

Exotic naturalized flora of continental Portugal – A reassessment

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Abstract: Domingues de Almeida, J & Freitas, H. 2006. Exotic naturalized flora of continental Portugal – A reassessment. *Bot. Complut.* 30: 117-130.

Six years after our last study on the exotic naturalized flora of continental Portugal, we present a reassessment. In 1999, we have considered the existence of 500 exotic species of vascular plants (invasive or more or less naturalized). From 1999 until now 64 new plant species records were added (12.8 % more), attaining now a total number of 564 taxa (including, as in precedent works, species, subspecies and some hybrids), belonging to 113 families.

Keywords: Exotic species, flora, continental Portugal.

Resumen: Domingues de Almeida, J & Freitas, H. 2006. Flora exótica de Portugal continental – una revisión. *Bot. Complut.* 30: xxx-xxx.

Seis años después de nuestro trabajo acerca de la flora exótica naturalizada de Portugal continental, presentamos una actualización. En 1999, habíamos considerado la presencia de 500 especies de plantas vasculares exóticas (invasoras o más o menos naturalizadas). Desde 1999 hasta el final de 2005 se detecta un incremento de 64 nuevas plantas exóticas (12,8 % más), alcanzando ahora el número total de 564 taxa (incluyendo, tal como en los trabajos previos, especies, subespecies y algunos híbridos), pertenecientes a 113 familias.

Palabras clave: Especies exóticas, flora, Portugal continental.

Resumo: Domingues de Almeida, J & Freitas, H. 2006. Flora exótica de Portugal continental – uma revisão. *Bot. Complut.* 30: 117-130.

Seis anos depois de uma primeira avaliação da flora exótica naturalizada de Portugal continental, apresentamos uma actualização. Em 1999, admitíamos a existência de 500 espécies de plantas vasculares exóticas (invasoras ou mais ou menos naturalizadas). Desde 1999 até ao fim de 2005 encontrámos um acréscimo de 64 novas introduções (mais 12,8 %), atingindo-se agora o número total de 564 taxa (incluindo, como nos trabalhos anteriores, espécies, subespecies e alguns híbridos), pertencentes a 113 famílias.

Palavras-chave: Espécies exóticas, flora, Portugal continental.

INTRODUCTION

Six years after completing a first assessment of the exotic subspontaneous flora of continental Portugal (Almeida, 1999a; Almeida & Freitas, 2000, 2001), we present a reassessment of our previous work.

An atlas of the alochtonous invasive plants in Spain, including a synopsis of the alochtonous flora of Spain, was recently published (Sanz Elorza *et al.*, 2004). A survey about the introduction of non-native plant species in Spain in the period 1975-2002 (Del Monte & Aguado, 2003) was also recently published, including 170 new introductions. Several relevant papers on this subject,

related to Portugal, were published (Colmeiro, 1891; Coutinho, 1920; Pinto da Silva 1942, 1963, 1971, 1975; Fernandes, 1955). Other works were published, focusing particularly in the most invasive species (Campelo, 2001; Marchante, 2001; Marchante *et al.*, 2003; Almeida & Freitas, 2003; Almeida *et al.*, 2004).

As we have written before (Almeida & Freitas, 2000, 2001), the expansion of subspontaneous or exotic invasive plants is threatening the Portuguese native flora, becoming a severe environmental problem. Nowadays, «intensive trade and the constant flow of people have resulted in a large plant transfer crossing frontiers and geographical boundaries» (Del Monte & Aguado, 2003: 241).

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MATERIALS AND METHODS

In this work we have used the bibliography published mainly in the last seven years (1999-2005) and also some field observations. One relevant publication was the recent legislation on invasive species —«Decreto-Lei n.º 565/99» of 21 of december (1999)— by the Portuguese Ministry of the Environment. This legal text recognizes a great number of vascular plant species as introduced in Portugal (and invasive in some cases). Other important bibliographic sources of new records of exotic species and information about these species were: a) three new volumes and a compilation of *Flora iberica* (Castroviejo *et al.*); b) a book about trees and shrubs in the Iberian Penin-

sula (López González, 2001); c) three PhD theses (Pinto Gomes, 1998, Aguiar, 2000, Honrado, 2003); d) two congress presentations (Amaral Franco & Espírito Santo, 2000, Alves *et al.*, 2004); e) some published papers and notes (Almeida, 1999b, 1999c, 2000a, 2000b, 2002, 2003a, 2003b; Galán de Mera & Castroviejo, 2005, Heywood & Zohary, 1995, Morales, 2000); and f) unpublished notes (Paiva, unpublished, Almeida & Matos, 2005).

We use the classification of synanthropic plant species of Kornas (1990), with the following main concepts and categories (simplified) in Table 1. In this work we don't include the apophyta or autochthonous synanthropic species (e.g. *Pinus pinaster* Aiton, which is native in Portugal). We just consider the Anthropophyta, or alochthonous, exotic or non-native synanthropic species.

Table 1
A simplified version of the classification of synanthropic plant species of Kornas (1990).

1	Apophyta (Apo)	Autochthonous synanthropic species	
2	Anthropophyta (Anthr)	Alochthonous synanthropic species, introduced by man (voluntarily or involuntarily)	
2.1	Metaphyta (Meta)	Anthropophyta permanently established	
	2.1.1	Archeophyta (Arch)	Metaphyta established before 1500 d.C.
	2.1.2	Epoecophyta (Epoec)	Metaphyta introduced after 1500 d.C., established exclusively in ruderal and arvense communities
	2.1.3	Agriophyta (Agr)	Metaphyta introduced after 1500 d.C., established in natural or seminatural communities (Including Hemiagriophyta and Holoagriophyta)
2.2	Diaphyta (Dia)	Anthropophyta temporarily established (Including Ephemerophyta and Ergasiophytophyta)	

RESULTS

We have to agree with Chodat (1913): «C'est une des caractéristiques du Portugal que la grande abondance de mauvaises herbes d'origine étrangère». Recently, another great botanist confirmed this opinion: «Portugal has the reputation of being particularly “rich” in aggressive alien plants and that reputation is fully confirmed (...). From *Eucalyptus* to *Carpobrotus*, many naturalized exotics work together in putting the country's rich native flora at risk» (Greuter, 2002).

From 500 taxa of vascular exotic more or less naturalized species (including species, subspecies and also

some hybrids) in 1999, or 15 % of the total flora (ca. 3200 species and subspecies), we now reach the impressive figure of 564 taxa (about 17 % of the total Portuguese flora), belonging to 113 families. In the period 1999-2005 we found 64 new records (12.8 % of the previous total number).

The main results of our work are summarised in table II, including all exotic more or less naturalized 564 taxa (species, subspecies and hybrids) that we know from continental Portugal (present and past), ordered in alphabetical order (Table 2):

Table 2

Exotic vascular plant species (invasive, potentially invasive or more or less naturalized) in continental Portugal. **Ch:** Chamephyte; **Cr:** Cryptophyte; **H:** Hemicriptophyte; **Hy:** Hydrophyte; **Ph:** Phanerophyte; **Th:** Therophyte; **Agr:** Agriophyte; **Arch:** Archeophyte; **Dia:** Diaphyte; **Epoe:** Epoeophyte; **Medit. Region:** Mediterranean Region; **NZeal.:** New Zealand; **Trop. Regions:** Tropical Regions; **N:** North; **S:** South. (1) Phytotype, according to Raunkiaer classification (1934). (2) Year of first reported naturalization of exotic species: a) year of collection of the first herbarium specimen; or b) year of the first observation of the referred taxon; or c) year of publication of the first bibliographic reference. For the archeophytes (Arch) we indicate the year of introduction as b. 1500 (before the year 1500). (3) Type of exotic species, according to Kornas classification (1990).

Name of the species	Family	Origin	(1)	(2)	(3)
<i>Abies x insignis</i> Carr. ex Bailey	Pinaceae	Hybrid	Ph	1949	Epoe
<i>Abies alba</i> Miller	Pinaceae	Eurasia	Ph	1949	Epoe
<i>Abies nordmanniana</i> (Steven) Spach	Pinaceae	Eurasia	Ph	1949	Epoe
<i>Abies pinsapo</i> Boiss.	Pinaceae	Medit. Region	Ph	1949	Epoe
<i>Abutilon theophrasti</i> Medik.	Malvaceae	Eurasia	Th	1869	Epoe
<i>Abutilon x hybridum</i> Siebert & Voss.	Malvaceae	Hybrid	Ph	2004	Epoe
<i>Acacia baileyana</i> F. Muell.	Mimosaceae	Australia	Ph	1981	Epoe
<i>Acacia cultriformis</i> A. Cunn. ex G. Don	Mimosaceae	Australia	Ph	1999	Epoe
<i>Acacia cyclops</i> A. Cunn. ex G. Don fil.	Mimosaceae	Australia	Ph	1939	Agr
<i>Acacia dealbata</i> Link	Mimosaceae	Australia	Ph	1968	Agr
<i>Acacia decurrens</i> (J. C. Wendl.) Willd.	Mimosaceae	Australia	Ph	1999	Epoe
<i>Acacia karroo</i> Hayne	Mimosaceae	S Africa	Ph	1968	Epoe
<i>Acacia longifolia</i> (Andrews) Willd.	Mimosaceae	Australia	Ph	1989	Agr
<i>Acacia mearnsii</i> De Wild.	Mimosaceae	Australia	Ph	1968	Epoe
<i>Acacia melanoxylon</i> R. Br.	Mimosaceae	Australia	Ph	1968	Agr
<i>Acacia pycnantha</i> Bentham	Mimosaceae	Australia	Ph	1968	Epoe
<i>Acacia retinodes</i> Schlecht.	Mimosaceae	Australia	Ph	1968	Agr
<i>Acacia saligna</i> (Labill.) H.L. Wendl.	Mimosaceae	Australia	Ph	1968	Epoe
<i>Acacia sophorae</i> (Labill.) R. Br.	Mimosaceae	Australia	Ph	1999	Epoe
<i>Acacia verticillata</i> (L' Hér.) Willd.	Mimosaceae	Australia	Ph	1963	Epoe
<i>Acalypha rhomboidea</i> Raf.	Euphorbiaceae	N America	Th	2005	Epoe
<i>Acanthus mollis</i> L.	Acanthaceae	Medit. Region	H	1500	Agr
<i>Acer negundo</i> L.	Aceraceae	N America	Ph	1975	Agr
<i>Acer platanoides</i> L.	Aceraceae	Eurasia	Ph	1971	Agr
<i>Aeonium arboreum</i> (L.) Webb & Berthel.	Crassulaceae	Macaronesia	Ph	1661	Agr
<i>Aeonium haworthii</i> Salm-Dyck ex Webb & Berthel.	Crassulaceae	Macaronesia	Ph	2001	Agr
<i>Agave americana</i> L.	Agavaceae	N America	H	1887	Agr
<i>Agave atrovirens</i> Karwinski ex Salm-Dyck	Agavaceae	N America	H	1975	Agr
<i>Ageratina adenophora</i> (Sprengel) R.M. King & H. Robinson	Asteraceae	N America	H	1940	Epoe
<i>Ageratum houstonianum</i> Miller	Asteraceae	N America	Th	1965	Dia
<i>Agrostemma githago</i> L.	Caryophyllaceae	Medit. Region	Th	b.1500	Epoe
<i>Aichryson laxum</i> (Haw.) Bramwell	Crassulaceae	Macaronesia	Th	1909	Epoe
<i>Ailanthus altissima</i> (Miller) Swingle	Simaroubaceae	Eurasia	Ph	1962	Epoe
<i>Alcea rosea</i> L.	Malvaceae	Medit. Region	H	1804	Epoe
<i>Allium triquetrum</i> L.	Alliaceae	Medit. Region	Cr	1804	Epoe
<i>Aloe arborescens</i> Miller	Asphodelaceae	S Africa	Ph	1980	Agr
<i>Aloe maculata</i> All.	Asphodelaceae	S Africa	Ch	1998	Dia
<i>Aloe vera</i> (L.) Burm. fil.	Asphodelaceae	Africa, Arabia	H	1896	Agr
<i>Amaranthus albus</i> L.	Amaranthaceae	N America	Th	1897	Epoe
<i>Amaranthus blitoides</i> S. Watson	Amaranthaceae	N America	Th	1927	Epoe
<i>Amaranthus blitum</i> L. ssp. <i>emarginatus</i> (Moq. ex Uline & Bray) Carretero et al.	Amaranthaceae	Trop. Regions	Th	1990	Epoe
<i>Amaranthus caudatus</i> L.	Amaranthaceae	S America	Th	1897	Dia
<i>Amaranthus cruentus</i> L.	Amaranthaceae	N America	Th	1882	Dia
<i>Amaranthus deflexus</i> L.	Amaranthaceae	S America	H	1897	Epoe
<i>Amaranthus hybridus</i> L.	Amaranthaceae	S America	Th	1884	Epoe

Name of the species	Family	Origin	(1)	(2)	(3)
<i>Amaranthus hypochondriacus</i> L.	Amaranthaceae	N America	Th	1910	Dia
<i>Amaranthus muricatus</i> (Gillies ex Moq.) Hieron.	Amaranthaceae	S America	Ch	1945	Epoe
<i>Amaranthus powellii</i> S. Watson	Amaranthaceae	N America	Th	1990	Epoe
<i>Amaranthus retroflexus</i> L.	Amaranthaceae	N America	Th	1882	Epoe
<i>Amaranthus viridis</i> L.	Amaranthaceae	America	Th	1886	Epoe
<i>Amaranthus x ozanonii</i> Thell. ex Priszter	Amaranthaceae	Hybrid	Th	2003	Epoe
<i>Amaryllis belladonna</i> L.	Amaryllidaceae	S Africa	Cr	1887	Epoe
<i>Ambrosia artemisiifolia</i> L.	Asteraceae	N America	Th	1965	Epoe
<i>Ammannia coccinea</i> Rottb.	Lythraceae	America	Th	1935	Epoe
<i>Ampelodesmos mauritanica</i> (Poiret) T. Durand & Schinz	Poaceae	Medit. Region	Cr	1952	Agr
<i>Anchusa arvensis</i> (L.) Bieb. ssp. <i>orientalis</i> (L.) Nordh.	Boraginaceae	Eurasia, Africa	Th	1913	Epoe
<i>Anredera cordifolia</i> (Ten.) Steenis	Basellaceae	S America	Cr	1961	Epoe
<i>Anthemis austriaca</i> Jacq.	Asteraceae	Eurasia	Th	1976	Epoe
<i>Aptenia cordifolia</i> (L. f.) Schwantes	Aizoaceae	S Africa	Ch	1939	Agr
<i>Araujia sericifera</i> Brot.	Asclepiadaceae	S America	Ph	1954	Epoe
<i>Arctotheca calendula</i> (L.) Levyns	Asteraceae	S Africa	Th	1804	Agr
<i>Arctotis stoechadifolia</i> Berg.	Asteraceae	S Africa	H	1956	Epoe
<i>Argemone mexicana</i> L.	Papaveraceae	America	Th	1945	Dia
<i>Aristolochia sempervirens</i> L.	Aristolochiaceae	Medit. Region	Ph	1994	Epoe
<i>Artemisia tournefortiana</i> Reichb.	Asteraceae	Eurasia	H	1952	Epoe
<i>Artemisia verlotiorum</i> Lamotte	Asteraceae	Eurasia	H	1967	Epoe
<i>Arundo donax</i> L.	Poaceae	Eurasia	Cr	b. 1500	Arch
<i>Asclepias curassavica</i> L.	Asclepiadaceae	S America	Ph	1999	Epoe
<i>Asparagus asparagoides</i> (L.) Druce	Asparagaceae	S Africa	Ph	1898	Epoe
<i>Aster lanceolatus</i> Willd.	Asteraceae	N America	H	1976	Agr
<i>Aster squamatus</i> (Spreng.) Hieron.	Asteraceae	America	Th	1956	Epoe
<i>Atropa bella-dona</i> L.	Solanaceae	Medit. Region	H	1900	Dia
<i>Austrocylindropuntia subulata</i> (Mühlenpfordt) Backeb.	Cactaceae	S America	Ph	2004	Dia
<i>Avena nuda</i> L.	Poaceae	Eurasia	Th	1880	Dia
<i>Avena sativa</i> L. ssp. <i>byzantina</i> (K. Koch) Romero Zarco	Poaceae	Eurasia	Th	1939	Dia
<i>Avena sativa</i> L. ssp. <i>sativa</i>	Poaceae	Eurasia	Th	1880	Dia
<i>Avena strigosa</i> ssp. <i>brevis</i> (Roth) Husnot	Poaceae	Eurasia	Th	1980	Dia
<i>Avena strigosa</i> Schreber ssp. <i>strigosa</i>	Poaceae	Eurasia	Th	1880	Epoe
<i>Axonopus fissifolius</i> (Raddi) Kuhlmann	Poaceae	America	Cr	1961	Dia
<i>Azolla filiculoides</i> Lam.	Azollaceae	America	Cr	1920	Agr
<i>Bacopa monnieri</i> (L.) Pennel	Scrophulariaceae	Trop. Regions	H	1952	Epoe
<i>Bergenia crassifolia</i> (L.) Fritsch	Saxifragaceae	Eurasia	Ch	2000	Dia
<i>Beta vulgaris</i> L.	Chenopodiaceae	Medit. Region	Th	1897	Dia
<i>Betula pendula</i> Roth ssp. <i>pendula</i>	Betulaceae	Eurasia	Ph	1913	Agr
<i>Bidens aurea</i> (Aiton) Sherff	Asteraceae	N America	H	1958	Epoe
<i>Bidens frondosa</i> L.	Asteraceae	N America	Th	1913	Agr
<i>Bidens pilosa</i> L.	Asteraceae	S America	Th	1891	Epoe
<i>Blechnum capense</i> (L.) Schlecht.	Blechnaceae	Trop. Regions	H	1985	Dia
<i>Blechnum occidentale</i> L.	Blechnaceae	Trop. Regions	H	1943	Dia
<i>Blyxa japonica</i> (Miq.) Maxim. ex Aschers & Gürcke	Hydrocharitaceae	Eurasia	Cr	1956	Epoe
<i>Brassica napus</i> L.	Brassicaceae	Eurasia	Th	1804	Epoe
<i>Brassica oleracea</i> L.	Brassicaceae	Eurasia	Ph	1804	Dia
<i>Bromus catharticus</i> Vahl	Poaceae	S America	Th	1867	Epoe
<i>Bromus japonicus</i> Thunb.	Poaceae	Eurasia	Th	1947	Dia
<i>Bromus secalinus</i> L.	Poaceae	Eurasia	Th	1804	Epoe
<i>Broussonetia papyrifera</i> (L.) Vent.	Moraceae	Eurasia	Ph	2005	Epoe
<i>Buddleja davidii</i> Franchet	Buddlejaceae	Eurasia	Ph	1989	Epoe
<i>Buddleja globosa</i> J. Hope	Buddlejaceae	S America	Ph	1968	Dia
<i>Caesalpinia spinosa</i> (Molina) Kuntze	Caesalpiniaceae	S America	Ph	2000	Epoe
<i>Calendula officinalis</i> L.	Asteraceae	Medit. Region	H	1661	Dia
<i>Callistephus chinensis</i> (L.) Nees.	Asteraceae	Eurasia	Th	1804	Dia
<i>Callitriche deflexa</i> Hegelm.	Callitrichaceae	America	Cr	1977	Dia
<i>Calystegia silvatica</i> (Kit) Griseb.	Convolvulaceae	Medit. Region	H	1972	Epoe

Name of the species	Family	Origin	(1)	(2)	(3)
<i>Canna indica</i> L.	Cannaceae	America	Cr	1989	Dia
<i>Cannabis sativa</i> L.	Cannabaceae	Eurasia	Th	1901	Dia
<i>Capparis spinosa</i> L. ssp. <i>spinosa</i> var. <i>spinosa</i>	Capparaceae	Medit. Region	Ph	1804	Dia
<i>Capsicum annuum</i> L.	Solanaceae	America	Th	1972	Dia
<i>Carpinus betulus</i> L.	Betulaceae	Eurasia	Ph	2004	Agr
<i>Carpobrotus acinaciformis</i> (L.) L. Bolus	Aizoaceae	S Africa	Ch	1939	Agr
<i>Carpobrotus edulis</i> (L.) N.E. Br.	Aizoaceae	S Africa	Ch	1913	Agr
<i>Carthamus tinctorius</i> L.	Asteraceae	Eurasia	Th	1804	Epo
<i>Castanea sativa</i> Miller	Fagaceae	Eurasia	Ph	b. 1500	Arch
<i>Catalpa bignonioides</i> Walter	Bignoniaceae	N America	Ph	2004	Dia
<i>Catharanthus roseus</i> (L.) G. Don fil.	Apocynaceae	Madagascar	Ch	1999	Dia
<i>Cedrus atlantica</i> (Endl.) Carrière	Pinaceae	Medit. Region	Ph	1999	Epo
<i>Cedrus deodara</i> (Roxb. ex D. Don) G. Don fil	Pinaceae	Eurasia	Ph	1999	Epo
<i>Centaurea cyanus</i> L.	Asteraceae	Medit. Region	Th	b. 1500	Arch
<i>Ceratonia siliqua</i> L.	Caesalpiaceae	Medit. Region	Ph	1911	Epo
<i>Cercis siliquastrum</i> L.	Caesalpiaceae	Medit. Region	Ph	1968	Dia
<i>Cestrum parqui</i> L' Hér.	Solanaceae	S America	Ph	1995	Dia
<i>Chamaecyparis lawsoniana</i> (A. Murray) Parl.	Cupressaceae	N America	Ph	1971	Agr
<i>Chamaesyce canescens</i> (L.) Prokh.	Euphorbiaceae	Eurasia	Th	b. 1500	Arch
<i>Chamaesyce maculata</i> (L.) Small	Euphorbiaceae	N America	Th	1947	Epo
<i>Chamaesyce nutans</i> (Lag.) Small	Euphorbiaceae	N America	Th	1939	Epo
<i>Chamaesyce prostrata</i> (Aiton) Small	Euphorbiaceae	N America	Th	1885	Epo
<i>Chamaesyce serpens</i> (Kunth) Small	Euphorbiaceae	America	Th	1946	Epo
<i>Chasmanthe aethiopica</i> (L.) N. E. Br.	Iridaceae	S Africa	Cr	1984	Dia
<i>Chenopodium ambrosioides</i> L.	Chenopodiaceae	America	Th	1897	Epo
<i>Chenopodium multifidum</i> L.	Chenopodiaceae	S America	H	1897	Epo
<i>Chenopodium pumilio</i> R. Br.	Chenopodiaceae	Australia, NZeal.	H	1990	Epo
<i>Chrysanthemum segetum</i> L.	Asteraceae	Eurasia	Th	1944	Epo
<i>Claytonia perfoliata</i> Donn ex Willd.	Portulacaceae	N America	Th	1939	Epo
<i>Cochlearia officinalis</i> L.	Brassicaceae	Eurasia	H	1888	Dia
<i>Colocasia antiquorum</i> Schott	Araceae	Eurasia	Cr	1898	Agr
<i>Consolida ajacis</i> (L.) Schur	Ranunculaceae	Medit. Region	Th	1886	Epo
<i>Consolida orientalis</i> (Gay) Schrödinger	Ranunculaceae	Medit. Region	Th	1886	Dia
<i>Consolida regalis</i> S.F. Gray ssp. <i>regalis</i>	Ranunculaceae	Eurasia	Th	1804	Dia
<i>Convolvulus farinosus</i> L.	Convolvulaceae	África	H	1913	Epo
<i>Conyza x mixta</i> Fouc. & Neyr.	Asteraceae	Hybrid	Ph	1956	Epo
<i>Conyza x rouyana</i> Sennen	Asteraceae	Hybrid	Th	1804	Epo
<i>Conyza bonariensis</i> (L.) Cronq.	Asteraceae	S America	Th	1661	Epo
<i>Conyza canadensis</i> (L.) Cronq.	Asteraceae	N America	Th	1661	Epo
<i>Conyza ivifolia</i> (L.) Less.	Asteraceae	S Africa	Th	1804	Epo
<i>Conyza sumatrensis</i> (Retz.) E. Walker	Asteraceae	S America	Th	1984	Epo
<i>Coriandrum sativum</i> L.	Apiaceae	Medit. Region	Th	1951	Dia
<i>Coriaria myrtifolia</i> L.	Coriariaceae	Medit. Region	Ph	1944	Epo
<i>Cornus capitata</i> Wall.	Cornaceae	Eurasia	Ph	1989	Epo
<i>Coronopus didymus</i> (L.) Sm.	Brassicaceae	S America	Th	1867	Epo
<i>Cortaderia selloana</i> (Schultes & Schultes fil.) Ascherson & Graebner	Poaceae	S America	Cr	1955	Epo
<i>Cotoneaster horizontalis</i> Decne	Rosaceae	Eurasia	Ph	2004	Dia
<i>Cotula australis</i> (Sieber ex Spreng.) Hook. f.	Asteraceae	Australia, NZeal.	Th	1984	Epo
<i>Cotula coronopifolia</i> L.	Asteraceae	S Africa	Th	1952	Epo
<i>Crassula aquatica</i> (L.) Schönl.	Crassulaceae	Eurasia, N America	Th	1954	Epo
<i>Crassula multicava</i> Lemaire	Crassulaceae	S Africa	Ch	1999	Dia
<i>Crassula muscosa</i> L.	Crassulaceae	S Africa	Ch	1998	Dia
<i>Crassula peduncularis</i> (Smith) Meigen	Crassulaceae	S America	Th	1999	Dia
<i>Crepis foetida</i> L. ssp. <i>commutata</i> (Spreng.) Bab.	Asteraceae	Medit. Region	Th	1891	Agr
<i>Cucumis melo</i> L.	Cucurbitaceae	Eurasia, Africa	Th	1993	Dia
<i>Cucumis myriocarpus</i> Naudin	Cucurbitaceae	S Africa	Th	1913	Epo
<i>Cucurbita ficifolia</i> C.D. Bouché	Cucurbitaceae	N America	H	1992	Epo
<i>Cucurbita pepo</i> L.	Cucurbitaceae	N America	H	2000	Dia

Name of the species	Family	Origin	(1)	(2)	(3)
<i>Cullen americanum</i> (L.) Rydb.	Fabaceae	Americaa, N Africaa	Ch	1911	Epoe
<i>Cupressus lusitanica</i> Miller	Cupressaceae	N America	Ph	1650	Agr
<i>Cupressus macrocarpa</i> Hartweg	Cupressaceae	N America	Ph	1971	Agr
<i>Cupressus sempervirens</i> L.	Cupressaceae	Medit. Region	Ph	1804	Agr
<i>Cuscuta campestris</i> Yuncker	Convolvulaceae	N America	Th	1942	Epoe
<i>Cuscuta epilinum</i> Weihe	Convolvulaceae	Eurasia	Th	b. 1500	Arch
<i>Cuscuta suaveolens</i> Ser.	Convolvulaceae	S America	Th	1881	Epoe
<i>Cyclosporum leptophyllum</i> (Pers.) F. Mueller ex Bentham	Apiaceae	America	Th	1661	Epoe
<i>Cydonia oblonga</i> Miller	Rosaceae	Eurasia	Ph	1912	Dia
<i>Cymbalaria muralis</i> Gaertner, Meyer & Scherb.	Scrophulariaceae	Medit. Region	Ch	1906	Epoe
<i>Cyperus brevifolius</i> (Rottb.) Hassk.	Cyperaceae	America, Eurasia	Cr	1891	Epoe
<i>Cyperus eragrostis</i> Lam.	Cyperaceae	America	Th	1891	Epoe
<i>Cyperus involucratus</i> Rottb.	Cyperaceae	Trop. Africa	Cr	1943	Epoe
<i>Datura innoxia</i> Miller	Solanaceae	America	Th	1957	Epoe
<i>Datura stramonium</i> L.	Solanaceae	America	Th	1804	Epoe
<i>Dianthus barbatus</i> L. ssp. <i>barbatus</i>	Caryophyllaceae	Eurasia	Ch	1884	Dia
<i>Dianthus tripunctatus</i> Sm.	Caryophyllaceae	Medit. Region	Th	1952	Epoe
<i>Dichondra micrantha</i> Urban	Convolvulaceae	Eurasia	H	1999	Epoe
<i>Dicksonia antarctica</i> Labill.	Dicksoniaceae	Australia	Ph	1985	Dia
<i>Dipsacus sativus</i> (L.) Honckeny	Dipsacaceae	Medit. Region	H	1661	Agr
<i>Disphyma crassifolium</i> (L.) L. Bolus	Aizoaceae	S Africa	Ch	1971	Agr
<i>Dracunculus vulgaris</i> Schott	Araceae	Medit. Region	Cr	1898	Epoe
<i>Drosanthemum candens</i> (Haw.) Schwantes	Aizoaceae	S Africa	Ch	1971	Agr
<i>Drosanthemum floribundum</i> (Haw.) Schwantes	Aizoaceae	S Africa	Ch	1990	Agr
<i>Drosera capensis</i> L.	Droseraceae	S Africa	Cr	2001	Agr
<i>Duchesnea indica</i> (Jacks.) Focke	Rosaceae	Eurasia	H	1997	Agr
<i>Echinochloa colonum</i> (L.) Link	Poaceae	Trop. Regions	Th	1957	Epoe
<i>Echinochloa oryzicola</i> (Vasinger) Vasinger	Poaceae	Eurasia	Th	1940	Epoe
<i>Eclipta prostrata</i> (L.) L.	Asteraceae	America	Th	1938	Epoe
<i>Ehrharta calycina</i> Sm.	Poaceae	S Africa	Cr	1982	Epoe
<i>Ehrharta erecta</i> Lam.	Poaceae	S Africa	Cr	1946	Epoe
<i>Eichhornia crassipes</i> (C. Mart.) Solms-Laub.	Pontederiaceae	America	Cr	1940	Agr
<i>Eleocharis flavescens</i> (Poir.) Urban	Cyperaceae	America	Th	1952	Epoe
<i>Eleocharis obtusa</i> (Willd.) Schultes	Cyperaceae	N America	Th	1956	Dia
<i>Eleusine indica</i> (L.) Gaertner	Poaceae	Trop. Regions	Th	1965	Epoe
<i>Elodea canadensis</i> Michx	Hydrocharitaceae	N America	Cr	1910	Agr
<i>Eragrostis curvula</i> (Schrader) Nees	Poaceae	S Africa	H	1998	Epoe
<i>Erigeron karvinskianus</i> DC.	Asteraceae	N America	Ch	1913	Epoe
<i>Eriobotrya japonica</i> (Thunb.) Lindley	Rosaceae	Eurasia	Ph	1971	Dia
<i>Eryngium pandanifolium</i> Cham. & Schlecht.	Apiaceae	S America	H	1900	Agr
<i>Erysimum cheiri</i> (L.) Crantz	Brassicaceae	Medit. Region	Ch	1804	Epoe
<i>Eschscholzia californica</i> Cham.	Papaveraceae	N America	Th	1956	Epoe
<i>Eucalyptus camaldulensis</i> Dehnh.	Myrtaceae	Australia	Ph	1971	Epoe
<i>Eucalyptus globulus</i> Labill. ssp. <i>globulus</i>	Myrtaceae	Australia	Ph	1943	Agr
<i>E. globulus</i> ssp. <i>maidenii</i> (F. Muell.) J. Kirkp.	Myrtaceae	Australia	Ph	1997	Epoe
<i>Eucalyptus gunnii</i> Hook. f.	Myrtaceae	Tasmania	Ph	1997	Epoe
<i>Eucalyptus robusta</i> Sm.	Myrtaceae	Australia	Ph	1997	Epoe
<i>Eucalyptus sideroxylon</i> A. Cunn.	Myrtaceae	Australia	Ph	1997	Epoe
<i>Euphorbia lathyris</i> L.	Euphorbiaceae	Eurasia	H	1804	Epoe
<i>Euphorbia marginata</i> Pursh	Euphorbiaceae	N America	Th	2004	Dia
<i>Fagus sylvatica</i> L.	Fagaceae	Eurasia	Ph	2003	Agr
<i>Fallopia baldschuanica</i> (Regel) J. Holub	Polygonaceae	Eurasia	Ch	1965	Epoe
<i>Fallopia dumetorum</i> (L.) J. Holub	Polygonaceae	Eurasia	Th	1881	Agr
<i>Fascicularia pitcairniifolia</i> (Verlot) Mez	Bromeliaceae	S America	H	2000	Dia
<i>Ferraria crispa</i> Burm.	Iridaceae	S Africa	Cr	1970	Dia
<i>Ficus carica</i> L.	Moraceae	Medit. Region	Ph	b. 1500	Arch
<i>Fraxinus excelsior</i> L.	Oleaceae	Eurasia	Ph	1936	Dia
<i>Fraxinus ornus</i> L.	Oleaceae	Medit. Region	Ph	2000	Epoe

Name of the species	Family	Origin	(1)	(2)	(3)
<i>Freesia refracta</i> (Jacq.) Ecklon ex Klatt	Iridaceae	S Africa	Cr	1952	Epo
<i>Fuchsia magellanica</i> Lam.	Onagraceae	S America	Ph	1988	Dia
<i>Furcraea foetida</i> (L.) Haw.	Agavaceae	America	H	1887	Dia
<i>Galinsoga parviflora</i> Cav.	Asteraceae	S America	Th	1961	Epo
<i>Galinsoga quadriradiata</i> Ruiz & Pavón	Asteraceae	America	Th	1891	Epo
<i>Gamochaeta calviceps</i> (Fernald) Cabrera	Asteraceae	S America	Th	1952	Epo
<i>Gamochaeta pensylvanica</i> (Willd.) Cabrera	Asteraceae	America	Th	1944	Epo
<i>Gamochaeta purpurea</i> (L.) Cabrera	Asteraceae	N America	H	1970	Epo
<i>Gamochaeta spicata</i> (Lam.) Cabrera	Asteraceae	S America	H	1945	Agr
<i>Gamochaeta subfalcata</i> (Cabrera) Cabrera	Asteraceae	America	Th	1941	Epo
<i>Gazania rigens</i> (L.) Gaertner	Asteraceae	S Africa	Ch	1976	Epo
<i>Geranium carolinianum</i> L.	Geraniaceae	N America	Th	1958	Epo
<i>Gladiolus undulatus</i> L.	Iridaceae	S Africa	Cr	1977	Agr
<i>Glandularia canadensis</i> (L.) Nutt.	Verbenaceae	N America	Ch	1999	Dia
<i>Gleditsia triacanthos</i> L.	Caesalpiaceae	N America	Ph	1968	Epo
<i>Gomphocarpus fruticosus</i> (L.) Aiton fil.	Asclepiadaceae	S Africa	Ph	1902	Epo
<i>Gomphocarpus physocarpus</i> E. Meyer	Asclepiadaceae	S Africa	Ph	2000	Dia
<i>Graptopetalum paraguayense</i> (N.E. Br.) E. Walther	Crassulaceae	N America	Ch	1999	Dia
<i>Grevillea robusta</i> A. Cunn. ex R. Br.	Proteaceae	Australia	Ph	1999	Dia
<i>Gymnostyles stolonifera</i> (Brot.) Tutin	Asteraceae	S America	Th	1804	Epo
<i>Hakea salicifolia</i> (Vent.) B.L. Burt	Proteaceae	Australia	Ph	1989	Epo
<i>Hakea sericea</i> Schrad.	Proteaceae	Australia	Ph	1971	Agr
<i>Hebe x andersonii</i> (Lindl. & Paxton) Cock.	Scrophulariaceae	Hybrid	Ph	1999	Dia
<i>Hedychium gardnerianum</i> Ker-Gawl.	Zingiberaceae	Eurasia	Cr	1999	Epo
<i>Hedysarum coronarium</i> L.	Fabaceae	Medit. Region	H	1940	Agr
<i>Helianthus x laetiflorus</i> Pers.	Asteraceae	N America	Th	1990	Dia
<i>Helianthus annuus</i> L.	Asteraceae	N America	Cr	1987	Agr
<i>Helichrysum bracteatum</i> (Vent.) Andrews	Asteraceae	Australia	H	1661	Agr
<i>Helichrysum foetidum</i> (L.) Cass.	Asteraceae	S Africa	H	1868	Dia
<i>Helichrysum petiolare</i> Hilliard & B.L. Burt	Asteraceae	S Africa	Ph	1952	Agr
<i>Heliotropium curassavicum</i> L.	Boraginaceae	N America	H	1947	Epo
<i>Hermodactylus tuberosus</i> (L.) Salisb.	Iridaceae	Medit. Region	Cr	1898	Dia
<i>Heteranthera reniformis</i> Ruiz & Pavón	Pontederiaceae	America	Cr	1994	Epo
<i>Heteranthera rotundifolia</i> (Kunth) Griseb.	Pontederiaceae	N America	Cr	1996	Epo
<i>Hibiscus trionum</i> L.	Malvaceae	Trop. Regions	Th	1963	Epo
<i>Hordeum bulbosum</i> L.	Poaceae	Medit. Region	Cr	1961	Epo
<i>Hydrangea macrophylla</i> (Thunb.) Ser.	Hydrangeaceae	Eurasia	Ph	1971	Dia
<i>Hydrocotyle bonariensis</i> Lam.	Apiaceae	S America	Cr	1883	Agr
<i>Hypericum atomarium</i> Boiss.	Hypericaceae	Medit. Region	Ch	1893	Dia
<i>Hypericum calycinum</i> L.	Hypericaceae	Medit. Region	Ph	1885	Epo
<i>Hypericum hircinum</i> L.	Hypericaceae	Medit. Region	Ph	1846	Dia
<i>Impatiens balfourii</i> Hooker fil.	Balsaminaceae	Eurasia	Th	1999	Dia
<i>Ipomoea acuminata</i> (Vahl) Roemer & Schult.	Convolvulaceae	Trop. Regions	Ph	1962	Epo
<i>Ipomoea sagittata</i> Poir	Convolvulaceae	America	Ph	1994	Agr
<i>Iris albicans</i> Lange	Iridaceae	Eurasia	H	1898	Dia
<i>Iris germanica</i> L.	Iridaceae	Medit. Region	H	1898	Epo
<i>Iris susiana</i> L.	Iridaceae	Eurasia	Cr	1898	Dia
<i>Isatis tinctoria</i> L. ssp. <i>tinctoria</i>	Brassicaceae	Medit. Region	H	1923	Epo
<i>Ixia paniculata</i> Delaroch	Iridaceae	S Africa	Cr	1951	Dia
<i>Jasminum officinale</i> L.	Oleaceae	Eurasia	Ph	1913	Epo
<i>Juglans nigra</i> L.	Juglandaceae	N America	Ph	2004	Agr
<i>Juglans regia</i> L.	Juglandaceae	Eurasia	Ph	1954	Agr
<i>Juncus imbricatus</i> Laharpe	Juncaceae	S America	Cr	1946	Agr
<i>Kalanchoe daigremontiana</i> Hamet & Perrier	Crassulaceae	N America	Ch	1999	Dia
<i>Kalanchoe pinnata</i> (Lam.) Pers.	Crassulaceae	Trop. Africa	Ch	1999	Dia
<i>Kalanchoe tubiflora</i> (Harvey) Hamet	Crassulaceae	Trop. Africa	Ch	1999	Dia
<i>Kyllinga controversa</i> Steud.	Cyperaceae	Africa	Th	1962	Dia
<i>Laburnum anagyroides</i> Medicus	Fabaceae	Eurasia	Ph	1933	Dia

Name of the species	Family	Origin	(1)	(2)	(3)
<i>Lagunaria patersonii</i> (Andrews) G. Don f.	Malvaceae	Australia	Ph	2000	Epoe
<i>Lampranthus falciformis</i> (Haw.) N.E. Br.	Aizoaceae	S Africa	Ch	1957	Agr
<i>Lantana camara</i> L.	Verbenaceae	America	Ph	1967	Dia
<i>Lathyrus odoratus</i> L.	Fabaceae	Medit. Region	Th	1804	Dia
<i>Lathyrus sativus</i> L.	Fabaceae	Medit. Region	Th	1804	Dia
<i>Legousia pentagonia</i> (L.) Druce	Campanulaceae	Medit. Region	Th	1882	Dia
<i>Legousia speculum-veneris</i> (L.) Chaix	Campanulaceae	Medit. Region	Th	1984	Epoe
<i>Lemma valdiviana</i> R.A. Philippi	Lemnaceae	N America	Hy	1995	Epoe
<i>Lens culinaris</i> Medicus	Fabaceae	Medit. Region	Th	1804	Dia
<i>Lepidium sativum</i> L.	Brassicaceae	Medit. Region	Th	1804	Dia
<i>Lepidium virginicum</i> L.	Brassicaceae	N America	Th	1913	Epoe
<i>Ligustrum lucidum</i> Aiton	Oleaceae	Eurasia	Ph	1999	Dia
<i>Ligustrum ovalifolium</i> Hassk.	Oleaceae	Eurasia	Ph	1999	Dia
<i>Lilaea scilloides</i> (Poiret) Hauman	Lilaeaceae	America	Th	1947	Agr
<i>Lilaeopsis carolinensis</i> J.M. Coult. & Rose	Apiaceae	America	Cr	1956	Agr
<i>Lilium candidum</i> L.	Liliaceae	Medit. Region	Cr	1804	Epoe
<i>Lindernia dubia</i> (L.) Pennel	Scrophulariaceae	N America	Th	1945	Agr
<i>Liriodendron tulipifera</i> L.	Magnoliaceae	N America	Ph	1943	Epoe
<i>Lobelia erinus</i> L.	Campanulaceae	S Africa	Th	2001	Dia
<i>Lobelia pinifolia</i> L.	Campanulaceae	S Africa	Ch	2001	Dia
<i>Lonicera japonica</i> Thunb.	Caprifoliaceae	Eurasia	Ph	1967	Epoe
<i>Lunaria annua</i> L. ssp. <i>annua</i>	Brassicaceae	Eurasia	H	1661	Dia
<i>Lupinus albus</i> L. ssp. <i>albus</i>	Fabaceae	Medit. Region	Th	1661	Dia
<i>Lychnis coronaria</i> (L.) Desr.	Caryophyllaceae	Medit. Region	H	1804	Dia
<i>Lychnis viscaria</i> L. ssp. <i>viscaria</i>	Caryophyllaceae	Medit. Region	H	1885	Dia
<i>Lycium barbarum</i> L.	Solanaceae	Eurasia	Ph	1900	Dia
<i>Lycium chinense</i> Miller	Solanaceae	Eurasia	Ph	1947	Epoe
<i>Lycopersicon esculentum</i> Miller	Solanaceae	America	Th	1804	Dia
<i>Lycopodiella cernua</i> (L.) Pichi Serm.	Lycopodiaceae	Trop. Regions	Ch	1915	Agr
<i>Macfadyena unguis-cati</i> (L.) A. Gentry	Bignoniaceae	America	Ph	2000	Epoe
<i>Maclura pomifera</i> (Rafin.) C.K. Schneider	Moraceae	N America	Ph	2003	Epoe
<i>Malcolmia flexuosa</i> (Sm.) Sm.	Brassicaceae	Medit. Region	Th	1885	Dia
<i>Malope trifida</i> Cav.	Malvaceae	Medit. Region	Th	1843	Dia
<i>Mariscus congestus</i> (Vahl) C.B. Clarke	Cyperaceae	S Africa	Th	1891	Epoe
<i>Matricaria discoidea</i> DC.	Asteraceae	N America, Asia	Th	1944	Epoe
<i>Matthiola incana</i> (L.) R. Br. ssp. <i>incana</i>	Brassicaceae	Medit. Region	Ch	1804	Dia
<i>Medicago x varia</i> Martyn	Fabaceae	Hybrid	H	1930	Dia
<i>Medicago arborea</i> L.	Fabaceae	Medit. Region	Ph	1884	Dia
<i>Medicago blanchiana</i> Boiss.	Fabaceae	Eurasia	Th	1932	Epoe
<i>Medicago falcata</i> L.	Fabaceae	Eurasia	H	1804	Epoe
<i>Medicago rugosa</i> Desr.	Fabaceae	Medit. Region	Th	1916	Epoe
<i>Medicago sativa</i> L.	Fabaceae	Eurasia	H	1804	Epoe
<i>Medicago turbinata</i> (L.) All.	Fabaceae	Medit. Region	Th	2000	Dia
<i>Melilotus infestus</i> Guss.	Fabaceae	Medit. Region	Th	1884	Epoe
<i>Melilotus italicus</i> (L.) Lam.	Fabaceae	Medit. Region	Th	1804	Dia
<i>Melissa officinalis</i> L. ssp. <i>officinalis</i>	Lamiaceae	Eurasia	H	1907	Epoe
<i>Mentha x piperita</i> L.	Lamiaceae	Hybrid	H	1901	Dia
<i>Mentha requienii</i> Bentham	Lamiaceae	Medit. Region	H	1902	Epoe
<i>Mentha spicata</i> L.	Lamiaceae	Eurasia	H	1907	Dia
<i>Mercurialis annua</i> L.	Euphorbiaceae	Eurasia	Th	1928	Dia
<i>Mesembryanthemum crystallinum</i> L.	Aizoaceae	Medit. Region	Th	1804	Agr
<i>Mespilus germanica</i> L.	Rosaceae	Eurasia	Ph	1998	Dia
<i>Mimulus moschatus</i> Douglas ex Lindley	Scrophulariaceae	N America	Cr	1955	Dia
<i>Mirabilis jalapa</i> L.	Nyctaginaceae	America	Cr	1972	Dia
<i>Modiola caroliniana</i> (L.) G. Don fil.	Malvaceae	America	H	1963	Epoe
<i>Mollugo verticillata</i> L.	Molluginaceae	America	Th	1911	Agr
<i>Molucella laevis</i> L.	Lamiaceae	Medit. Region	Th	1999	Epoe
<i>Morus alba</i> L.	Moraceae	Eurasia	Ph	1941	Dia

Name of the species	Family	Origin	(1)	(2)	(3)
<i>Muehlenbeckia complexa</i> (A. Cunn.) Meissn.	Polygonaceae	New Zeal.	Ch	1984	Agr
<i>M. sagittifolia</i> (Gómez Ortega) Meissner	Polygonaceae	S America	Cr	1910	Dia
<i>Myoporum insulare</i> R. Br.	Myoporaceae	Australia	Ph	1944	Epo
<i>Myoporum laetum</i> G. Forster	Myoporaceae	New Zeal.	Ph	1968	Epo
<i>Myosotis latifolia</i> Poiret	Boraginaceae	Medit. Region	H	1984	Agr
<i>Myriophyllum aquaticum</i> (Velloso) Verdc.	Haloragaceae	S America	Cr	1936	Agr
<i>Nephrolepis exaltata</i> (L.) Schott	Nephrolepidaceae	Trop. Regions	Cr	2000	Epo
<i>Nicandra physalodes</i> (L.) Gaertner	Solanaceae	S America	Th	1956	Epo
<i>Nicotiana glauca</i> R.C. Graham	Solanaceae	S America	Ph	1900	Agr
<i>Nicotiana rustica</i> L.	Solanaceae	N America	Th	1984	Dia
<i>Nicotiana tabacum</i> L.	Solanaceae	S America	Th	1913	Dia
<i>Nothoscordum gracile</i> (Aiton) Stearn	Alliaceae	S America	Cr	1896	Epo
<i>Oenothera affinis</i> Cambess.	Onagraceae	S America	Th	1880	Agr
<i>Oenothera biennis</i> x <i>Oe. glazioviana</i>	Onagraceae	Hybrid	H	1876	Epo
<i>Oenothera glazioviana</i> Micheli	Onagraceae	Hybrid	H	1953	Dia
<i>Oenothera indecora</i> x <i>Oe. stricta</i>	Onagraceae	Hybrid	Th	1960	Epo
<i>Oe. indecora</i> ssp. <i>bonariensis</i> W. Dietr.	Onagraceae	S America	Th	1968	Epo
<i>Oenothera indecora</i> Cambess. ssp. <i>indecora</i>	Onagraceae	S America	Th	1889	Epo
<i>Oenothera rosea</i> L'Hér. ex Aiton	Onagraceae	America	Th	1954	Epo
<i>Oenothera stricta</i> Ledebour ex Link	Onagraceae	S America	H	1876	Epo
<i>Olea europaea</i> L. var. <i>europaea</i>	Oleaceae	Medit. Region	Ph	2003	Agr
<i>Onobrychis vicifolia</i> Scop.	Fabaceae	Eurasia	H	1804	Dia
<i>Opuntia dillenii</i> (Ker-Gawler) Haw.	Cactaceae	N America	Ph	1910	Epo
<i>Opuntia maxima</i> Miller	Cactaceae	N America	Ph	1910	Epo
<i>Opuntia monacantha</i> Haw.	Cactaceae	America	Ph	1902	Epo
<i>Origanum majorana</i> L.	Lamiaceae	Medit. Region	H	1980	Dia
<i>Origanum majoricum</i> Camb.	Lamiaceae	Hybrid	Ch	1913	Dia
<i>Oryza sativa</i> L.	Poaceae	Eurasia	Th	1998	Epo
<i>Oxalis articulata</i> Savigny	Oxalidaceae	S America	H	1958	Epo
<i>Oxalis corymbosa</i> DC.	Oxalidaceae	S America	Cr	1890	Epo
<i>Oxalis latifolia</i> Kunth	Oxalidaceae	America	Cr	1938	Epo
<i>Oxalis pes-caprae</i> L.	Oxalidaceae	S Africa	Cr	1828	Agr
<i>Oxalis purpurea</i> L.	Oxalidaceae	S Africa	Cr	1890	Epo
<i>Panicum bulbosum</i> Humb., Bonpl. & Kunth	Poaceae	N America	Cr	1884	Dia
<i>Panicum capillare</i> L.	Poaceae	N America	Th	1962	Epo
<i>Panicum dichotomiflorum</i> Michx	Poaceae	N America	Th	1998	Epo
<i>Panicum miliaceum</i> L.	Poaceae	Eurasia	Th	1998	Epo
<i>Papaver somniferum</i> L. ssp. <i>somniferum</i>	Papaveraceae	Medit. Region	Th	1892	Epo
<i>Paraserianthes lophantha</i> (Benth.) I. Nielsen	Mimosaceae	Australia	Ph	2000	Epo
<i>Parkinsonia aculeata</i> L.	Caesalpinaceae	America	Ph	1993	Dia
<i>Parthenocissus inserta</i> (A. Kerner) Fritsch	Vitaceae	N America	Ph	1984	Dia
<i>Parthenocissus quinquefolia</i> (L.) Planchon	Vitaceae	N America	Ph	1884	Dia
<i>Paspalum dilatatum</i> Poiret	Poaceae	S America	H	1922	Agr
<i>Paspalum paspalodes</i> (Michx) Scribner	Poaceae	Trop. Regions	H	1909	Agr
<i>Paspalum urvillei</i> Steudel	Poaceae	S America	H	1940	Agr
<i>Paspalum vaginatum</i> Swartz	Poaceae	Trop. Regions	H	1880	Agr
<i>Passiflora caerulea</i> L.	Passifloraceae	S America	Ph	1983	Dia
<i>Passiflora suberosa</i> L.	Passifloraceae	America	Ph	1999	Dia
<i>Pelargonium capitatum</i> Ait.	Geraniaceae	S Africa	Ch	1993	Epo
<i>Pelargonium cordatum</i> L'Hér.	Geraniaceae	S Africa	Ch	1944	Dia
<i>Pelargonium radula</i> (Cav.) L'Hér.	Geraniaceae	S Africa	Ch	1965	Dia
<i>Pennisetum villosum</i> R. Br. ex Fresen	Poaceae	Africa	H	1955	Epo
<i>Persea indica</i> (L.) Spreng.	Lauraceae	Macaronesia	Ph	1989	Epo
<i>Petasites fragrans</i> (Vill.) C. Presl.	Asteraceae	Medit. Region	Cr	1892	Epo
<i>Petroselinum crispum</i> (Miller) Fuss	Apiaceae	Eurasia	H	1661	Dia
<i>Petunia</i> x <i>hybrida</i> Hort.	Solanaceae	Hybrid	Th	1966	Dia
<i>Phacelia tanacetifolia</i> Bentham	Hydrophyllaceae	N America	Th	1913	Dia
<i>Phalaris canariensis</i> L.	Poaceae	Macaronesia	Th	1905	Epo

Name of the species	Family	Origin	(1)	(2)	(3)
<i>Philadelphus coronarius</i> L.	Hydrangeaceae	Eurasia	Ph	1997	Dia
<i>Phoenix canariensis</i> Hort. ex Chabaud	Arecaceae	Macaronesia	Ph	1948	Epoe
<i>Phyla canescens</i> (Kunth) Greene	Verbenaceae	S America	Ch	1948	Epoe
<i>Physalis ixocarpa</i> Brot. ex Hornem.	Solanaceae	America	Th	1878	Epoe
<i>Physalis peruviana</i> L.	Solanaceae	S America	H	1804	Dia
<i>Phytolacca americana</i> L.	Phytolaccaceae	N America	Ch	1910	Epoe
<i>Phytolacca heterotepala</i> H. Walter	Phytolaccaceae	N America	Ch	1987	Epoe
<i>Pimpinella anisum</i> L.	Apiaceae	Eurasia	Th	1661	Dia
<i>Pinus halepensis</i> Mill. ssp. <i>halepensis</i>	Pinaceae	Medit. Region	Ph	1957	Epoe
<i>Pinus nigra</i> Arn.	Pinaceae	Eurasia	Ph	1999	Epoe
<i>Pinus radiata</i> D. Don	Pinaceae	N America	Ph	1951	Epoe
<i>Pistia stratiotes</i> L.	Araceae	Trop. Regions	Cr	1990	Dia
<i>Pisum sativum</i> L. ssp. <i>sativum</i>	Fabaceae	Cosmopolitan	Th	1968	Dia
<i>Pittosporum crassifolium</i> Banks & Sol. ex A. Cunn.	Pittosporaceae	New Zeal.	Ph	1999	Dia
<i>Pittosporum tobira</i> (Thunb.) W.T. Aiton	Pittosporaceae	Eurasia	Ph	1997	Dia
<i>Pittosporum undulatum</i> Vent.	Pittosporaceae	Australia	Ph	1971	Agr
<i>Platanus hispanica</i> Miller ex Münchh.	Platanaceae	Unknown origin	Ph	1990	Dia
<i>Plecostachys serpyllifolia</i> (Berg.) Hilliard & B.L. Burt	Asteraceae	S Africa	Ph	1984	Agr
<i>Plumbago auriculata</i> Lam.	Plumbaginaceae	S Africa	Ph	1972	Dia
<i>Polygonum capitatum</i> Buch.-Ham. ex D. Don	Polygonaceae	Eurasia	H	1957	Epoe
<i>Polygonum minus</i> Hudson	Polygonaceae	Eurasia	Th	1963	Epoe
<i>Polygonum orientale</i> L.	Polygonaceae	Eurasia	Th	1910	Epoe
<i>Populus x canadensis</i> Moench	Salicaceae	Eurasia	Ph	1971	Dia
<i>Populus deltoides</i> Marshall	Salicaceae	N America	Ph	1971	Dia
<i>Populus nigra</i> L. ssp. <i>caudata</i> (Ten.) Bug	Salicaceae	Eurasia	Ph	1999	Dia
<i>Populus nigra</i> L. ssp. <i>nigra</i>	Salicaceae	Eurasia	Ph	b. 1500	Arch
<i>Portulaca oleracea</i> L. ssp. <i>nitida</i> Danin & H.G. Baker	Portulacaceae	N America	Th	1990	Epoe
<i>Portulaca oleracea</i> L. ssp. <i>papillatostellulata</i> Danin & H.G. Baker	Portulacaceae	N America	Th	1990	Epoe
<i>P. oleracea</i> L. ssp. <i>sativa</i> (Haw.) Čelak	Portulacaceae	Horticultural	Th	1661	Dia
<i>P. oleracea</i> ssp. <i>stellata</i> Danin & H.G. Baker	Portulacaceae	N America	Th	1990	Epoe
<i>Proboscidea lousianica</i> (Miller) Thell.	Martyniaceae	N America	Th	1960	Epoe
<i>Prunus cerasifera</i> Ehrh.	Rosaceae	Eurasia	Ph	1998	Dia
<i>Prunus cerasus</i> L.	Rosaceae	Eurasia	Ph	1913	Dia
<i>Prunus domestica</i> L.	Rosaceae	Eurasia	Ph	1899	Dia
<i>Prunus dulcis</i> (Miller) D.A. Webb	Rosaceae	Medit. Region	Ph	1899	Dia
<i>Prunus laurocerasus</i> L.	Rosaceae	Eurasia	Ph	1899	Epoe
<i>Prunus persica</i> (L.) Batsch.	Rosaceae	Eurasia	Ph	1899	Dia
<i>Pseudotsuga menziesii</i> (Mirbel) Franco	Pinaceae	N America	Ph	1999	Agr
<i>Psoralea pinnata</i> L.	Fabaceae	S Africa	Ph	1971	Dia
<i>Pteris cretica</i> L.	Pteridaceae	Medit. Region	H	1886	Dia
<i>Pteris vittata</i> L.	Pteridaceae	Medit. Region	H	1999	Epoe
<i>Ptilostemon casabonae</i> (L.) W. Greuter	Asteraceae	Medit. Region	H	1892	Epoe
<i>Punica granatum</i> L.	Punicaceae	Eurasia	Ph	1912	Dia
<i>Pyracantha coccinea</i> M.J. Roemer	Rosaceae	Eurasia	Ph	1912	Dia
<i>Pyrus communis</i> L.	Rosaceae	Eurasia	Ph	1886	Dia
<i>Quercus rubra</i> L.	Fagaceae	N America	Ph	1999	Agr
<i>Raphanus sativus</i> L.	Brassicaceae	Unknown origin	Th	1804	Dia
<i>Reynoutria japonica</i> Houtt.	Polygonaceae	Eurasia	Cr	1951	Epoe
<i>Rhus coriaria</i> L.	Anacardiaceae	Eurasia	Ph	1910	Agr
<i>Ricinus communis</i> L.	Euphorbiaceae	Trop. Regions	Ph	1885	Epoe
<i>Robinia pseudoacacia</i> L.	Fabaceae	N America	Ph	1804	Agr
<i>Rosa gallica</i> L.	Rosaceae	Eurasia	Ph	1912	Dia
<i>Rosa moschata</i> J. Herrmann	Rosaceae	Eurasia	Ph	1999	Dia
<i>Rosa multiflora</i> Thunb. ex Murray	Rosaceae	Eurasia	Ph	1999	Dia
<i>Rosa wichuraiana</i> Crépin	Rosaceae	Eurasia	Ph	1999	Dia
<i>Rosa x odorata</i> var. <i>gigantea</i> (Collet ex Crépin) Rehder & E.H. Wilson	Rosaceae	Hybrid	Ph	1999	Dia
<i>Rotala indica</i> (Willd.) Koehne	Lythraceae	Eurasia	Th	1967	Epoe
<i>Rubia tinctorum</i> L.	Rubiaceae	Eurasia	Ch	1789	Agr

Name of the species	Family	Origin	(1)	(2)	(3)
<i>Rubus idaeus</i> L.	Rosaceae	Eurasia	Ph	1999	Dia
<i>Rubus x loganobaccus</i> L.H. Bailey	Rosaceae	Hybrid	Ph	1999	Dia
<i>Rumex cristatus</i> DC. ssp. <i>cristatus</i>	Polygonaceae	Medit. Region	Cr	1987	Epo
<i>Rumex frutescens</i> Thouars	Polygonaceae	S America	Cr	1978	Epo
<i>Ruschia caroli</i> (L. Bolus) Schwantes	Aizoaceae	S Africa	Ch	1993	Epo
<i>Ruscus hypophyllum</i> L.	Asparagaceae	Medit. Region	Ph	2000	Dia
<i>Saccharum spontaneum</i> L.	Poaceae	Eurasia	Cr	1974	Agr
<i>Salix babylonica</i> L.	Salicaceae	Eurasia	Ph	1999	Dia
<i>Salix viminalis</i> L.	Salicaceae	Eurasia	Ph	1907	Dia
<i>Salpichroa origanifolia</i> (Lam.) Thell.	Solanaceae	S America	Ch	1927	Epo
<i>Salvia microphylla</i> Kunth	Lamiaceae	N America	Ph	2003	Dia
<i>Salvia officinalis</i> L.	Lamiaceae	Eurasia	Ph	1907	Dia
<i>Salvia sclarea</i> L.	Lamiaceae	Eurasia	H	1877	Dia
<i>Salvia triloba</i> L. fil.	Lamiaceae	Medit. Region	Ph	1880	Agr
<i>Santolina chamaecyparissus</i> L.	Asteraceae	Medit. Region	Ch	1661	Dia
<i>Schinus molle</i> L.	Anacardiaceae	America	Ph	1968	Dia
<i>Schinus terebenthifolia</i> Raddi	Anacardiaceae	S America	Ph	1968	Dia
<i>Schoenoplectus juncooides</i> (Roxb.) Krecz.	Cyperaceae	Trop. Regions	Th	1934	Epo
<i>Secale cereale</i> L.	Poaceae	Eurasia	Th	1902	Dia
<i>Securigera securidaca</i> (L.) Degen & Dörfler	Fabaceae	Eurasia	Th	1876	Dia
<i>Sedum praealtum</i> A. DC.	Crassulaceae	N America	Ch	1961	Dia
<i>Selaginella kraussiana</i> (G. Kunze) A. Braun	Selaginellaceae	Africa	H	1902	Epo
<i>Sempervivum tectorum</i> L.	Crassulaceae	Eurasia	H	b. 1500	Arch
<i>Senecio x albescens</i> Burbidge & Colgan	Asteraceae	Hybrid	H	1990	Dia
<i>Senecio angulatus</i> L. fil.	Asteraceae	S Africa	Ph	1984	Epo
<i>Senecio cineraria</i> DC.	Asteraceae	Medit. Region	Ch	1661	Agr
<i>Senecio elegans</i> L.	Asteraceae	S Africa	Th	1892	Agr
<i>Senecio mikanioides</i> Otto ex Walpers	Asteraceae	S Africa	Ph	1883	Agr
<i>Sesbania punicea</i> (Cav.) Benth.	Fabaceae	S America	Ph	2003	Epo
<i>Sesuvium portulacastrum</i> (L.) L.	Aizoaceae	Trop. Regions	Ch	1909	Dia
<i>Setaria adhaerens</i> (Forsskål) Chiov.	Poaceae	Trop. Regions	Th	1877	Epo
<i>Setaria faberi</i> F. Hermann	Poaceae	Eurasia	Th	1994	Epo
<i>Setaria italica</i> (L.) P. Beauv.	Poaceae	Eurasia	Th	1963	Dia
<i>Setaria parviflora</i> (Poir) Kerguelen	Poaceae	America	H	1961	Agr
<i>Sibthorpia peregrina</i> L.	Scrophulariaceae	Madeira	Ch	1939	Epo
<i>Sida rhombifolia</i> L.	Malvaceae	America	H	1901	Epo
<i>Silene armeria</i> L.	Caryophyllaceae	Eurasia	Th	1804	Agr
<i>Silene coeli-rosa</i> (L.) Godron	Caryophyllaceae	Medit. Region	Th	1947	Agr
<i>Silene pendula</i> L.	Caryophyllaceae	Medit. Region	Th	1990	Dia
<i>Sisymbrium altissimum</i> L.	Brassicaceae	Eurasia	Th	1956	Epo
<i>Sisymbrium polyceratium</i> L.	Brassicaceae	Medit. Region	Th	1804	Epo
<i>Solanum capsicastrum</i> Link ex Schauer	Solanaceae	S America	Ph	1984	Dia
<i>Solanum chenopodioides</i> Lam.	Solanaceae	S America	Ch	1960	Epo
<i>Solanum citrullifolium</i> A. Braun	Solanaceae	N America	Th	1957	Epo
<i>Solanum elaeagnifolium</i> Cav.	Solanaceae	S America	Ch	1992	Dia
<i>Solanum jasminoides</i> Paxton	Solanaceae	S America	Ph	1961	Dia
<i>Solanum marginatum</i> L. fil.	Solanaceae	Trop. Africa	Ph	1929	Epo
<i>Solanum mauritianum</i> Scop.	Solanaceae	N America	Ph	1999	Epo
<i>Solanum pseudocapsicum</i> L.	Solanaceae	S America	Ph	1900	Epo
<i>Solanum sodomaeum</i> L.	Solanaceae	S Africa	Ph	1886	Agr
<i>Solanum tuberosum</i> L.	Solanaceae	S America	Cr	2003	Dia
<i>Soleirolia soleirolii</i> (Req.) Dandy	Urticaceae	Medit. Region	H	1956	Epo
<i>Solidago rugosa</i> Mill.	Asteraceae	N America	Cr	1945	Dia
<i>Soliva pterosperma</i> (Juss.) Less.	Asteraceae	S America	Th	1875	Dia
<i>Sollya fusiformis</i> (Labill.) Briq.	Pittosporaceae	Australia	Ph	1984	Agr
<i>Sophora japonica</i> L.	Fabaceae	Eurasia	Ph	1999	Dia
<i>Sorbus domestica</i> L.	Rosaceae	Medit. Region	Ph	b. 1500	Arch

Name of the species	Family	Origin	(1)	(2)	(3)
<i>Sorghum halepense</i> (L.) Pers.	Poaceae	Medit. Region	Cr	1880	Epoe
<i>Sparaxis bulbifera</i> (L.) Ker-Gawler	Iridaceae	S Africa	Cr	1958	Dia
<i>Sparaxis tricolor</i> (Schneev.) Ker-Gawler	Iridaceae	S Africa	Cr	1944	Dia
<i>Spartina densiflora</i> Brongn.	Poaceae	S America	H	1998	Epoe
<i>Spartium junceum</i> L.	Fabaceae	Medit. Region	Ph	b. 1500	Arch
<i>Spiraea cantoniensis</i> Lour.	Rosaceae	Eurasia	Ph	2004	Dia
<i>Spiraea douglasii</i> Hook.	Rosaceae	N America	Ph	1976	Dia
<i>Sporobolus indicus</i> (L.) R. Br.	Poaceae	Trop. Regions	H	1944	Epoe
<i>Stenotaphrum secundatum</i> (Walter) Kuntze	Poaceae	Trop. Regions	Cr	1935	Epoe
<i>Sternbergia lutea</i> (L.) Ker-Gawler ex Spreng.	Amarylilidaceae	Medit. Region	Cr	1878	Dia
<i>Stipa neesiana</i> Trin. & Rupr.	Poaceae	S America	H	1945	Dia
<i>Styrax officinalis</i> L.	Styracaceae	Medit. Region	Ph	1952	Epoe
<i>Symphoricarpos albus</i> (L.) S.F. Blake	Caprifoliaceae	N America	Ph	1956	Epoe
<i>Syringa vulgaris</i> L.	Oleaceae	Medit. Region	Ph	2000	Dia
<i>Tagetes patula</i> L.	Asteraceae	N America	Th	2000	Dia
<i>Tamarix parviflora</i> DC.	Tamaricaceae	Medit. Region	Ph	1993	Dia
<i>Tanacetum parthenium</i> (L.) Schultz Bip.	Asteraceae	Eurasia	H	b. 1500	Arch
<i>Tanacetum vulgare</i> L.	Asteraceae	Eurasia	H	1892	Agr
<i>Teline monspessulana</i> (L.) K. Koch	Fabaceae	Medit. Region	Ph	b. 1500	Arch
<i>Tetragonia tetragonoides</i> (Pallas) Kuntze	Tetragoniaceae	Australia, NZeal.	Th	1909	Agr
<i>Tinantia erecta</i> (Jacq.) Fenzl	Commelinaceae	America	Th	2000	Dia
<i>Tradescantia fluminensis</i> Velloso	Commelinaceae	S America	H	1932	Epoe
<i>Tragopogon porrifolius</i> L. ssp. <i>porrifolius</i>	Asteraceae	Medit. Region	Th	1661	Dia
<i>Trifolium alexandrinum</i> L.	Fabaceae	Medit. Region	Th	1964	Dia
<i>Trifolium hybridum</i> L.	Fabaceae	Medit. Region	H	2000	Epoe
<i>Trifolium incarnatum</i> L. ssp. <i>incarnatum</i>	Fabaceae	Eurasia	Th	1884	Epoe
<i>Trifolium resupinatum</i> L. ssp. <i>suaveolens</i> (Willd.) Ponert	Fabaceae	Eurasia	Th	1968	Epoe
<i>Trifolium vesiculosum</i> Savi	Fabaceae	Eurasia	Th	2000	Epoe
<i>Triglochin striata</i> Ruiz & Pavón	Juncaginaceae	Trop. Regions	Cr	1910	Agr
<i>Triticum aestivum</i> L.	Poaceae	Eurasia	Th	b. 1500	Arch
<i>Tritonia x crocosmiflora</i> (Lemoine) Nichols.	Iridaceae	Hybrid	Cr	1946	Epoe
<i>Tropaeolum majus</i> L.	Tropaeolaceae	S America	Th	1966	Epoe
<i>Tulipa clusiana</i> DC.	Liliaceae	Eurasia	Cr	1804	Epoe
<i>Tulipa praecox</i> Ten.	Liliaceae	Eurasia	Cr	1953	Epoe
<i>Ulmus glabra</i> Huds.	Ulmaceae	Eurasia	Ph	1993	Agr
<i>Verbascum levanticum</i> I. K. Ferguson	Scrophulariaceae	Eurasia	H	1907	Epoe
<i>Verbena bonariensis</i> L.	Verbenaceae	S America	Ch	1927	Epoe
<i>Verbena littoralis</i> Humb., Bonpl. & Kunth	Verbenaceae	America	Th	1974	Epoe
<i>Veronica peregrina</i> L.	Scrophulariaceae	America	Th	1877	Epoe
<i>Veronica persica</i> Poiret	Scrophulariaceae	Eurasia	Th	1877	Epoe
<i>Vicia articulata</i> Hornem.	Fabaceae	Medit. Region	Th	1804	Epoe
<i>Vicia ervilia</i> (L.) Willd.	Fabaceae	Eurasia	Th	1804	Epoe
<i>Vicia faba</i> L.	Fabaceae	Eurasia	Th	1968	Epoe
<i>Vicia villosa</i> Roth	Fabaceae	Eurasia	Th	1911	Epoe
<i>Vinca major</i> L.	Apocynaceae	Eurasia	Ch	1882	Agr
<i>Vinca minor</i> L.	Apocynaceae	Eurasia	Ch	1913	Agr
<i>Vitis longii</i> Prince	Vitaceae	America	Ph	1966	Dia
<i>Vitis vinifera</i> L. ssp. <i>vinifera</i>	Vitaceae	Eurasia	Ph	1913	Dia
<i>Watsonia bulbifera</i> Matthews & L. Bolus	Iridaceae	S Africa	Cr	1956	Epoe
<i>Wedelia glauca</i> (Ort.) Blake	Asteraceae	S America	Cr	1939	Dia
<i>Wigandia caracasana</i> Kunth	Hydrophyllaceae	America	Ph	1944	Dia
<i>Xanthium orientale</i> L.	Asteraceae	Hybrid	Th	1913	Agr
<i>Xanthium spinosum</i> L.	Asteraceae	S America	Th	1804	Epoe
<i>Xanthium strumarium</i> L. ssp. <i>italicum</i> (Moretti) D. Löve	Asteraceae	America	Th	1913	Agr
<i>Yucca aloifolia</i> L.	Agavaceae	N America	Ph	1896	Dia
<i>Zantedeschia aethiopica</i> (L.) Spreng.	Araceae	S Africa	Cr	1989	Epoe

CONCLUSIONS

We recognise now a total number of 564 taxa of vascular exotic more or less naturalized species (including species, subspecies and also some hybrids), corresponding to about 17 % of the total flora of continental Portugal (ca. 3270 species and subspecies). In the period 1999-2005 we found 64 new plant species records (12,8 % more than the previous total number).

These 564 taxa belong to 113 families. Pteridophyta, with 9 species (1,6 %) belonging to 7 families, are a small group. The same is true for Gymnospermae, with 14 species (2,5 %), belonging to 2 families. Angiosper-

mae are the great majority of our exotic flora, with 541 taxa (95,9 % of the total number), belonging to 104 families. Dicotyledones are the largest group, with 443 taxa (78,5 %), included in 83 families. Monocotyledones are other major group, with 98 taxa (17,4 %), belonging to 21 families). The previous proportions between these large groups (Almeida, 1999a; Almeida & Freitas, 2000; Almeida & Freitas, 2001) remain more or less constant.

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