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A Survey on Ornamental plants of Karungal region, Kanyakumari District, Tamil Nadu, India

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Abstract

Herbaceous plant species are important components of ecosystems. Total of 39 angiosperm species in which 72% shrubs, 20% herbs, and 3% trees are present in the Karungal area. The classification of the ornamental flora based on the diversity of the plants can be used as public garden plants. Totally 23 families were identified, among which Apocynaceae (18 %) is the dominant family followed by Rubiaceae, Rosaceae and Asteraceae (6%), Balsaminaceae, Euphorbiaceae, Nyctaginaceae, and Caryophyllaceae (5%), Cupressaceae, Acanthaceae, Zingiberaceae, Heliconiaceae, Araceae, Plumpaginaceae, Asparagaceae, Portulaceae, Melastomataceae, Garryaceae, Papaveraceae, Plantaginaceae, Solanaceae, Lamiaceae and Polemoniaceae (3%). The flowers of most plants have the most attractive potential, although some species also have beautiful fruits and leaves. Even in difficult climatic conditions, particularly water stress, some plants have made morphological, anatomical, and physiological changes to overcome dry conditions.

Keywords: Herbaceous plant, Ornamental flora, Apocynaceae, Karungal.

INTRODUCTION

India is blessed by nature with one of the richest floras on the earth and is considered the centre of origin of a number of the wild as well as cultivated plants (**Vardhana 2008**). Ornamental flora is grown for its beautiful colours, patterns and also for many purpose like medicine. While some plants are both ornamental and functional, people usually use the term ornamental plants to refer to plants that have no value beyond being attractive, although many people feel that this is a value in itself. Ornamental flora is the keystone of decorative

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gardening, and they arrive in more than a few shapes, sizes, and colours suitable to a wide array of climates, landscapes, and gardening wishes. Ornamental plant life is grown typically for the motive of splendour for their charming foliage, flowers, and their pleasant smell (**Swarup 1998**). Numerous ornamentals are advocated as "friendly" to bees, butterflies, and different pollinators, with multiple well-known conservation groups compiling lists or labelling plant life being sold to the general public as pollinator-pleasant (**Garbuzov 2014**).

The flora of a region is considered an essential part of the environment that determines the wealth of the ecosystem and human health (**Sandifer et al. 2015**). The objective of ornamental horticulture is the functional and aesthetic integration of humans, using plants and area as its main gear. The necessity in architecture is for positive control of the fast-changing landscape for the future (**Chin and Tay, 2006**). Most species that have existed on earth are now extinct (**WGBH Educational Foundation, 2001**). The people who discovered new hobbies for spending their time. Even a new hobby like gardening ornamental plants can be a great business opportunity promise (**Asnahwati 2021**). Ornamental plants are usually grown in flower gardens or homes, ornamental plants are also used for landscaping and for cut flowers. Ornamental plants can provide a beautiful, enchanting, and softening atmosphere view (**Fatmawati et al. 2019**).

The implementation of digital technology and online in ornamental plant businesses can reach a wider market locally and nationally as well as at the regional and international levels (**Hari, et al. 2020**). It is encouraged Ornamental Plant entrepreneurs to follow digital marketing concept 4.0 where the form of promotion is no longer in the form of one-way communication (face to face) which requires meeting directly with consumers but has become a conversation which is a two-way interaction conversation through a smartphone screen where consumers are free to ask questions or submit complaints via WhatsApp, Facebook, email and Instagram regarding the prices of ornamental plant products as well as making sales and purchase agreements (**Mahacakri 2020**). Nurseries cultivate a broad diversity of flowering plant species that differ widely across sites and seasons, providing an opportunity to test for correlations between turnover and diversity of plants and bees (**Cecala & Erin, 2022**).

The present study aimed to collect information related to household economy and home garden flora in order to understand the socio-economic conditions of the household. The impact of socioeconomic conditions on the maintenance of home garden species, composition, use, and diversity of home garden plants in rural areas. The aim of the present research was to explore and assess the ornamental plant diversity in Kanyakumari District.

Materials and method

Description of the study area

The research employed a survey method, with purposive sampling in the Karungal region of the Kanyakumari District, Tamil Nadu, India. The natural vegetation of this region

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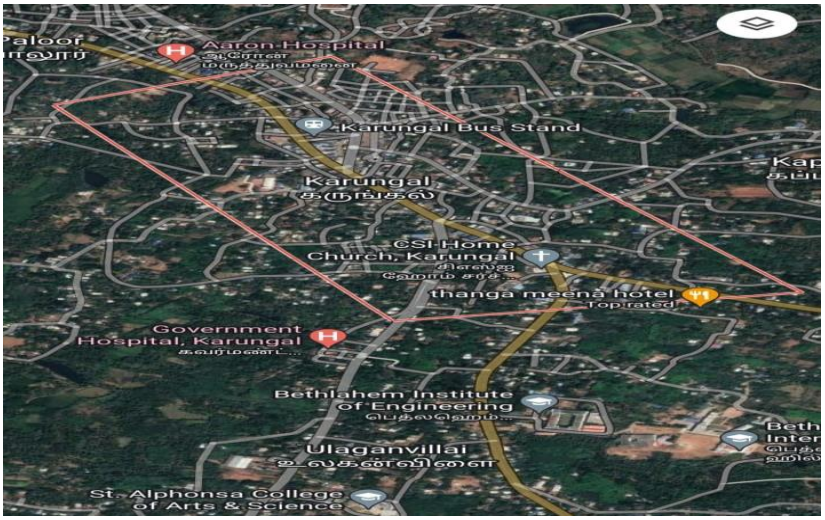
represents biomass ranging from southern thorn forests, dry deciduous, moist deciduous, semi-evergreen forests to evergreen hill sholas with grassy downs. Well, adaptability, climatic, and characteristic features of plants have been present in the study area. The maximum temperature reaches up to 34°C and the minimum temperature goes down to 20.3°C.

Fig. 1: The map showing the karungal region



Study area

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Floristic study

The present survey was conducted on the plant species growing in their natural habitats like grounds, roadsides, and open land gardens. Plant specimens were collected (depending upon their availability) from the area under investigation. These specimens were identified and photographed. Maximum plants have been photographed in their natural habitat whereas others in laboratory conditions. All species have been exacting to their corresponding families. Plant species had been also differentiated on the basis in their addiction.

Result and Discussion

The field expedition of the study area showed interesting results concerning floristic diversity. A total of 39 plant species belonging to 23 families and 37 genera were recorded from the study site. Out of 39 plants, 39 were angiosperms (Table 1). Apocynaceae was the most dominant family with (7 genera and 7 species) and other main contributing families were Rubiaceae, Rosaceae, and Asteraceae (9 genera and 9 species), Balsaminaceae, Euphorbiaceae, Nyctaginaceae, and Caryophyllaceae Euphorbiaceae (8 genera and 8 species), Cuperessaceae, Acanthaceae, Zingiberaceae, Heliconiaceae, Araceae, Plumpaginaceae, Asperagaceae, Portulaceae, Melastomataceae, Garryaceae, Papaveraceae, Plantaginaceae, Solanaceae, Polemoniaceae, and Apocynaceae are reported (15 genera and 15 species) (Table-1). Some of the common plants are mentioned in (Figure 2).

Besides shrubs form the major source of ornamental plants consisting of about 72 % followed by trees, and herbs comprising 3%, and 20%, respectively. Totally 23 families were identified, among which Apocynaceae (18 %) is the dominant family followed by Rubiaceae, Rosaceae and Asteraceae (6%), Balsaminaceae, Euphorbiaceae, Nyctaginaceae, and Caryophyllaceae (5%), Cuperessaceae, Acanthaceae, Zingiberaceae, Heliconiaceae, Araceae, Plumpaginaceae, Asperagaceae, Portulaceae, Melastomataceae, Garryaceae, Papavaraceae, Plantaginaceae, Solanaceae, Lamiaceae and Polemoniaceae (3%).In the study area ornamental plants belonging to Apocynaceae Plantaginaceae, Garryaceae families are most attractive and widely used for decoration purposes. Plants of Asteraceae, Rosaceae, and Rubiaceae families are aromatic and are also used for decoration and dye preparation. Most of the plants of Nyctaginaceae, Asperagaceae, Zingiberaceae, Caryophyllaceae, Balsaminaceae, Caryophyllaceae, Araceae, Acanthaceae, Heliconiaceae, Balsaminaceae, Papaveraceae, Solanaceae, Plumbaginaceae, Polemoniaceae, Portulaceae, Cuperessaceae, Lamiaceae, Melastomataceae, and Euphorbiaceae families are indoor plants widely used incarnation works, attraction, and decoration purpose. And also, Zingiberaceae, and Balsaminaceae family plants are used for medicinal purposes also mentioned in (Table - 1). In the Kanyakumari district, the survey of the ornamental plants in the study area resulted in 146 species being reported (**Raja Glenna et al. 2019**). Altogether 146 species represented by 109 genera and 50 families were recorded from the home gardens (**Rico-Gray 1990**).

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Conservation of natural resources is a matter of vital interest to a man from ancient times. India is playing an important role in the conservation of biological diversity and sustainable development through its own biological diversity act and rules. Biodiversity has become such an important challenge to the whole world that it has invented attention from various disciplines, people as well as all quarters of the world. There is a strong need to conserve overexploited species due to the large scale of their uses and collection from natural habitats. It is shown that documenting indigenous knowledge through ethnobotanical studies is important for the conservation of biological and cultural diversities. This makes a great threat to the survival of many wild species and the ecosystems which are of great economic value to mankind. The herb community of tropical forests is very little known, with few studies addressing its structure quantitatively. Even with this scarce frame of statistics, it's far clean that the herbs are a wealthy institution, comprising 14 to 40% of the species located in general species counts in tropical forests. This stratum remains an underappreciated aspect of forest ecosystems.

Fig. 2: Some of the common ornamental plants

Thuja occidentalis **L.**

Impatiens balsamina **L.**

Allamanda cathartica **L.**

Papaver orientale **L.**

Salvia splendens **sellow ex schult.**

Petunia hybrida **vilm.**

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Dianthus chinenesis **L.**

Adenium obesum **(Forssk.) Roem. & Sch..**

Ixora chinensis **Lam**.

Cosmos sulphureus **cav.**

Plumeria pudica **Jacq.**

Dahlia pinnata **Cav.**

Table: 1 list of ornamental plants in study area family and growing purposes

Sl. No.	Botanical Name / Family	Habit	Growing Purpose
1.	*Adenium obesum* (Forssk.) Roem. & Sch. (Apocynaceae)	Shrub	Flower Attraction
2.	*Allamanda cathartica* L. (Apocynaceae)	Shrub	Flower Attraction / decoration
3.	*Antirrhinum majus* L. (Plantaginaceae)	Shrub	Flower Decoration
4.	*Aucuba japonica* Thunb. *(*Garryaceae)	Shrub	Flower Decoration
5.	*Bouganvillea spectabilis* Wild. *(*Nyctaginaceae)	Shrub	Flower attractive
6.	*Calendula officinalis* L. (Asteraceae)	Herb	Dye
7.	*Catharanthus roseus* (L.) G. Don. (Apocynaceae)	Shrub	Flower Attraction
8.	*Codiaeum variegatum* L. (Euphorbiaceae)	Shrub	Flower Attraction
9.	*Cordyline fruticose* (L.) A. Chev. (Asperagaceae)	Shrub	Carnation
10.	*Cosmos sulphureus* Cav. *(*Asteraceae)	Shrub	Dye
11.	*Crossandra infundibuliformis* (L.) Rumph. Ex. (Euphorbiaceae)	Shrub	Attraction

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12.	*Cryptostegia madagas cariensis* Bojer. (Apocynaceae)	Shrub	Attraction
13.	*Curcuma longa* L. (Zingiberaceae)	Shrub	Medicine
14.	*Dahlia pinnata* Cav. (Asteraceae)	Shrub	Dye
15.	*Dianthus caryophyllus* L. (Caryophyllaceae)	Shrub	Flower attractive
16.	*Dianthus chinenesis* L. (Caryophyllaceae)	Herb	Flower attractive
17.	*Epipremnum aureum* Linden & Andre. (Araceae)	Herb	Leaves attractive
18.	*Graptophyllum pictum* (L.) Griff. (Acanthaceae)	Shrub	Flowers & leaves attractive
19.	*Heliconia psittacorum* L.f. (Heliconiaceae)	Herb	Flowers attractive
20.	*Impatiens balsamina* L. (Balsaminaceae)	Shrub	Flowers attractive
21.	*Impatiens walleriana* Hook.f. (Balsaminaceae)	Herb	Flowers attractive
22.	*Ixora chinensis* Lam. (Rubiaceae)	Shrub	Decoration
23.	*Kepsia Fruticosa* (Roxb.) A.DC. (Apocynaceae)	Tree	Flowers attractive
24.	*Mirabilis jalapa* L. (Nyctaginaceae)	Shrub	Dye
25.	*Mussaenda erythrophylla* Schumach. (Rubiaceae)	Shrub	Decoration
26.	*Papaver orientale* L. (Papaveraceae)	Herb	Flowers attractive
27.	*Petunia hybrida* Film. (Solanaceae)	Shrub	Flowers attractive
28.	*Phlox drummondii* Hook. (Polemoniaceae)	Shrub	Flowers attractive
29.	*Plumbago auriculata* Lam. (Plumbaginaceae)	Shrub	Decoration
30.	*Plumeria pudica* Jacq. (Apocynaceae)	Shrub	Carnation
31.	*Portulaca grandiflora* Hook. (Portulaceae)	Herb	Attractive flower
32.	*Rosa chinenesis* Jacq. (Rosaceae)	Shrub	Dye / aromatic
33.	*Rosa gallica* L. (Rosaceae)	Shrub	Dye / aromatic
34.	*Rosa pendulina* L. (Rosaceae)	Shrub	Dye / aromatic
35.	*Salvia splendens* Sellow ex Schult. (Lamiaceae)	Herb	Attractive flower
36.	*Tabernaemontana divaricate* (L.) R. Br. (Apocynaceae)	Tree	Attractive flower
37.	*Tanacetum coccineum* (Wild.) Grierson. (Asteraceae)	Shrub	Attractive & carnation
38.	*Thuja occidentalis* L. (Cuperessaceae)	Tree	Leaves attractive & decoration

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39.	*Tibouchina urvilleana* (DC.) Cogn. (Melastomataceae)	Shrub	Flowers & stamens attractive

Conclusion

This study revealed that a number of valuable plant species are found in the Karungal region. These families are widely distributed and also dominant in the study area. The decorative potentiality is highlighted because of its attractive addiction and good-looking flora. Ornamental plants additionally function as complementary, efforts, attractors, emphasizers, diverters, and signs and provide Ornamental flora have a huge spectrum of uses in an aesthetic feature by means of growing elegance for human environmental control; the most obvious are the activities.

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