



Original Research Article

Exploration of Ornamental florals in the campus of Bishop's house, Nagercoil, Kanyakumari District, India

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ABSTRACT

Keywords

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Identification and exploration of ornamental species is one of the new areas of research and accounts wide spectrum of uses in environmental management. Results indicated that the study area had abundance of ornamental plants which exhibits wide range of diversity in terms of taxa, habit and growth forms. A total of 61 angiosperm species are present in this study area. Out of which annuals are 13 %, Gymnosperms 4.9 %, palms 6.5 %, Pteridophytes 8.1 %, Biennials 4.9 %, Perennials 19.6 %, Shrubs 11.4 %, Climbers 16.3 %, Succulents 8.1 % and Cacti 6.5 %. The classification of the ornamental flora based on the diversity (19 species) of the plants can be used as public garden plants followed by borders and beds (13 species). The percentage distribution of ornamental flora is documented as families with 45 % dicots, 8 % monocots, 3.1 % gymnosperans and 5 % pteridophytes (Table – 4). Totally 30 families were identified, among that Asteraceae is the dominant family (11.4 %) followed by Liliaceae (9.8 %) Convolvulaceae (8.1 %), Cactaceae and Arecaceae (6.5 %). The ornamental potential of most plants are its flowers, some species have ornamental fruits and foliage. Some suggestion for further exploitation, utilization and protection is given in the paper. We hope that this work will help the researchers and people, who are interested in wild ornamental plants.

Introduction

Biodiversity is one measure of the health of biological systems. Life on earth today consists of many millions of distinct biological species. A complex relationship exists among the different diversity levels. Identifying one level of diversity in a group of organisms does not necessarily indicate

its relationship with other types of diversities. Rapid environmental changes typically cause extinctions (Drummond and Strimmer, 2001). Most species that have existed on earth are now extinct (WGBH Educational Foundation, 2001).

Most of the present day flowers have come from the wild progenitors, a few of which still exist in natural habitat (Thomas *et al.*, 2011). Many plants that were once abundant were extremely hard to find in their usual habitats during our research since, the bigger problem is that there is no official judgment of whether they have disappeared or not. Nature has given a wealth of wild flower and ornamental plants, unfortunately many of them have been destroyed to such an extent that several have become extinct and survival of many is endangered by over exploitation by human beings (Arora, 1993). The objective of ornamental horticulture is the functional and aesthetic integration of people, using plants and space as its main tools. The necessity of it in architecture is for positive control of the fast changing landscape for the future (Chin and Tay, 2006).

Ornamental plants are plants which are grown for display purposes, rather than functional ones. While some plants are both ornamental and functional, people usually use the term “ornamental plants” to refer to plants which have no value beyond being attractive, although many people feel that this is value enough. Ornamental plants are the keystone of ornamental gardening, and they come in a range of shapes, sizes and colors suitable to a broad array of climates, landscapes, and gardening needs. Many ornamental plants are chosen because they appeal to the sense of smell, in addition to their visual appeal.

Materials and Methods

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Study Area

In Kottar diocese, the population is 1,738,250 at end of 2005. Tamils and Malayalees are the major ethnic groups. Tamil, Malayalam and English are the languages used the diocesan territory. The area under the Diocese of Kottar has known the Christian faith several centuries before the arrival of the Portuguese on the West Coast. Monuments recently excavated in a place called China-Muttom amply testify to this fact. The presence of St. Thomas Christians in places like Thiruvithancode (presently a small sub-station in the diocese) and Kottar has been attested by several fathers under the Padroado, a mission agency of Portuguese with Patronage rights granted to it by the Holy See. In a land area of 1,665 square kilometres the diocesan territory covers Kanyakumari, the southernmost district in India. Nagercoil, the district headquarters is the biggest town in the diocese. Kanyakumari, Marthandam, Thuckalay and Kolithurai are other towns in Kottar diocese.

Floristic survey

An extensive floristic survey was conducted during the year 2012-2013. Taxonomic identification, photographic documentation and ornamental characterization of each species with potential for use on floral art were recorded. The methodology used is based on observation method for the determination of flora. All the specimens collected were identified with the help of recent literature by local floras authored by Hooker, 1872-1887, Gamble and Fischer, 1915-1935, Henry *et al.*, 1989 and Mathew, 1999.

Result and Discussion

The field expedition of study area gave

interesting results concerning floristic diversity. A total of 61 angiosperm species are present in this study area (Table- 1). Out of which annuals are 13%, Gymnosperms 4.9%, palms 6.5%, Pteridophytes 8.1%, Biennials 4.9 %, Perennials 19.6%, Shrubs 11.4%, Climbers 16.3%, Succulents 8.1% and Cacti 6.5% (Table – 2). The classification of the ornamental flora based on the diversity (19 species) of the plants can be used as public garden plants followed by borders and beds (13 species) (Table-3).

The percentage distribution of ornamental flora is documented as families with 45% dicots, 8% monocots, 3.1% gymnosperms and 5% pteridophytes (Table – 4). Totally 30 families were identified, among that Asteraceae is the dominant family (11.4%) followed by Liliaceae (9.8%) Convolvulaceae (8.1%), Cactaceae and Arecaceae (6.5%) (Table- 5).

Landscape gardening and bio aesthetic planning is a recent trend to establish eco-friendly human habitats. We here documented the flora as ornamental utility. We propose exploration, collection and conservation of ornamental species is also one of the alternate methods to maintain the diversity of the species and conserve the endemic, rare and endangered species of ornamental interest. There is a lot of significance in recent years for the ornamental species in the utilization of various kinds of in the income generation among poor various kinds of in the income generation among poor also in the export market of India. Ornamental species are also the sources for the medicinal significance (Asati and Yadav, 2010). So the ornamental germplasm relatives are to be conserved. In the development of new hybrids, polyploidy and mutation of ornamental plants, technologies and market niches are needed. This process is largely

based on research and development, and requires strong collaboration between many links of the production chain. Most modern scientific research in the field of new ornamental crops deals with the adaptability of new species to be environment and the regulation of their late cycle or propagation systems. New ornamental products are satisfied consumers, lined together in mutually beneficial way. It is very easy for the propagation of wild species by traditional propagation methods. The cost of domestication of maintenance of ornamental species is also very less in comparison.

The nature ecosystems hold important plant genetic resources of endemic and threatened wild trees and ornamental plant relatives. Many of these plants are not maintained sustainably. Unique and particular diverse populations of these genetic resources must be protected in *in situ* conditions (Paroda *et al.*, 1999). This will also serve as an important model system for achieving the conservation of rare, endangered and horticultural potential wild ornamentals that are at present on the road to extinction due to various reasons. We hope, this work help the researches of people who are interested in ornamental plants.

Table.1 List of plants identified in the study area

Sl.No	Name of the Plants	Family
I	<i>Herbaceous Annuals</i>	
1.	<i>Althaearosea</i> L	Malvaceae
2.	<i>Balsam impatiens</i> Royle	Balsamnaceae
3.	<i>Cosmos bipinnatus</i> Cav.	Asteraceae
4.	<i>Dianthus chinensis</i> L	Asteraceae
5.	<i>Gomphrenaglobosa</i> L	Euphorbiaceae
6.	<i>Petunia alpicola</i> Juss.	Solanaceae
7.	<i>Zinnia elegans</i> L	Asteraceae
8.	<i>Gerbera rosa</i> L	Asteraceae
II	<i>Herbaceous biennials</i>	
9.	<i>Scabiosalucida</i> L	Liliaceae
10.	<i>Gladiolus illiricus</i> L	Liliaceae
11.	<i>Gladiolus imbricatus</i> L	Liliaceae
III	<i>Herbaceous perennials</i>	
12.	<i>Coleus blumei</i> L	Lamiaceae
13.	<i>Dieffenbachia maculata</i> L	Araceae
14.	<i>Begonia rex</i> L	Begoniaceae
15.	<i>Chrysanthemum indicum</i>	Asteraceae
16.	<i>Anthurium andreanum</i> Schott	Araceae
17.	<i>Aster amelleus</i> L	Asteraceae
18.	<i>Catharanthus roseus</i> (L.) G. Don	Apocyanaceae
19.	<i>Bellis perennis</i> L	Asteraceae
20.	<i>Dracaena massanacegea</i> Vand. ex L.	Liliaceae
21.	<i>Calathea ornata</i> G. Mey	Marantaceae
22.	<i>Agrostis tenuis</i> L	Araceae
23.	<i>Begonia richmondensis</i> L	Bignoniaceae

IV	Shrubs	
24.	<i>Aralia elegantissima</i> Thunb	Araliaceae
25.	<i>Aralia papyrifera</i> L	Araliaceae
26.	<i>Lawsoniainermis</i> L	Myrtaceae
27.	<i>Neriumindicum</i> L	Apocynaceae
28.	<i>Tecomastans</i> (L.)Juss.ex.Kunth	Bignoniaceae
29.	<i>Nyctanthesarbortristis</i> L	Nyctaginaceae
30.	<i>Cassia fistula</i> L	Caesalpiniaceae
V	Climbers	
31.	<i>Allamandacathartica</i> L	Apocyanaceae
32.	<i>Passifloracaerulea</i> L	Passifloraceae
33.	<i>Jasminumglandiflorum</i> L	Oleaceae
34.	<i>Quisqualisindica</i> L	Combretaceae
35.	<i>Thunbergiagrandiflora</i> Bojerex	Acanthaceae
36.	<i>Streptosolenjamesonii</i> (Benth.)Miers.	Solanaceae
37.	<i>Ipomoea alba</i> L	Convolvulaceae
38.	<i>Jacquemontiaviolaceae</i> L	Convolvulaceae
39.	<i>Ipomoea palmate</i>	Convolvulaceae
40.	<i>Campsisgrandiflora</i> Seem	Bignoniaceae
VI	Succulents	
41.	<i>Bryophyllumpinnatum</i> Salisb	Crassulaceae
42.	<i>Aloe vera</i> L	Liliaceae
43.	<i>Aeoniumarboreum</i> Webb&Berthel	Liliaceae
44.	<i>Sansevieriatrifasciata</i> Thunb	Convolvulaceae
45.	<i>Yucca glauca</i> L	Convolvulaceae
VII	Cacti	
46.	<i>Cereus giganteus</i> Salm	Cactaceae
47.	<i>Opuntiarhodantha</i> Mill	Cactaceae
48.	<i>Echinocereusdasyacanthus</i> Kunth	Cactaceae
49.	<i>Echinocactusgrusoni</i> Hildm	Cactaceae
VIII	Ferns	
50.	<i>Adiantumpedatum</i> L	Adiantaceae
51.	<i>Nephrolepisexaltata</i> (L.)Schott	Nephrolepaeae
52.	<i>Lygodiumscandens</i> Sw.	Schizaeaceae
53.	<i>Selaginellasps.</i>	Selaginellaceae
54.	<i>Pteriscretica</i> L	Pteridaceae
IX	Gymnosperms	
55.	<i>Cycasrevoluta</i> Thunb	Cycadaceae
56.	<i>Thuja</i> spl	Cupressaceae
57.	<i>Juniperussp.</i> L	Cupressaceae
X	Palms	
58.	<i>Licualaelegans</i> Blume	Arecaceae
59.	<i>Caryotaurens</i> L	Arecaceae
60.	<i>Areca rubra</i> L	Arecaceae
61.	<i>Areca alba</i> L	Arecaceae

Table.2 Percentage of ornamental plants enumerated based on its habit

Sl.No	Plant Groups	Number of Plants	%
1.	Perennials	12	19.6
2.	Gymnosperms	3	4.9
3.	Annuals	8	13
4.	Pteridophytes(ferns)	5	8.1
5.	Succulents	5	8.1
6.	Cacti	4	6.5
7.	Palms	4	6.5
8.	Biennials	3	4.9
9.	Shrubs	7	11.4
10.	Climbers	10	16.3

Table.3 Ornamental plants classified according to its utility

Sl.No	Utility	Number of plants
1	Borders, beds	13
2	Cut flowers	3
3.	Gardens	19
4.	Flowers beds	5
5.	Indoor plants	1
6.	Arches, pergolas	5
7.	Pot culture	4
8.	Hedge	4
9.	Varandah	4
10.	Bouquets	2
11.	Trellis	1

Table.4 Species wise distribution percentage of ornamental plants

Sl.No	Category	%
1.	Dicots	45
2.	Monocots	8
3	Gymnosperms	3
4.	Pteridophytes	5

Table.5 Family wise distribution of plants identified in the study area

Sl.No	Family	No. of Plants	% Composition
1	Annonaceae	1	1.06
2	Apocynaceae	5	5.31
3	Aristolochiaceae	1	1.06
4	Asclepiadaceae	4	4.25
5	Caesalpinaceae	3	3.19
6	Capparaceae	3	3.19
7	Celastraceae	4	4.25
8	Combretaceae	2	2.12
9	Convolvulaceae	7	7.44
10	Cucurbitaceae	3	3.19
11	Dioscoreaceae	3	3.19
12	Euphorbiaceae	3	3.19
13	Liliaceae	1	1.06
14	Linaceae	1	1.06
15	Malpighiaceae	1	1.06
16	Menispermaceae	5	5.31
17	Mimosaceae	4	4.25
18	Nyctaginaceae	1	1.06
19	Oleaceae	5	5.31
20	Papilionaceae	7	7.44
21	Passifloraceae	2	2.12
22	Piperaceae	1	1.06
23	Ranunculaceae	1	1.06
24	Rhamnaceae	4	4.25
25	Rosaceae	1	1.06
26	Rubiaceae	3	3.19
28	Sapindaceae	2	2.12
29	Smilacaceae	1	1.06
30	Tiliaceae	2	2.12
31	Verbenaceae	3	3.19
32	Vitaceae	7	7.44

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