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The ornamental flora of Western Sicily

Abstract

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The ornamental flora of western Sicily was studied in an area which covers three provinces: Palermo, Agrigento and Trapani. A total of 95 towns and villages were visited and ornamental plants growing in the public green areas were studied.

The ornamental flora of this area reaches a total of 633 species, which belong to 120 families and 364 genera. *Fabaceae*, *Asteraceae* and *Rosaceae* are the best represented families, with a total of 38, 36 and 31 species respectively. *Opuntia*, with 11 species is the best represented genus, followed by *Acacia*, *Prunus*, *Ficus*, *Quercus*, *Euphorbia*, *Agave* and *Salvia*. A 24% of the Sicilian ornamental flora comes from Asia, 22% from America, 16% from Europe, 16% from Africa, 7% from Australia and 1% from the Canary Island. Mediterranean flora is represented by only a 9% of the total number.

Introduction

Sicily is the biggest Mediterranean island, with a perimeter of 925578 km, a total area of 25000 km², and 5,5 million inhabitants. The western part of this island includes three provinces: Agrigento, Palermo and Trapani.

Palermo's province is the biggest and most populated, with an area of 5000 km². Palermo is the biggest city, with c. 1 million inhabitants. Agrigento's province has an area of 3042 km²; the capital, Agrigento, with 55424 inhabitants, is the biggest city. Trapani's province is situated in the most western part of the island, and it is the smallest one with an area of 2462 km² (Caltabellotta & al. 1998).

Climate of the island is typically Mediterranean, characterised by a mean temperature of 22 °C during the hottest month with a raining period concentrated during Autumn-Winter. The mean temperature is between 16 and 18 °C. The coldest month is January (sometimes February) and the hottest July (sometimes August), with a mean temperature of 30 °C.

A systematic study of the ornamental flora of Western Sicily was undertaken between 1997 and 2000, as an attempt to know the floristic diversity of green areas of this region. The results of this study are summarised in this note. More detailed papers on some particular groups have been published elsewhere (Rossini Oliva & Valdés 2001; Rossini Oliva & al. 2002a, b, c; Rossini Oliva & al. 2003).

Materials and methods

This study has been carried out between October 1997 and July 2000. A total of 94 towns and villages belonging to the provinces of Palermo, Agrigento and Trapani have been studied, including Palermo, the capital of Sicily, with c. 1 million inhabitants.

Ornamental species in public areas, this is, squares, avenues, gardens, parks and streets have been studied, as well as courtyards of public buildings, palaces and churches. Private gardens have been excluded.

The 94 localities have been repeatedly visited along the year, which has allowed to observe all ornamental plants during three consecutive vegetative periods, and to study them when flowering and fruiting. *Rosa* was not considered in this paper, since it needs an independent study owned to the enormous richness in ornamental cultivars. Samples of most species were taken to form a reference herbarium to identify the plants, which is deposited in the *Herbarium Mediterraneum*, at Palermo (PAL).

Plant material was identified by using different keys and reference books, particularly Britton & Rose (1963), Dallimore & Jackson (1923), Tutin & al. (1964-1980), Backeberg (1976), Herklots (1976), Jacobsen (1960, 1970), Mitchell (1985), Walters & al. (1984-1986, 1989), Pignatti (1982), Valdés & al. (1987), Traverso (1990), Huxley (1992) y Andrés & Rossini (1998), as well as specialised papers and, by comparison with plants growing at the Botanical Gardens of Rome, Naples and specially Palermo.

Results and discussion

The ornamental flora of this area reaches a total of 633 species, which belong to 120

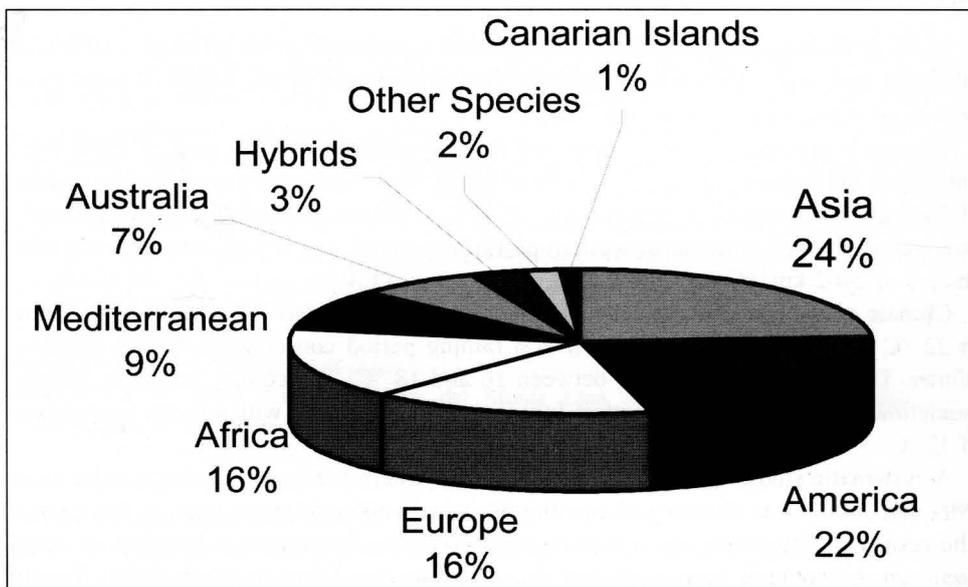


Fig. 1. Geographic origin of the species.

families and 364 genera. For geography origin (Fig. 1), 24% of the species come from Asia (179 species), 22% from America (168 species), 16% come from Europe (126 species) and from Africa in the same percentage (125 species). Plants from Mediterranean area are represented by only the 9% (72 species), 51 species (7%) come from Australia, the 3% are represented by hybrids (25 species) and, 1% come from the Canary Island (10 species).

Species coming from Africa are represented in a percentage similar to those coming from Europe. This is due to the Mediterranean climate of the area, which allows the easy growing of plants from Europe and N Africa and this is the reason why some of the cities studied, i. e. Palermo has an ornamental flora similar to some North Africa cities.

The lower percentage of Mediterranean species (9%) is a bit surprising (Rossini Oliva & al. 2002c), and results from the traditional trend to incorporate to gardens the most exotic plants, which has resulted in an increase of Asiatic and American plants and a lost of the traditional Mediterranean and European plants which dominated in pre-Renaissance gardens.

Tree species represent the higher percentage (32%) of the W Sicilian ornamental flora, followed by herbs (including annual, biannual and perennial) and shrubs, which are represented in the same percentage (29%). Climbing species represent a total of 5%; palms the 3% and 1% are sub-shrubs.

As far as flower and leave phenology is concerned, most species flower during spring and summer, followed by species that blossom in autumn and in winter. There are also species that blossom all the year around, such as *Bougainvillea* spp., *Nerium oleander* L., *Lantana camara* L and *Aptenia cordifolia* (L. f.) Schwantes.

Within trees, 52% are evergreen and 48% deciduous. A 79% of the shrubs are evergreen and 21% are deciduous. In some cases, such as observed foliar and flower phenology differs from information reported by other authors (Pizzetti & Cooker 1968; Pignatti 1982; Traverso 1990), due, most probably to the hot Sicilian climate and to the long summer period.

Fabaceae is the best represented family of the ornamental flora of the study area, with a total of 38 species: 26 trees, 10 shrubs, one climbing and one annual herb.

These species belong to genera *Acacia*, *Albizia*, *Anagyris*, *Bauhinia*, *Caesalpineae*, *Calliandra*, *Cassia*, *Ceratonia*, *Cercis*, *Erythrina*, *Gleditsia*, *Laburnum*, *Lupinus*, *Medicago*, *Parkinsonia*, *Retama*, *Robinia*, *Sesbania*, *Sophora*, *Spartium* and *Wisteria*. Genus *Acacia* is the best represented, with 10 species.

Some of these ornamental *Fabaceae* are very common in W Sicily, particularly *Acacia baileyana* and *A. cyanophylla*. But almost one third of them are very rare, often represented in the study area by very few specimens, as *Acacia melanoxylon* R. Br., *Albizia lebbeck* (L.) Benth., *Bauhinia acuminata* L., *Bauhinia variegata* L., *Cassia bicapsularis* L., *Erythrina crista-galli* L., *Lupinus hartwegi* Lindl. and *Sophora secundiflora* (Ortega) Lag. ex DC.

In relation to their origin, only 15,7% come from the Mediterranean area, with some only grown in one locality, as *Medicago arborea* L., which is used in Agrigento to form edges in some gardens of the Temple's Valley.

The presence of some species such as *Anagyris foetida* L. in urban green areas results from the incorporation of wild areas into urban or priurban parks, while keeping some of the existing plants. Some, as *Ceratonia siliqua* L., *Cercis siliquastrum* L. and *Spartium junceum* L. come from the Mediterranean region. The continent better represented is America, with 31,5% of the *Fabaceae* grown as ornamental in W Sicily, followed by Asia

and Australia, with a 21% each. A 7,8% of the species (just three) come from S Africa and one species (*Laburnum anagyroides* Medik.), comes from non-Mediterranean Europe.

The second best represented family is *Asteraceae*, with a total of 36 species and 19 genera. Perennial herbs represent a total of 57% species (20 altogether), followed by perennial sub-shrubs (17%). Annual herbs represent the 14% and perennial shrubs are present by only the 12% of the species. In relation to their origin, the 26% come from America, followed by the 17% that come from the Mediterranean area and Europe in the same percentage. The 14% of the species come from Africa and an 11% from the Canary Island.

Only 8% come from Asia.

These species belong to the genera *Ageratum*, *Artemisia*, *Argyranthemum*, *Aster*, *Bellis*, *Calendula*, *Centaurea*, *Chrysanthemum*, *Dahlia*, *Dimorphoteca*, *Gaillardia*, *Gazania*, *Kleinia*, *Helianthus*, *Leucanthemum*, *Ligularia*, *Montanoa*, *Pericallis*, *Santolina*, *Senecio*, *Tagetes* and *Zinnia*. *Senecio* is the best represented genus, with 6 species.

Some of these ornamental *Asteraceae* species are very common in W Sicily, such as *Argyranthemum frutescens* L. (*Chrysanthemum frutescens*) and *Senecio angulatus* L. f. But most of them are very rare, often represented in the study area by very few specimens, as *Senecio malacitanus* Huter, *Ageratum haustonianum* Mill., *Aster rotundifolius* Thunb. and *Dimorphoteca sinuata* DC. (Rossini Oliva & al. 2003).

The third best represented family is *Rosaceae*, with a total of 31 species and 14 genera (Rossini Oliva & al. 2002c). Most of the species found in the study area are much ornamental, especially because their flowers showiness and the abundant flowering. *Prunus* is the best represented genus, with a total of 10 species, followed by *Cotoneaster* and *Spiraea* (each one with 3 species); the others genera are represented by only one or two species. *Chaenomeles speciosa*, *Prunus spinosa*, *Mespilus germanica* and *Rhaphiolepis umbellata* are the most common species.

Shrubby species represent the 58% (18 species) of the total. Most of the species are deciduous (71%, con 22 specie), whilst only the 29% (9 species) are evergreen. This means that some species have an interesting ornamental value due to their foliar colours in autumn. Most of the species (20 species) come from Asia and only one, *Crataegus azarolus* L., comes from the Mediterranean.

The species belong to genera *Chaenomeles*, *Cotoneaster*, *Crataegus*, *Cydonia*, *Eriobotrya*, *Malus*, *Mespilus*, *Photinia*, *Prunus*, *Pyracantha*, *Pyrus*, *Rhaphiolepis*, *Sorbus* and *Spiraea*.

Many families are very scarcely represented (Table 1).

Of them, 39 are represented by only one species and 21 by two species, often belonging to different genera. However, there are many families that even if represented by only one species are abundant. This is the case of *Pittosporaceae*, *Cannaceae* and *Myoporaceae*. *Pittosporum tobira* (Thunb.) W. T. Aiton and *Myoporum tenuifolium* G. Forst. are the most common shrubs everywhere. On the other hand, there are also families represented by only one species that are also not much abundant and in some cases can be considered rare in W Sicily (Rossini Oliva & al. 2002). This is the case of *Combretaceae* that is represented by *Quisqualis indica* L., with a single plant, which grows in Palermo.

The ornamental flora of W Sicily includes some species that can not be strictly considered as ornamental, as they are not intentionally planted as part of a gardening or plantation project. They result from the maintenance within gardening areas of some wild plants,

Table 1. Families scarcely represented in the ornamental flora of Western Sicily.

Familia	N. Sp.	N. Gen.	Familia	N. Sp.	N. Gen.
Acanthaceae	4	4	Geraniaceae	3	1
Aceraceae	6	1	Iridaceae	7	4
Agavaceae	22	8	Lamiaceae	24	14
Aizoaceae	12	8	Lauraceae	4	3
Aloeaceae	13	3	Liliaceae	19	14
Amaranthaceae	3	3	Malvaceae	8	6
Anacardiaceae	6	3	Moraceae	13	4
Apocynaceae	7	7	Myrtaceae	9	5
Araceae	7	7	Nyctaginaceae	3	2
Araliaceae	9	8	Oleaceae	18	7
Araucariaceae	4	1	Pinaceae	13	4
Arecaceae	19	12	Plumbaginaceae	4	3
Asteraceae	36	19	Poaceae	5	3
Berberidaceae	4	3	Polygonaceae	4	4
Bignoniaceae	9	7	Proteaceae	3	1
Brassicaceae	5	5	Ranunculaceae	3	2
Cactaceae	23	11	Rosaceae	31	14
Caprifoliaceae	11	5	Rutaceae	8	4
Caryophyllaceae	5	2	Salicaceae	7	2
Casuarinaceae	3	1	Scrophulariaceae	7	5
Celastraceae	3	2	Solanaceae	15	8
Chenopodiaceae	3	3	Sterculiaceae	4	3
Commelinaceae	3	2	Tamaricaceae	5	1
Convolvulaceae	5	2	Tiliaceae	6	2
Crassulaceae	15	6	Ulmaceae	6	2
Cupressaceae	14	8	Verbenaceae	6	4
Euphorbiaceae	9	2	Violaceae	3	1
Fabaceae	38	21	Vitaceae	4	4
Fagaceae	9	1			

when an urban or periurban park is extended and covers an area previously occupied by wild vegetation. They can not be included into the concept of garden weeds, as they are integrated in the gardens as another ornamental plant and kept and cared as such. This is the case, by instance of *Anagyris foetida* L., which is now growing as ornamental plant in the urban park of Valderice (Trapani), *Thymbra capitata* (L.) Cav., growing in the sub-urban park of Cattolica Eraclea (Agrigento), *Capparis spinosa* L., a very abundant species that was observed in Monreale (Palermo) and in the urban park of Caltabellotta (Agrigento), *Atriplex glauca* L., rather common in marginal gardening areas in Agrigento and *Helianthus annuus* L. which grows in some gardens of Palermo and Trapani provinces.

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