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## A catalogue of plants growing in Sicily

### Abstract

Giardina, G., Raimondo, F.M. & Spadaro V.: A catalogue of plants growing in Sicily. — *Boccone* 20: 5-582. 2007. — ISSN 1120-4060.

This Catalogue includes the taxonomic units of the native and exotic taxa, both adventive and cultivated of the vascular flora of Sicily. Species and subspecies, as well as varieties and forms are taken into consideration, contrary to the actual tendency to include only the former. The main aim of the Catalogue is therefore to analyze the flora of the largest and significant island of the Mediterranean, and to give a tool for specialists of the field and an informative basis of the regional biodiversity in favour of preserving and promoting actions.

Together with synonymic information on each single taxon, the Catalogue includes ecological and distributive references of the region.

Nomenclatural novelties and the descriptions of new taxa are also included.

Taxa referring to naturalized or cultivated native and exotic plants, which are widely spontaneous, are numbered. Non numbered problematic taxa are also reported. Bibliography is given for each taxonomic unit.

The Catalogue includes in total 176 families, 878 genera, and 3201 specific and infra-specific taxa (subspecies, varieties and forms) excluding doubtful and extinct ones as well as exotic cultivated.

### Introduction

Ever since Botany took shape as a modern positive science, Sicily – the largest of the Mediterranean islands – appeared as a land rich in its distinctive flora and vegetation features. For this very reason, from the 17<sup>th</sup> century onward, this island has been the object of an intense investigation by native and foreign botanists. Peculiarities and richness of Sicilian flora as well as relevant vegetation features can be justified by the great diversity of environments and by paleo-geographic process from which it was determined.

Sicily is then formed by several mountains which define its orography. The mountains around Trapani and Palermo, in the western part of the island, are of remote origin consisting mainly of Tertiary limestone where extremely expressive elements of past floras are preserved. Once linked up with the Apennines, the Peloritani Mountains – in north-eastern Sicily – are rich in orophytes elements with a peninsular chorotype. The Nebrodi territory is an area of easily eroded flysch clays, with less abrupt outlines when compared to carbonatic landscapes. Poor in conservative habitats, the Nebrodi Mountains are covered with

extensive and well developed beech forests, including plants scarcely found elsewhere outside the beech domain. Furthermore on the Nebrodi Mountains, clayey substrata allow, under suitable geo-morphological conditions, the formation of moist depressions, brooks and ponds (locally known as “margi”, “urghi”, “gurghi”), where a rich and great variety of hygrophilous species is found. The northern range is delimited westward by the Madonie Mountains, that are mainly characterized by Carbonate soils among which the Monte Quacella area with its very rich and quite peculiar flora stands out so that it was defined by Lojacono-Pojero (1886) as the “Sicilian Alps”. In eastern part, the Etna volcano which arises 3300 m a. s.l. represents an extraordinary orographic element for the island. Its distinctive flora, includes remarkable neo-endemic elements. The extreme southern part of the island is characterized by the limestone complex of the Iblei Mountains and by extensive areas made by sand substrata originated by intensive erosion dated back to the Pliocene and Pleistocene periods. The Iblei Mountains – thanks also to remote Aegean connections – present clear relations with the eastern-Mediterranean elements. This area is very similar to the North-African lands. Finally, the central part of Sicily is constituted by Messinian evaporitic deposit (clay, marls, chalks), on which a peculiar flora has gradually developed including some endemics.

The floristic richness of Sicily has always interested local and foreign scholars as well as travellers who have been fascinated by the possibility to visit different habitats so close to each other. In a pre-linnean times most of the well equipped Research Centers found place in religious buildings, where scholars such as S. Boccone (1633-1704) and F. Cupani (1657-1710) could develop their study. The latter published an illustrated catalogue containing 2000 different plants. After the advent of the linnean binomial system, the first attempt of extensive interpretation of the peculiarities of the Sicilian flora is due to G. Gussone (1787-1866), who in its works listed more than 3530 specific and infraspecific taxa (species and varieties). In the same years, in the new academic center of Palermo V. Tineo (1791-1856) – after a long exploration across the island – collected an extensive amount of data that, although remained unpublished, was available to his contemporaries as well as to his future students. Similarly, A. Todaro (1818-1892) spread a remarkable amount of exsiccata, which became well known in great part of Europe. In the meantime, other foreign scholars were also interested in exploring extensive parts of Sicily. Among these C.B. Presl (1794-1852), contemporary of Tineo and Gussone, had already produced a catalogue containing about 1820 taxa. Subsequently – in the second half of the 19<sup>th</sup> century – Strobl (1846-1925), working around the Etna and Madonie areas (i.e. up to a recent past the term “Nebrodi” was used to identify the Madonie Mountains), added further contributions to the present stage of the botanical research.

Thanks to the contributions of these authors, M. Lojacono-Pojero (1888-1909) was able to publish *Flora Sicula*, a work in which he reported the presence of 4227 Sicilian taxa (for more details on the history of Botany in Sicily, see Raimondo 1988). From the time of Lojacono (1853-1919) almost a century has passed and many aspects of botanical science have been growing: many species have been separated, re-assembled, or even placed in more appropriated genera. However, although new taxa have been discovered, it can be concluded that until 1975 the cognitive progress has been rather slow. The developments in taxonomic studies suffered a period of stasis from the 1920s to the 1970s. The field studies on flora, taxonomy and systematics nearly completely disappeared also in the interest

of local researchers due to the prevailing of a positivistic philosophical-methodological approach to epistemology (generally unconscious) based on the common thinking that taxonomy had no more secrets, and the few issues still unsolved were of little interest.

The value of those useful tools able to determine future investigations was neglected. For instance, *Flora Sicula*, written by Lojacono, a work owned by every library was regarded as a collection of solved questions, instead of a collection of unsolved issues and therefore a stimulating tool for the improvement of botanical studies; neither the information contained in the work of Fiori (*Nuova Fl. Anal. Ital.* 1923-1929) were much taken into consideration. Even *Flora Europaea* [Tutin & al. (eds.) 1964-1980] was badly interpreted for the choice to avoid the treatment of inferior ranks as a case of subspecies, not considering the important role that it played to help taxonomists. In this period, the study of the territory was neglected, and in many cases the memory of the exact localities of rare species or those of phytogeographic significance was lost. For this reason, after the 1920s-1970s break, it has been difficult - and still it is - to reconstruct a territorial map of the already well-known elements. These aspects were followed by other consequences: some more or less numerous taxonomical problems left open by previous scholars remained unsolved. This is the reason why writing today a Catalogue of Sicilian plants is not an easy task, since the literature data is not always consistent; when it is coherent, specimens' examination is not definitive because these might belong to taxa not clearly treated by scholars.

However, in spite of these difficulties, a catalogue of the living plants could be still a useful tool for scholars. In order to obtain the best result, it has been decided to include in this Catalogue also uncertain taxa that could be object of more specific investigations deserving another place than a simple floristic catalogue.

### **Rarity and the conservation problems**

Rarity is often a natural aspect in the distribution of plant species. It is due to the fact that Life has an intrinsic tendency to adapt even to peculiar habitats – the much rare (es. “mofete”, “faguarè”, etc.), or narrow niches. There is a clear relationship between rare habitats and rare species. Rarity, however, should be considered behind the narrow concept of “natural rarity”. A rare plant is not necessarily in danger of extinction. Its extinction process can be verified in a long geological era in which habitats can change or disappear. The rarefying process is currently expanding and therefore many species can be considered as virtually extinct caused by the disturbing presence of human beings.

Today greater attention must be paid to preserve the floristic heritage. To be accused is a blind model of development, which does not offer better perspective for the coming generations. However, without interfering with the actual development process, many easy and inexpensive actions may be pursued to preserve and reduce the risk of extinction for a great number of plant species. First of all it is important to know which species is in danger and where it can be found in the region. For this reason, a modern catalogue of living plants could be of great usefulness. Naturally, a catalogue does not resolve the problems of taxa delimitation; however, on the basis of the acquired knowledge, it indicates the numerous taxonomic threat and their distributions. For this purpose, the chorology and the

possible endemic character, as well as an index of rarity, are included. In this way the Catalogue wants to be a useful tool – limited to the Sicilian territory – for those who are interested in knowing the level of danger for the regional flora.

### Nomenclatural variations

During the preparation of this Catalogue we have realised that it is extremely important that the floristic analysis of the territory succeeds to supply reliable floristic plant lists to scholars of any botanical branch. Otherwise investigations of applied studies might be impossible. Therefore it needs that taxonomists should focus their research mainly on those local taxa which are still not well identified and described. All this is clear through both herbarium material and what is found in the classic works of botanic literature [Flowers, Fl. It., (1923-29) with material in FI; Lojacono, Fl. Sic. (1891-1909) with material in PAL; Guss., Fl. Sicul. Prodr., (1827-28), Suppl. Fl. Sicul. Prodr. (1832-34), Fl. Sic. Syn. (1843-45) with material mainly in NAP]. Much of the Sicilian material has not been adequately examined by many authors due to the lack of suitable material found in the most important European herbaria (although a large number of specimens were distributed by Todaro, they cannot be regarded as fully representative of the floristic richness of Sicily). Much material has been effectively examined by Fiori (in FI), but it was not sufficient to solve all the problems related to taxonomy, and new questions still need an answer. It is then important to identify taxa, so that every unsolved problem is labelled and possibly named. So it has been necessary to introduce several new combinations as follows.

#### *Nomenclature and taxonomic novelties, and typifications* (\*)

*Acinos minae* (Lojac.) Giardina & Raimondo **comb. nov.** [Bas. *Calamintha minae* (“*minae*”) Lojac., Fl. Sicul. 2(2): 220 (1904)].

*Agrostis stolonifera* var. *densiflora* (Guss.) Giardina & Raimondo **comb. nov.** [Bas. *Agrostis alba* var. *densiflora* Guss., Fl. Sicul. Prodr. Suppl. 1: 15 (1832)].  
Taxon described by Gussone (1832) and [confirmed] in his Fl. Sicul. Syn. 1 (1843), reported in Lojacono (1909) as *Agrostis altissima* var. *terrestris* Lojac. and in Fiori (1923: 97) among the intraspecific taxa of *A. alba* .

*Allium sphaerocephalon* subsp. *laxiflorum* (Guss.) Giardina & Raimondo **stat. nov.** [Bas. *A. sphaerocephalum* var. *laxiflorum* Guss., Fl. Sicul. Prodr. Suppl. 1: 98 (1832); Syn. “*A. aegeum*” sensu Lojac. non Heldr. & Halácsy ex Halácsy].  
Described by Gussone as a variety, it is morphologically quite distinct and therefore worthy of being placed at the subspecific rank.

*Anisantha sterilis* var. *sicula* (Strobl) H. Scholz **comb. nov.** [Bas. *Bromus sterilis* var.

(\*) Marginal notes to nomenclatural changes proposed, alike diagnoses and typifications of new taxa, refer to the relevant authors.