		Euphorbiaceae	Devil's-backbone is mostly commonly used as a border plant, or as a hedge.
27	<i>Jatropha integerrima</i>		Euphorbiaceae	The <i>Jatropha integerrima</i> plant is used for many purposes, including energy crops and bioproducts. The seeds can be used as a source of oil or protein in cosmetics, food products and animal feed.

28	<i>Hibiscus acetosella</i>		Malvaceae	The Hibiscus acetosella Welw. Ex Hiern species is a member of the Malvaceae family, native to Africa and commonly consumed as a green vegetable.
29	<i>Hibiscus rosa-sinensis</i>		Malvaceae	Hibiscus is commonly consumed in teas made from its flowers, leaves, and roots.
30	<i>Ficus retusa</i>		Moraceae	F. retusa are used in wounds and bruises. Dried roots are mixed with salt are applied to decaying or aching tooth.
31	<i>Bougainvillea glabra</i>		Nyctaginaceae	It is traditionally employed against several diseases such as diarrhoea, hypotension, intestinal disorders, stomachache, nausea, inflammation-related ailments, and in pain management.
32	<i>Nyctanthes arbor-tristis</i>		Oleaceae	Nyctanthes arbor-tristis (Oleaceae) is a mythological plant; has high medicinal values in Ayurveda. The popular medicinal use of this plant are anti-helminthic and anti-pyretic besides its use as a laxative, in rheumatism, skin ailments and as a sedative.
33	<i>Pandanus amaryllifolius</i>		Pandanaceae	Widely used in South-East Asian culinary delights as food flavour and colouring, particularly scenting rice in India and Sri Lanka. Serves in several traditional medicinal practices across its distribution.
34	<i>Passiflora incarnata</i>		Passifloraceae	The passionflower (Passiflora incarnata) is a perennial plant with documented therapeutic properties. The literature data suggest that the passionflower itself, as well as its preparations, helps reduce stress and can therefore be helpful in the

				treatment of insomnia, anxiety, and depression.
35	Snowbrush <i>ceanothus</i>		Rhamnaceae	Native Americans used the dried leaves of this plant as an herbal tea, and early pioneers used the plant as a substitute for black tea. Miwok Indians of California make baskets from <i>Ceanothus</i> branches.
36	<i>Ixora coccinea</i>		Rubiaceae	<i>Ixora</i> flowers are strong hardy flowers of very great economic importance; they are ornamental plants that are grown for decorative purposes in gardens and landscape design, projects, as house plants, for cut flowers and specimen display.
37	<i>Murraya paniculata</i>		Rutaceae	<i>Murraya paniculata</i> is traditionally used for management of gut, air way and cardiovascular disorders.
38	<i>Cestrum diurnum</i>		Solanaceae	Din ka raja plant is a natural health supplement that is known to cure various diseases and make the immune system strong. It also helps to maintain a healthy heart.
39	<i>Duranta erecta</i>		Verbenaceae	The plant is used in the treatment of fevers, skin itches. The plant is used as an insect repellent.
40	<i>Zamia purpuracea</i>		Zamiaceae	A hardy ornamental Cycad used as a feature in mixed plantings or mass planted as an effective ground cover in borders, raised beds and street verges.
41	<i>Alpinia purpurata</i>		Zingiberaceae	The fruit is used to treat sores. A decoction of the leaves is used in the treatment of stomach complaints



interpretation of results in the context of existing literature on ornamental plant utilization.

- Discussion of the importance of incorporating ornamental plants into garden design for aesthetic and environmental purposes.
- Suggestions for future research and practical applications in garden design and management.

Conclusion: 6.

- Summary of key findings regarding the uses of ornamental plant species in the Sangam University Museum Garden.
- Implications of the study for garden design, environmental conservation, and education.
- Final thoughts on the significance of ornamental plants in creating beautiful and sustainable gardens.

In the above table and chart, it is shown that these ornamental flowering plants not only enhance the beauty of the gardens and landscapes but these are also used in the pharmaceutical, aromatic, lumber production, air purification, insect repellents, etc. industries. These plants are of great importance because they also help in the reduction of air humidity, improves the quality of air indoors as well as outdoors.

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