
A COMPARISON OF URBAN FLORA IN SPLIT, DUBROVNIK, AND MOSTAR

USPOREDBA URBANE FLORE U SPLITU,
DUBROVNIKU I MOSTARU

UDK: 581.92:712(497.5 Split)
581.92:712(497.5 Dubrovnik)
581.92:712(497.6 Mostar)

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Urban flora sampled in the coastal cities of Split and Dubrovnik (Croatia) and in Mostar (Bosnia and Herzegovina) was represented by 325, 243, and 106 vascular plant taxa (species and subspecies), respectively. Similarity coefficients between the flora of Split and Dubrovnik, Split and Mostar, and Dubrovnik and Mostar were, respectively, 41.8, 17.9, and 19.0%. Fifty-one taxa were common among all three cities. The Mediterranean floral element dominated all three, with the families *Asteraceae*, *Poaceae*, and *Cichoriaceae* having the highest number of taxa. According to Raunkiaer's life-form spectrum, therophytes dominated Split (48%), while hemicryptophytes were more common in Dubrovnik (36%) and Mostar (39%). In total, 62 (Split), 41 (Dubrovnik), and 19 (Mostar) taxa of alien (allochthonous, non-native) plants were identified. Most were neophytes originating in the Americas (Split, 65.5%; Dubrovnik, 73%; Mostar, 52.6%). The urban flora of Split and Dubrovnik is Mediterranean and, in both quality and quantity, is comparable to that of cities in central and southern Italy. Differences among the three cities may be explained by historical differences in the nature and intensity of human impacts.

Key words: urban flora, Split, Dubrovnik, Mostar.

INTRODUCTION – Uvod

The field of urban ecology has developed rapidly over the last few decades (see Sukopp, 2002 for an historical overview). Interest in urban flora may be attributed partly to the fact that cities have been found to be remarkably rich in species, a result of high habitat diversity (Gilbert 1989) and the introduction of alien (*syn.*: allochthonous, exotic, introduced, non-native, non-indigenous plants) species (Pyšek 1998).

According to Mitić et al. (2008), alien plants include taxa introduced and grown outside of their natural area of distribution, including gametes, seeds, and

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propagules. Their introduction may be intentional or unintentional, or they may have arrived without any human intervention.

Research on the flora of large cities in central and southern Europe increased notably in the second half of the 20th century (cf. Chronopoulos and Christodoulakis 2003, Celesti-Grapow et al. 2006). Urban species now have been enumerated for at least seventy-seven European cities (Pyšek, 1993). Outside of Europe, urban ecology has been studied intensively in North America (cf. McKinney 2006).

As in other habitats subjected to human or natural disturbances, native and alien species often have different distributions and respond to different environmental factors (Pyšek et al. 2005). Based on data for 54 cities (Pyšek 1998), alien species generally are more abundant in urban centers than in outlying parts of the city or the surrounding countryside. These species, often introduced in the more densely populated city centers (Kowarik 1990), take advantage of the higher degree of human activities in these areas (Chocholoušková and Pyšek 2003).

The present paper compares the urban flora of three cities in south-eastern Europe: Split and Dubrovnik, both on Croatia's eastern Adriatic coast; and the inland Bosnian city of Mostar. The objectives are to determine the degree of floral similarity and to analyze the current plant assemblages in terms of life forms and floral elements, with particular attention to the origin of alien plants.

Study cities

Like most urban areas of the world, the population in each of the three cities in this study has increased over recent decades. The municipality of Mostar (8.9 km²) had a population of 127,066 in 2005. According to the 2001 census, Split, with a 16 km² urban zone, had a population of 188,694; this grew to an estimated 221,456 in 2005. Dubrovnik (14.3 km²) had a population of 43,770 in 2001 but, although it is a smaller municipality, its status as a popular tourist venue demands that its urban infrastructure accommodate a transient seasonal population that increases its effective size several-fold. Each city, to different degrees, thus is experiencing the variety of challenges that attend urban expansion.

The urban landscapes of these cities are very heterogeneous, both in terms of geography (climate, geology, soil, morphology) and land use. The climate is typically Mediterranean in Split (43°30'N, 16°26'E; average annual temperature of 16°C and average annual rainfall of 795 mm) and Dubrovnik (42°39'N, 18°04'E; average annual temperature of 16°C and average annual rainfall of 1,294 mm). Mostar (43°20'N, 17°48'E), less than 90 m above sea level and less than 60 km from the Adriatic Sea, has a modified Mediterranean climate with an average annual temperature of 14.7°C and an average annual rainfall of 1,489 mm.

According to the Biogeographic Map of Europe (Rivas-Martínez et al. 2004), Split and Dubrovnik are in the Mediterranean Region, Eastern Mediterranean Subregion, Adriatic Province, and Epiro-Dalmatian Sector; Mostar is in the Euro-Siberian Region, Alpino-Caucasian Subregion, Apennino-Balkan Province, and Illyrian Sector.

MATERIAL AND METHODS – Materijal i metode rada

Collections and field observations were carried out in the urban areas of Split (1996 – 2007, 17 localities), Dubrovnik (2005 – 2007, 16), and Mostar (2003, 22). The total surface area investigated was, respectively, 8.0, 7.1, and 6.2 km².

The identified flora are listed alphabetically as genera and lower taxa (Table 1). Nomenclature follows the *Flora Europaea* (Tutin 1968-1980, 1993). Floral element is indicated after the family and life-form abbreviations (Raunkiaer 1934, P – Phanerophytes, Ch – Chamaephytes, H – Hemicryptophytes, G – Geophytes, T – Therophytes, Hy – Hydrophytes) are given after the floral element. Analysis of life forms and floral elements was made according to Pignatti (1982), Jasprica and Kovačić (1997a, b), Ruščić (2003), and references therein.

Species associations were quantified with the Jaccard similarity index (Jaccard 1908):

$$J = 100 [a / (a + b + c)]$$

where *a* is the number of species present in both cities; *b* is the number in city 1, but absent in city 2; and *c* is the number in city 2, but absent in city 1. Double absences do not contribute to similarity. Statistical analyses were performed with PRIMER v5 (Clarke and Gorley 2001).

RESULTS – Rezultati

The number of vascular plant taxa (species and subspecies) observed were: 325 in Split, 243 in Dubrovnik, and 106 in Mostar (Table 1). Similarity coefficients between flora in Split and Dubrovnik, Split and Mostar, and Dubrovnik and Mostar were, respectively: 41.8, 17.9, and 19.0%. Fifty-one taxa were common to all three cities.

The families with the highest number of taxa in all three cities were *Asteraceae*, *Poaceae*, and *Cichoriaceae* (Table 2). In addition, *Fabaceae* and *Scrophulariaceae* each had more than 10 taxa in Split and Dubrovnik.

Table 2. List of families and their number of taxa in the urban flora of the cities.

Tablica 2. Lista porodica broj taksona u urbanoj flori gradova

Families	Split	Dubrovnik	Mostar
<i>Aceraceae</i>	1	2	-
<i>Adiantaceae</i>	1	3	-
<i>Agavaceae</i>	1	1	-
<i>Alismataceae</i>	1	-	-
<i>Amaranthaceae</i>	7	7	1
<i>Anacardiaceae</i>	-	1	-
<i>Apiaceae</i>	6	10	3
<i>Apocyanaceae</i>	2	1	1
<i>Araceae</i>	1	1	1

<i>Araliaceae</i>	1	1	1
<i>Arecaceae</i>	1	-	-
<i>Aspleniaceae</i>	2	2	-
<i>Asteraceae</i>	46	29	19
<i>Bignoniaceae</i>	1	1	1
<i>Boraginaceae</i>	4	2	1
<i>Brassicaceae</i>	27	9	3
<i>Cactaceae</i>	1	1	-
<i>Campanulaceae</i>	1	1	-
<i>Cannabaceae</i>	1	-	-
<i>Cannaceae</i>	1	1	-
<i>Capparaceae</i>	1	1	-
<i>Caprifoliaceae</i>	1	1	1
<i>Caryophyllaceae</i>	14	7	3
<i>Chenopodiaceae</i>	5	5	2
<i>Cichoriaceae</i>	20	13	10
<i>Chusiaceae</i>	1	1	-
<i>Commelinaceae</i>	1	1	-
<i>Convolvulaceae</i>	5	4	1
<i>Crassulaceae</i>	6	3	-
<i>Cucurbitaceae</i>	1	1	-
<i>Cupressaceae</i>	1	-	-
<i>Cyperaceae</i>	1	2	-
<i>Dipsacaceae</i>	3	3	1
<i>Euphorbiaceae</i>	10	7	2
<i>Fabaceae</i>	22	11	7
<i>Fumariaceae</i>	2	-	-
<i>Geraniaceae</i>	6	2	-
<i>Iridaceae</i>	-	1	-
<i>Lamiaceae</i>	7	13	9
<i>Lauraceae</i>	1	1	-
<i>Liliaceae</i>	4	3	-
<i>Linaceae</i>	1	-	-
<i>Malvaceae</i>	2	2	-
<i>Meliaceae</i>	1	1	1
<i>Moraceae</i>	3	3	-
<i>Nyctaginaceae</i>	1	1	-
<i>Onagraceae</i>	2	-	-
<i>Oxalidaceae</i>	4	2	2
<i>Papaveraceae</i>	1	-	-
<i>Passifloraceae</i>	1	1	-

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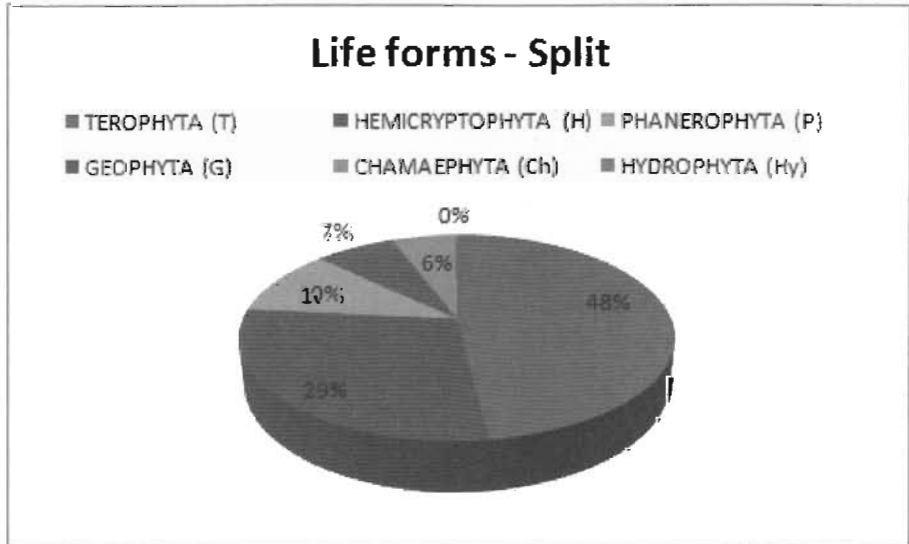
<i>Phytolacaceae</i>	1	1	-
<i>Pinaceae</i>	2	1	-
<i>Plantaginaceae</i>	2	2	2
<i>Platanaceae</i>	-	-	1
<i>Plumbaginaceae</i>	1	1	-
<i>Poaceae</i>	33	30	10
<i>Polygonaceae</i>	4	2	2
<i>Polygonaceae</i>	1	2	1
<i>Polypodiaceae</i>	1	1	-
<i>Portulacaceae</i>	1	1	-
<i>Primulaceae</i>	2	3	-
<i>Ranunculaceae</i>	2	3	1
<i>Resedaceae</i>	3	2	1
<i>Rosaceae</i>	5	5	5
<i>Rubiaceae</i>	2	3	-
<i>Sapindaceae</i>	1	-	-
<i>Saxifragaceae</i>	1	1	-
<i>Scrophulariaceae</i>	11	10	4
<i>Simaroubaceae</i>	1	1	1
<i>Solanaceae</i>	7	6	2
<i>Theligonaceae</i>	-	1	-
<i>Ulmaceae</i>	2	2	1
<i>Urticaceae</i>	3	2	-
<i>Valerianaceae</i>	1	1	-
<i>Verbenaceae</i>	1	1	1
<i>Violacea</i>	1	-	1
<i>Vitaceae</i>	1	1	-
<i>Zigophyllaceae</i>	1	1	-

Mediterranean floral elements dominated all three cities, contributing 26% to the flora in Split, 35.4% in Dubrovnik, and 24.5% in Mostar (Table 3).

Table 3. Analysis of the floral elements in the three cities.
 Tablica 3. Analiza flornih elemenata u tri grada

Floral elements / Cities	Number of taxa and percentage		
	SPLIT	DUBROVNIK	MOSTAR
Mediterranean	83 (26%)	86 (35.4%)	26 (24.5%)
Cultural and Adventive	81 (25%)	59 (24.3%)	25 (23.6%)
Widespread plants	73 (22.5%)	57 (23.5%)	24 (22.6%)
Eurasian	20 (6.2%)	20 (8.3%)	14 (13.2%)
European	12 (3.7%)	5 (2.0%)	6 (5.7%)
Southern European	49 (15.1%)	7 (2.9%)	5 (4.7%)
Central European	2 (0.6%)	5 (2.0%)	2 (1.9%)
Circumholarctic	2 (0.6%)	2 (0.8%)	2 (1.9%)
Illyrian-Balkan	1 (0.3%)	-	-
Eastern European-Pontian	2 (0.6 %)	2 (0.8%)	2 (1.9%)
Total	325 (100%)	243 (100%)	106 (100%)

Therophytes dominated Raunkiaer's life-form spectrum in Split (48%), while hemicryptophytes were more common in Dubrovnik (36%) and Mostar (39%) (Figure 1). Hydrophytes were not found in either Dubrovnik or Mostar.



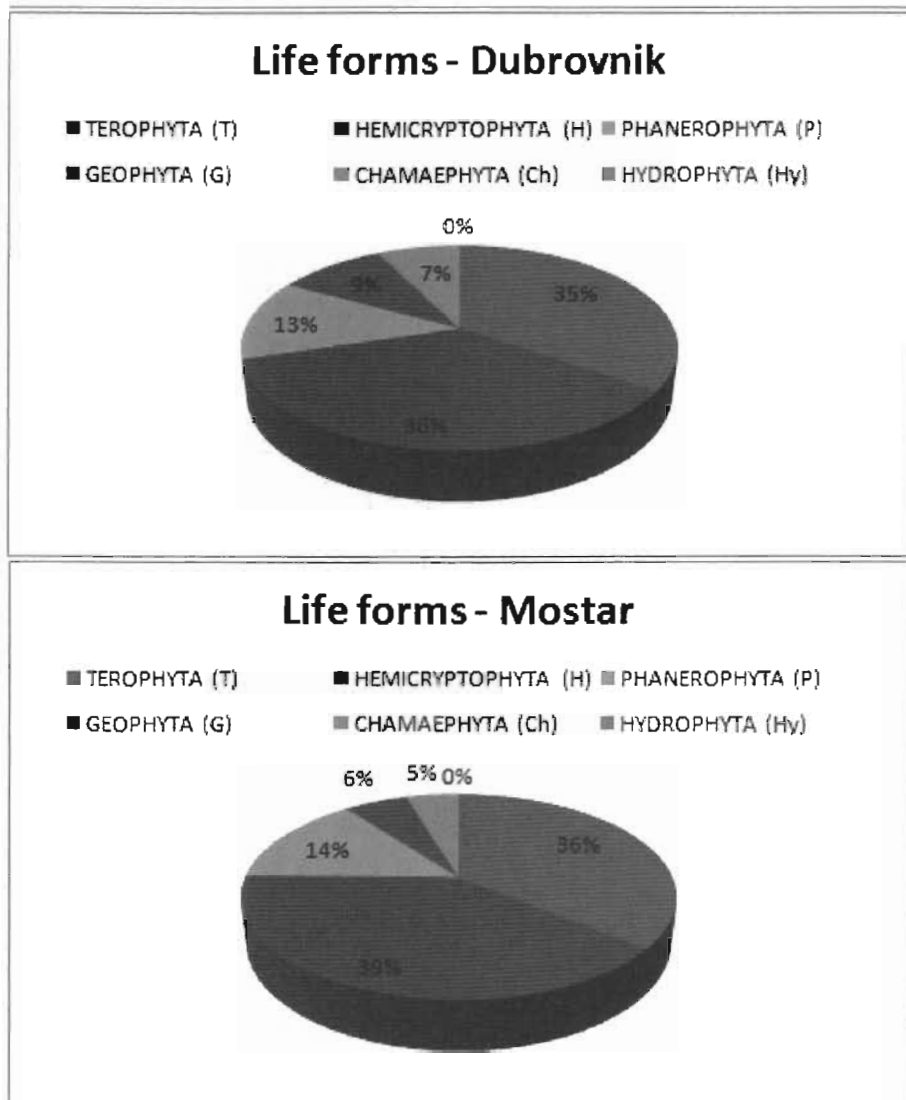


Figure. 1. Raunkiaer's life-form spectra of the urban flora in the investigated cities.
 Slika 1. Raunkiaerov izgled životnog spectra urbane flore u istraživanim gradovima

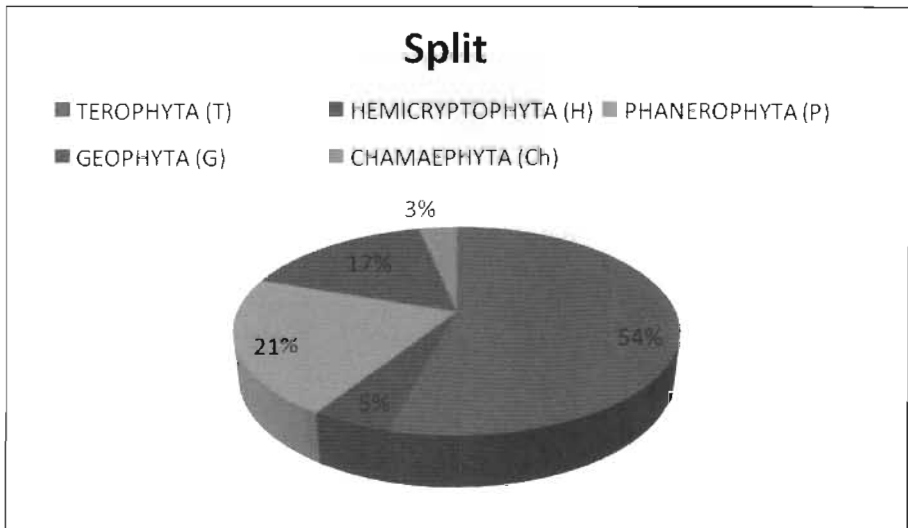
In total, 62, 41, and 19 taxa of alien plants were identified, respectively, in Split, Dubrovnik, and Mostar (Table 4), contributing 18.4, 16.8, and 17.9% to the total flora.

Table 4. Origin of adventive plants in the investigated cities.

Tablica 4. Podrijetlo biljaka u istraživanim gradovima

Origin	Number of taxa		
	SPLIT	DUBROVNIK	MOSTAR
Africa	2	1	1
South and North Africa	2	1	1
America	40	30	10
North America	15	12	3
South and Tropical America	18	12	6
North and South America	5	5	1
Central and South America	2	1	0
Asia	13	7	6
East Asia, Central Asia and China	10	5	4
South and West Asia	3	2	2
Paleotropical	1	0	1
Tropical / Subtropical	2	2	1
Western Mediterranean	2	1	0
Western European	1	0	0
Total	61	41	19

Most alien taxa were neophytes, of which taxa originating in the Americas dominated: Split, 65.5%; Dubrovnik, 73%; and Mostar, 52.6%. In contrast, archaeophytes were much less common and mainly of Asiatic origin. Therophytes were the most important alien plants: Split, 54%; Dubrovnik, 46%; and Mostar, 58% (Figure 2).



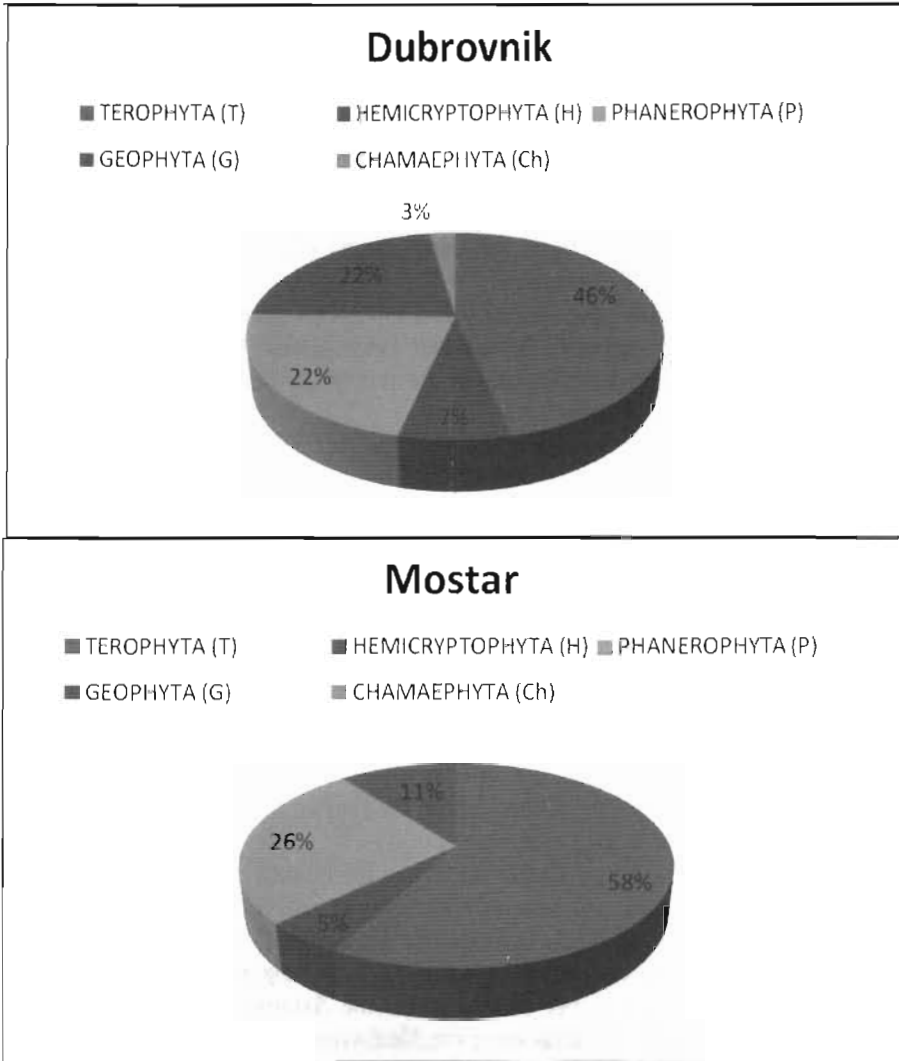


Figure 2. Raunkiaer's life-form spectra of alien flora in the investigated cities.
 Slika 1. Raunkiaerov izgled životnog spectra strane flore u istraživanim gradovima

DISCUSSION – Rasprava

From a botanical standpoint, cities can be viewed as intensively managed landscapes that favor a distinct species assemblage (Haeupler 1974, Kühn et al. 2004). This assemblage may be more diverse than those outside of the city, owing in part to the relatively high environmental heterogeneity that most urban environments provide (Gilbert 1989).

Split and Dubrovnik are typical Mediterranean cities with urban flora comparable to that of the coastal urban areas of central and southern Italy (cf. Celesti-Grapow et al. 1996, Celesti-Grapow and Blasi 1998, Hruska et al. 2003). Differences between the coastal cities in this study and Mostar may be explained at least partly by historical differences in the type and intensity of human impact that each has experienced. For example, for centuries the Adriatic cities experienced a regular exchange of people and goods through their seaports. Mostar, on the other hand, has been a regional rail and road hub and an important waypoint for transport between the coast to the hinterland.

Much more recently (since 1992), foreign troops and their equipment have affected the urban landscape of Bosnia and Herzegovina. In fact, Trinajstić and Jasprica (1998) have cited this as one of the vectors by which *Eleusina tristachya* was introduced into the Balkans.

The rapid increase in tourist traffic over the last decade certainly has had an impact on the urban flora of these cities, both in terms of habitat modification and even the introduction of alien species. This is a very important topic that deserves closer analysis than can be offered here.

The number of taxa in different parts of the cities varied according to the degree of urbanization and habitat types (Ruščić 2003, Jasprica et al. 2008). Knapp et al. (2008) found that high species richness in urban areas is accounted for by closely related species that occupy functionally similar habitats. A number of studies have demonstrated that environmental modifications characteristic of human settlements provide distinctive 'niche opportunities' (*sensu* Shea and Chesson, 2002). For instance, species with higher temperature requirements and tolerance of arid environments tend to occur in city centers, where the 'urban heat-island effect' is more pronounced (Godefroid 2001; McKinney 2006).

Asteraceae, *Poaceae*, and *Cichoriaceae* had the highest number of taxa. Unfortunately, information on urban flora of other eastern Adriatic cities yet is undocumented, so comparison currently is limited to Mostar and Sarajevo in Bosnia and Herzegovina. According to Tomović-Hadžiavdić and Šoljan (2006), Mostar and Sarajevo had the highest number of taxa within the *Asteraceae*, *Poaceae*, *Cichoriaceae*, and *Fabaceae*. The dominance of the Mediterranean element is supported by the high contribution of therophytes. This is not unexpected, as their short life-cycles and high number of easily dispersed seeds make therophytes very effective colonizers.

Urban flora has been enriched significantly by alien species. The proportion of aliens in Central European cities typically varies between 20-60%, with a mean of 40% (Pyšek 1998 for 54 cities). In the present study, they contributed 16.8 to 18.4% of identified flora. The proportion of non-native taxa increases with city size (Klotz 1990; Pyšek *i sur.* 2004); high species diversity thus is more pronounced in large industrial cities (Pyšek 1993).

It recently was pointed out that cities are naturally rich in native species owing to their heterogeneous geological substrate that, on average, is more diverse than a randomly selected plot from the surrounding extra-urban area (Kühn *i sur.* 2004).

This makes their flora prone to the loss of native species and the spread of aliens; and this, in turn, encourages biotic homogenization (McKinney and Lockwood 1999, Olden et al. 2004).

Geographic origin analysis suggests that most alien species in this study originated in the Americas, both North and South. This agrees with the conclusion of Boršić et al. (2008) for invasive alien plants in Croatia. Indeed, plants from the Americas have been spreading more vigorously during the last decades (cf. Trinajstić and Jasprica 1998, Šilić and Šolić 1999, Pandža *i sur.* 2001, Stančić 2007, Pandža and Tafra 2008, etc.). On the other hand, the relatively small percentage of aliens of Eurasian and Mediterranean origin may be explained by the fact that these taxa are archaeophytes: That is, with the passage of time since their original introduction, they have become a constitutive part of the local vegetation and so now are considered native.

In the case of Dubrovnik, full interpretation of its urban floral diversity must incorporate an analysis of the city's activities when it was an important thalassocracy. During this time, ships and emissaries of the Republic frequently returned to port from their far-reaching travels with exotic plants collected along the Mediterranean littoral and beyond (V. Lupis, *pers. comm.*; for review see Đurasović 1998).

Additionally, the botanical garden of the small island of Lokrum, lying only 700 m offshore of the City, is home to a variety of exotics – many from the Americas – intentionally transplanted to the region when the island was the property of Emperor Maximilian (Adamović, 1911). More detailed analysis will be required to evaluate the extent to which the Ragusan Republic served as the port-of-entry for floral elements now established in the Balkan Peninsula.

Additional research on the urban flora in Croatian and Bosnian cities is underway and will advance knowledge of the expansion of aliens in this region. This, in turn, will further understanding of the processes that determine the urban ecology Southeastern European cities.

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Table 1. Raunkiaer's life-form spectra of the urban flora in the investigated cities.
 Tablica 1. Raunkiaerov izgled životnog spektra urbane flore u istraživanim gradovima

Taxon	Family	Floral element	Life form	Origin	Cities
<i>Acer negundo</i> L.	Aceraceae	Cultivated and adventitious	P	North America	S
<i>Achillea millefolium</i> L.	Asteraceae	Centraleuropean	H		D, M
<i>Achillea setacea</i> Waldst. & Kit.	Asteraceae	South European-Mediterranean	H		S
<i>Adiantum capillus-veneris</i> L.	Adiantaceae	Mediterranean-Atlantic	G		D
<i>Agave americana</i> L.	Agavaceae	Cultivated and adventitious	Ch	North America	S, D
<i>Agrimonia eupatoria</i> L.	Rosaceae	Circum-Holarctic	H		M
<i>Ailanthus altissima</i> (Mill.) Swingle.	Simaroubaceae	Cultivated and adventitious	P	East Asia	S, D, M
<i>Ajuga chamaepitys</i> (L.) Schreb.	Lamiaceae	Circum-Mediterranean	T		S, D
<i>Albizia julibrissin</i> Durazz.	Fabaceae	Cultivated and adventitious	P	Paleotropical	M
<i>Alcea rosea</i> L.	Malvaceae	Cultivated and adventitious	H		S, D
<i>Alisma lanceolatum</i> With.	Alismataceae	Widespread	Hy		S
<i>Alliaria petiolata</i> (Bieb.) Cavara & Grande	Brassicaceae	European	H		S
<i>Allium commutatum</i> Guss.	Liliaceae	Circum-Mediterranean	G		D
<i>Allium neapolitanum</i> Cyt.	Liliaceae	Circum-Mediterranean	G		S
<i>Allium subhirsutum</i> L.	Liliaceae	Circum-Mediterranean	G		S
<i>Alyssum murale</i> Waldst. & Kit.	Brassicaceae	Illyrian-Balkan	T		S
<i>Amaranthus albus</i> L.	Amaranthaceae	Cultivated and adventitious	T	North America	S, D
<i>Amaranthus cruentus</i> (Lesp. & Thér.) N. Terracc.	Amaranthaceae	Cultivated and adventitious	T	North and South America	S, D
<i>Amaranthus deflexus</i> L.	Amaranthaceae	Cultivated and adventitious	T	South America	S, D
<i>Amaranthus graecizans</i> L.	Amaranthaceae	Cultivated and adventitious	T	North and South America	S, D
<i>Amaranthus powellii</i> S. Watson	Amaranthaceae	Cultivated and adventitious	T	North and South America	S, D, M
<i>Amaranthus retroflexus</i> L.	Amaranthaceae	Cultivated and adventitious	T	North and South America	S, D
<i>Amaranthus viridis</i> L.	Amaranthaceae	Cultivated and adventitious	T	South America	S, D
<i>Ambrosia artemisiifolia</i> Torr. & A. Gray	Asteraceae	Cultivated and adventitious	T	North America	S, D
<i>Anacyclus clavatus</i> (Desf.) Pers.	Asteraceae	Circum-Mediterranean	T		S

<i>Anagallis arvensis</i> L.	Primulaceae	Widespread	T	S, D
<i>Anagallis coerulea</i> Schreb.	Primulaceae	Widespread	T	S, D
<i>Anchusa variiegata</i> (L.) Ledeb.	Boraginaceae	East Mediterrean	T	S
<i>Anthemis arvensis</i> L.	Asteraceae	Circum-Mediterranean	T	M
<i>Anthemis austriaca</i> Jacq.	Asteraceae	Southeast European	T	D
<i>Anthemis cotula</i> L.	Asteraceae	Southern European	T	S
<i>Antirrhinum majus</i> L.	Scrophulariaceae	Eurasian	Ch	S, D, M
<i>Arenaria leptoclados</i> (Reich.) Guss.	Caryophyllaceae	Eurasian	T	S
<i>Arenaria serpyllifolia</i> L.	Caryophyllaceae	Widespread	T	S
<i>Artemisia absinthium</i> L.	Asteraceae	Eurasian	Ch	S, D, M
<i>Artemisia annua</i> L.	Asteraceae	Eurasian	T	S, M
<i>Artemisia arborescens</i> L.	Asteraceae	Circum-Mediterranean	Ch	M
<i>Artemisia vulgaris</i> L.	Asteraceae	Widespread	H	S, D
<i>Arum italicum</i> Mill.	Araceae	Circum-Mediterranean	G	D, M
<i>Asparagus acutifolius</i> L.	Liliaceae	Circum-Mediterranean	G	S
<i>Asphodelus fistulosus</i> L.	Liliaceae	Circum-Mediterranean	H	D
<i>Asplenium ruta-muraria</i> L.	Aspleniaceae	Circum-Holarctic	H	S
<i>Asplenium trichomanes</i> L.	Aspleniaceae	Widespread	H	S, D
<i>Aster squamatus</i> (Spreng.) Hieron.	Asteraceae	Cultivated and adventitious	T	S, D
<i>Aster tripolium</i> L.	Asteraceae	Widespread	H	D
<i>Atriplex hastata</i> L.	Chenopodiaceae	Widespread	T	D
<i>Aurinia sinuata</i> (L.) Griseb	Brassicaceae	Illyrian-Apennine	Ch	S
<i>Avena sativa</i> L.	Poaceae	Cultivated and adventitious	T	S
<i>Avena sterilis</i> L.	Poaceae	Southern European-Pontian	T	S, D
<i>Ballota nigra</i> L.	Lamiaceae	South European-Mediterranean	H	D, M
<i>Ballota nigra</i> L. ssp. <i>foetida</i> Hayek	Lamiaceae	South European-Mediterranean	H	S
<i>Ballota nigra</i> L. ssp. <i>uncinata</i> (Fiori & Bég.) Patzak	Lamiaceae	Circum-Mediterranean	H	S
<i>Barbarea vulgaris</i> R.Br.	Brassicaceae	Widespread	H	S
<i>Bellis perennis</i> L.	Asteraceae	Centraleuropean	H	S

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<i>Bertoua incana</i> (L.) DC.	Brassicaceae	Eurasian	H		S, D
<i>Bidens subalternans</i> DC.	Asteraceae	Cultivated and adventitious	T	South America	S, D, M
<i>Brachypodium retusum</i> (Pers.) P. Beauv.	Poaceae	Circum-Mediterranean	H		D
<i>Brassica oleracea</i> L.	Brassicaceae	Cultivated and adventitious	Ch	West Europa	S
<i>Briza maxima</i> L.	Poaceae	Circum-Mediterranean	T		D
<i>Bromus madritensis</i> L.	Poaceae	Mediterranean-Atlantic	T		S, D
<i>Bromus rigidus</i> Roth.	Poaceae	Eastern European-Pontian	T		S
<i>Bromus sterilis</i> L.	Poaceae	Widespread	T		S
<i>Broussonetia papyrifera</i> (L.) Vent.	Moraceae	Cultivated and adventitious	P	East Asia	S, D
<i>Bunias erucago</i> L.	Brassicaceae	Cultivated and adventitious	T		S
<i>Calamintha nepetoides</i> Jord.	Lamiaceae	South European-Mediterranean	H		S, D, M
<i>Calamintha sylvatica</i> Bromf.	Lamiaceae	Southern European-Pontian	H		M
<i>Calendula arvensis</i> L.	Asteraceae	Eurasian	H		S
<i>Calendula officinalis</i> L.	Asteraceae	South European-Mediterranean	T		S, D
<i>Calepina irregularis</i> (Asso) Thell.	Brassicaceae	Cultivated and adventitious	T		S
<i>Calystegia sepium</i> (L.) R. Br.	Convolvulaceae	European	T		S
<i>Campanula pyramidalis</i> L.	Campanulaceae	Widespread	H		S
<i>Canna indica</i> L.	Campanulaceae	Illyrian-Adriatic endemic	H		S, D
<i>Cannabis sativa</i> L.	Cannaceae	Cultivated and adventitious	G	Subtropical	S, D
<i>Capparis spinosa</i> L.	Capparaceae	Cultivated and adventitious	T	South and West Asia	S
<i>Capsella rubella</i> Reut.	Brassicaceae	Circum-Mediterranean	P		S, D
<i>Cardamine hirsuta</i> L.	Brassicaceae	Circum-Mediterranean	T		S, M
<i>Cardaria draba</i> (L.) Desv.	Brassicaceae	Widespread	T		S
<i>Carduus pycnocephalus</i> L.	Asteraceae	Widespread	H		S, D
<i>Carlina corymbosa</i> L.	Asteraceae	Circum-Mediterranean	H		S, D
<i>Carthamus lanatus</i> L.	Asteraceae	Circum-Mediterranean	H		S, D
<i>Celtis australis</i> L.	Ulmaceae	Circum-Mediterranean	T		S, D
<i>Centaurea alba</i> L. subsp. <i>deusta</i> (Ten.) Nyman	Asteraceae	South European-Mediterranean	P		S, D
<i>Centaurea calcitrapa</i> L.	Asteraceae	Kvamer-Liburnian endemic	H		M
<i>Centaurea solstitialis</i> L.	Asteraceae	Mediterranean-Atlantic	H		S
	Asteraceae	South European-Pontic	H		S

<i>Centaurea spinosociolata</i> Seenus subsp. <i>crisitata</i> (Bertol.) Dostál	<i>Asteraceae</i>	Illyrian-Adriatic endemic	H	M
<i>Centaurea spinosociolata</i> Seenus susp. <i>spinosociolata</i>	<i>Asteraceae</i>	Illyrian-Adriatic endemic	H	S, D
<i>Centranthus ruber</i> (L.) DC.	<i>Valerianaceae</i>	Mediter.-Atlantic	Ch	S, D
<i>Cephalaria leucantha</i> (L.) Roem. & Schult.	<i>Dipsacaceae</i>	Circum-Mediterranean	H	S, D
<i>Cerastium brachypetalum</i> Pers.	<i>Caryophyllaceae</i>	South European-Mediterranean	T	S
<i>Cerastion siliqua</i> L.	<i>Fabaceae</i>	Cultivated and adventitious	P	S
<i>Cercis siliquastrum</i> L.	<i>Fabaceae</i>	Cultivated and adventitious	P	D, M
<i>Asplenium ceterach</i> L.	<i>Aspleniaceae</i>	South European-Mediterranean	H	D
<i>Chamaerops humilis</i> L.	<i>Araceae</i>	Cultivated and adventitious	P	S
<i>Chamomilla recutita</i> (L.) Rauschert	<i>Asteraceae</i>	Cultivated and adventitious	T	S
<i>Cheilanthes acrostica</i> (Balbis) Tod.	<i>Adiantaceae</i>	South European-Mediterranean	H	S, D
<i>Chelidonium majus</i> L.	<i>Papaveraceae</i>	Eurasian	H	M
<i>Chenopodium album</i> L.	<i>Chenopodiaceae</i>	Widespread	T	S, D, M
<i>Chenopodium amrostioides</i> L.	<i>Chenopodiaceae</i>	Cultivated and adventitious	T	S, D, M
<i>Chenopodium hybridum</i> L.	<i>Chenopodiaceae</i>	Widespread	T	S
<i>Chenopodium murale</i> L.	<i>Chenopodiaceae</i>	Widespread	T	S, D
<i>Chenopodium vulvaria</i> L.	<i>Chenopodiaceae</i>	South European-Mediterranean	T	S, D
<i>Chondrilla juncea</i> L.	<i>Cichoriaceae</i>	Eurasian	H	S, D, M
<i>Chrysanthemum coronarium</i> L.	<i>Asteraceae</i>	Circum-Mediterranean	T	S
<i>Cichorium intybus</i> L.	<i>Cichoriaceae</i>	Widespread	H	S, D, M
<i>Cirsium arvense</i> (L.) Scop.	<i>Asteraceae</i>	Eurasian	T	S, M
<i>Cirsium vulgare</i> (Savi) Scop.	<i>Asteraceae</i>	Eurasian	H	S, D
<i>Clematis vitalba</i> L.	<i>Ranunculaceae</i>	Eurasian	P	S, D, M
<i>Colutea arborescens</i> L.	<i>Fabaceae</i>	Circum-Mediterranean	P	D
<i>Commelina virginica</i> L.	<i>Commelinaceae</i>	Cultivated and adventitious	G	S, D
<i>Consolida ajacis</i> (L.) Schur	<i>Ranunculaceae</i>	Circum-Mediterranean	T	D
<i>Convolvulus althaeoides</i> L. ssp. <i>tennuissimus</i> (Sibth. & Sm.) Stace	<i>Convolvulaceae</i>	Eastern Mediterranean	H	S, D
<i>Convolvulus arvensis</i> L.	<i>Convolvulaceae</i>	Widespread	G	S, D, M
<i>Conyza bonariensis</i> (L.) Cronquist	<i>Asteraceae</i>	Cultivated and adventitious	T	S, D, M
<i>Conyza canadensis</i> (L.) Cronquist	<i>Asteraceae</i>	Cultivated and adventitious	T	S, D, M

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<i>Coronilla emerus</i> L. ssp. <i>emeroides</i> Boiss. & Spruner		Eastern Mediterranean	P	D
<i>Coronilla varia</i> L.		European	H	S
<i>Coronopus squamatus</i> (Forsk.) Ascherson		South European-Mediterranean	T	S
<i>Crepis foetida</i> L. ssp. <i>foetida</i>		South European-Mediterranean	T	S
<i>Crepis neglecta</i> L.		European-Mediterranean	T	S, D
<i>Crepis rubra</i> L.		Eastern Mediterranean	T	S
<i>Crepis vesicaria</i> L.		Circum-Mediterranean	T	S
<i>Crothium maritimum</i> L.		Mediterranean-Atlantic	Ch	S, D
<i>Chrozophora tinctoria</i> (L.) A. Juss.		Mediterranean-Pontic	T	S
<i>Cupressus sempervirens</i> L.		Eastern Mediterranean	P	S
<i>Cuscuta australis</i> R. Br.		South European-Mediterranean	T	M
<i>Cyclamen europaeum</i> Sibth. & Sm.		European-Mediterranean	G	D
<i>Cymbalaria muralis</i> P. Gaertn.		South European-Mediterranean	H	S, D
<i>Cynodon dactylon</i> (L.) Pers.		Widespread	G	S, D, M
<i>Cyperus papyrus</i>		Cultivated and adventitious	G	D
<i>Cyperus rotundus</i> L.		South European-Mediterranean	G	S, D
<i>Dactylis glomerata</i> L. ssp. <i>hispanica</i> (Roth) Nyman		Circum-Mediterranean	H	S, D
<i>Datura innoxia</i> Mill.		Cultivated and adventitious	T	S
<i>Datura stramonium</i> L.		Widespread	T	S, D, M
<i>Daucus carota</i> L. ssp. <i>carota</i>		Illyrian-Adriatic endemic	H	S, D, M
<i>Delphinium staphisagria</i> L.		Circum-Mediterranean	T	S, D, M
<i>Desmodium rigida</i> (L.) Tutin		Mediterranean-Atlantic	T	D
<i>Dianthus sylvestris</i> Wulfen in Jacq. ssp. <i>tergestinus</i> (Reichenb.) Hayek		Illyrian-Adriatic endemic	H	S, D
<i>Dichanthium ischaemum</i> (L.) Roberty		South European-Mediterranean	H	D
<i>Dichondra micrantha</i> Urb.		Cultivated and adventitious	G	D
<i>Digitaria ciliaris</i> (Retz.) Koeler		Widespread	T	S, D, M
<i>Digitaria sanguinalis</i> (L.) Scop.		Widespread	T	S, D
<i>Diploaxis erucoides</i> (L.) DC.		Western Mediterranean	T	S, D
<i>Diploaxis muralis</i> (L.) DC.		Widespread	T	S, D, M

<i>Diplotaxis tenuifolia</i> (L.) DC.	Brassicaceae	Widespread	H	S, D
<i>Ditrichia graveolens</i> (L.) Greuter	Asteraceae	South European-Mediterranean	T	S, M
<i>Ditrichia viscosa</i> (L.) Greuter	Asteraceae	South European-Mediterranean	H	S, D, M
<i>Ecbalium elaterium</i> (L.) A. Rich.	Cucurbitaceae	Widespread	Ch	S, D
<i>Echinochloa crus-galli</i> (L.) P. Beauv.	Poaceae	Widespread	T	S, D
<i>Echium italicum</i> L.	Boraginaceae	Widespread	H	S, D
<i>Echium vulgare</i> L.	Boraginaceae	European	H	S
<i>Eleusine indica</i> (L.) Gaertn.	Poaceae	Cultivated and adventitious	T	Southwest Asia
<i>Elymus pungens</i> (Pers.) Melderis	Poaceae	Circum-Mediterranean	G	D
<i>Elymus pycnanthus</i> (Godr.) Melderis	Poaceae	Circum-Mediterranean	G	S, D
<i>Elymus repens</i> (L.) Gould	Poaceae	Widespread	G	D
<i>Epilobium hirsutum</i> L.	Onagraceae	Eurasian	H	S
<i>Epilobium tetragonum</i> L. ssp. <i>tetragonum</i>	Onagraceae	European	H	S
<i>Eragrostis ciliaris</i> (All.) F. T. Hubb.	Poaceae	Widespread	T	S
<i>Eragrostis minor</i> Host	Poaceae	Circum-Mediterranean	T	S, D
<i>Eriogonon annuus</i> (L.) Pers. ssp. <i>septentrionalis</i> (Fernald & Wiegand) Wagentz	Asteraceae	Cultivated and adventitious	T	North America
<i>Erodium cicutarium</i> (L.) L' Hér.	Geraniaceae	Mediterranean-Pontic	T	S
<i>Erodium cicutarium</i> (L.) L' Hér.	Geraniaceae	Widespread	T	S
<i>Erodium malacoides</i> (L.) L' Hér.	Geraniaceae	Circum-Mediterranean	T	S, D
<i>Erophila verna</i> (L.) Chevall. ssp. <i>praecox</i> (Steven) Walters	Brassicaceae	Circum-Mediterranean	T	S
<i>Eryngium campestre</i> L.	Apiaceae	South European-Mediterranean	H	S
<i>Erysimum cheiri</i> (L.) Crantz.	Brassicaceae	Cultivated and adventitious	Ch	S, D
<i>Eupatorium canadense</i> L.	Asteraceae	Eurasian	H	D
<i>Euphorbia chamaesyce</i> L.	Euphorbiaceae	South European-Mediterranean	T	S, M
<i>Euphorbia characias</i> L. ssp. <i>wulfenii</i> (Hoppe ex Koch) A.M.Sm.	Euphorbiaceae	Illyrian-Adriatic endemic	Ch	D
<i>Euphorbia helioscopia</i> L.	Euphorbiaceae	Widespread	T	S, D
<i>Euphorbia maculata</i> L.	Euphorbiaceae	Cultivated and adventitious	T	S, D
<i>Euphorbia peplus</i> L.	Euphorbiaceae	Widespread	T	S
<i>Euphorbia pinca</i> L.	Euphorbiaceae	Circum-Mediterranean	T	D

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<i>Euphorbia prostrata</i> Aiton	Euphorbiaceae	Cultivated and adventitious	T	North America	S, D
<i>Fallopia baldschuanica</i> (Regel) Holub	Polygonaceae	Cultivated and adventitious	P	Asia, China	M
<i>Fallopia convolvulus</i> (L.) Á. Löve	Polygonaceae	Circum-Holarctic	T		S
<i>Ferula communis</i> L.	Apiaceae	South European-Mediterranean	H		D
<i>Ficus carica</i> L.	Moraceae	Circum-Mediterranean	P		S, D
<i>Foeniculum vulgare</i> Mill.	Apiaceae	Circum-Mediterranean	H		S, D, M
<i>Fumaria parviflora</i> Lam.	Fumariaceae	South European-Mediterranean	T		S
<i>Fumaria vaillantii</i> Loisel in Desv.	Fumariaceae	Eurasian	T		S
<i>Galinoga ciliata</i> (Raf.) S. F. Blake	Asteraceae	Cultivated and adventitious	T	South America	S
<i>Galinoga parviflora</i> Cav.	Asteraceae	Cultivated and adventitious	T	South America	S, M
<i>Galium aparine</i> L.	Rubiaceae	Widespread	T		S, D
<i>Galium lucidum</i> All.	Rubiaceae	South European-Mediterranean	H		S, D
<i>Geranium molle</i> L.	Geraniaceae	Widespread	T		S
<i>Geranium purpureum</i> Vill.	Geraniaceae	South European-Mediterranean	T		S
<i>Geranium rotundifolium</i> L.	Geraniaceae	South European-Mediterranean	T		S, D
<i>Hedera helix</i> L.	Araliaceae	European	P		S, D, M
<i>Helianthus tuberosus</i> L.	Asteraceae	Cultivated and adventitious	G		S, D
<i>Helichrysum italicum</i> (Roth.) G. Don ssp. <i>italicum</i>	Asteraceae	South European-Mediterranean	Ch		S
<i>Heliotropium europaeum</i> L.	Borraginaceae	Mediterranean-Pontic	T		S, D, M
<i>Hemimaria hirsuta</i> L.	caryophyllaceae	European	T		S
<i>Hemimaria incana</i> Lam.	Caryophyllaceae	South European-Mediterranean	H		S
<i>Hordeum bulbosum</i> L.	Poaceae	South European-Mediterranean	H		S
<i>Hordeum murinum</i> L. ssp. <i>leporinum</i> (Link) Arcang.	Poaceae	South European-Mediterranean	T		S, D
<i>Hyoscyamus albus</i> L.	Solanaceae	Circum-Mediterranean	T		S, D
<i>Hyparrhenia hirta</i> (L.) Stapf.	Poaceae	Circum-Mediterranean	H		D
<i>Hypericum perforatum</i> L.	Clusiaceae	South European-Mediterranean	H		S, D
<i>Iberis sempervirens</i> L.	Brassicaceae	Cultivated and adventitious	Ch		S
<i>Inula conyza</i> DC.	Asteraceae	South European-Pontic	H		D, M
<i>Inula crinitoides</i> L.	Asteraceae	Mediterranean-Atlantic	Ch		D
<i>Inula verbascifolia</i> (Willd.) Hausskn.	Asteraceae	Illyrian-South European	H		S, D

<i>Ipomoea purpurea</i> Roth.	Convolvulaceae	Cultivated and adventitious	T	South America	S, D, M
<i>Iris pseudopallida</i> Trinajstić	Iridaceae	Illyrian-Adriatic endemic	G		D
<i>Kickxia commutata</i> (Bernh. ex Rehb.) Fritsch.	Scrophulariaceae	Eurasian	H		S
<i>Knaiffia integrifolia</i> (L.) Bertol.	Dipsacaceae	Circum-Mediterranean	T		S, D
<i>Knauffia purpurea</i> (Vill.) Borbas	Dipsacaceae	Western Mediterranean	H		M
<i>Koeleria paniculata</i> Laxm.	Sapindaceae	Cultivated and adventitious	P		S
<i>Lactuca quercina</i> L.	Cichoriaceae	Cultivated and adventitious	H		M
<i>Lactuca serriola</i> L.	Cichoriaceae	Widespread	H		S, D
<i>Lactuca viminea</i> (L.) J. & C. Presl	Cichoriaceae	South European-Pontic	H		S, D
<i>Lamium amplexicaule</i> L.	Lamiaceae	Eurasian	T		S
<i>Laurus nobilis</i> L.	Lauraceae	Cultivated and adventitious	P		S, D
<i>Lavatera arborea</i> L.	Malvaceae	Euro-Mediterranean	H		S, D
<i>Leontodon tuberosus</i> L.	Cichoriaceae	Circum-Mediterranean	H		S
<i>Lepidium graminifolium</i> L.	Brassicaceae	South European-Pontic	H		S, D
<i>Lepidium virginicum</i> L.	Brassicaceae	Cultivated and adventitious	T		S, M
<i>Linaria dalmanica</i> (L.) Mill.	Scrophulariaceae	Circum-Mediterranean	H	North America	D
<i>Linaria vulgaris</i> Mill.	Scrophulariaceae	Eurasian floral	H		S, D, M
<i>Linum strictum</i> L.	Linaceae	Mediterranean-Pontic	T		S
<i>Lolium perenne</i> L.	Poaceae	European	H		S, D
<i>Lotus corniculatus</i> L.	Fabaceae	Widespread	H		S
<i>Malva sylvestris</i> L.	Malvaceae	Widespread	H		S, D, M
<i>Marrubium vulgare</i> L.	Lamiaceae	Illyrian-Appennine	H		M
<i>Matricaria perforata</i> Mérat	Asteraceae	Eurasian	T		S, D
<i>Medicago arabica</i> (L.) Hudson	Fabaceae	Widespread	T		S
<i>Medicago lupulina</i> L.	Fabaceae	Widespread	T		S
<i>Medicago orbicularis</i> (L.) Bartal	Fabaceae	Circum-Mediterranean	T		S, D
<i>Medicago sativa</i> L. ssp. <i>sativa</i>	Fabaceae	Widespread	T		S, D, M
<i>Medicago sativa</i> L. subsp. <i>falcata</i> (L.) Arcangelii	Fabaceae	European	T		M
<i>Melilotus alba</i> L.	Meliaceae	Cultivated and adventitious	P	East Asia	S, D, M
<i>Melilotus officinalis</i> L.	Meliaceae	Eurasian	H		S, D, M

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<i>Melilotus albus</i> Medik.	Fabaceae	Eurasian	T	S
<i>Melilotus italicus</i> (L.) Lam.	Fabaceae	South European-Mediterranean	T	S
<i>Melissa officinalis</i> L.	Lamiaceae	South European-Mediterranean	H	D, M
<i>Mentha arvensis</i> L.	Lamiaceae	Circum-Holarctic	H	M
<i>Mentha longifolia</i> (L.) Hudson	Lamiaceae	Widespread	H	S, D
<i>Mercurialis annua</i> L.	Euphorbiaceae	Widespread	T	S, D, M
<i>Micromeria juliana</i> (L.) Benth. ex Rehb.	Lamiaceae	Circum-Mediterranean	Ch	D
<i>Mirabilis jalapa</i> L.	Nyctaginaceae	Cultivated and adventitious	G	S, D
<i>Misopates orontium</i> (L.) Raf.	Scrophulariaceae	Eurasian floral elements	T	S, D
<i>Morus alba</i> L.	Moraceae	Cultivated and adventitious	P	S, D
<i>Muscari comosum</i> (L.) Mill.	Liliaceae	South European-Mediterranean	G	S
<i>Nerium oleander</i> L.	Apocynaceae	Cultivated and adventitious	P	S, D
<i>Nicotiana glauca</i> Graham	Solanaceae	Cultivated and adventitious	P	S, D
<i>Ononis spinosa</i> L.	Fabaceae	Circum-Mediterranean	Ch	M
<i>Onopordum illyricum</i> L.	Asteraceae	Circum-Mediterranean	H	S
<i>Opuntia vulgaris</i> Miller	Cactaceae	Cultivated and adventitious	P	S, D
<i>Origanum heracleoticum</i> L.	Lamiaceae	Eastern Mediterranean	H	M
<i>Origanum vulgare</i> L.	Lamiaceae	Eurasian floral elements	H	M
<i>Oxalis acetosella</i> L.	Oxalidaceae	Plant Circum Holarctic distribution	H	M
<i>Oxalis corniculata</i> L.	Oxalidaceae	Cultivated and adventitious	G	S, D
<i>Oxalis articulata</i> Savigny	Oxalidaceae	Cultivated and adventitious	G	S
<i>Oxalis pes-caprae</i> L.	Oxalidaceae	Cultivated and adventitious	G	S
<i>Oxalis stricta</i> L.	Oxalidaceae	Cultivated and adventitious	H	S, D, M
<i>Pallenis spinosa</i> (L.) Cass.	Asteraceae	Circum-Mediterranean	T	S, D
<i>Panicum capillare</i> L.	Poaceae	Cultivated and adventitious	T	S
<i>Panicum miliaceum</i> L.	Poaceae	Cultivated and adventitious	T	S
<i>Papaver rhoeas</i> L.	Papaveraceae	Widespread	T	S
<i>Parietaria judaica</i> L.	Urticaceae	South European-Mediterranean	H	S, D
<i>Parthenocissus tricuspidata</i> (Siebold & Zucc.) Planchon		Cultivated and adventitious	P	S, M

<i>Paspalum dilatatum</i> Poiret	Poaceae	Cultivated and adventitious	H	South America	S, D
<i>Paspalum paspalodes</i> (Michx.) Scribn	Poaceae	Cultivated and adventitious	G	Tropical America	S, D, M
<i>Paspiflora coerulea</i> L.	Passifloraceae	Cultivated and adventitious	P	South America	S, D
<i>Paulownia tomentosa</i> (Thunb.) Steud.	Scrophulariaceae	Cultivated and adventitious	P	East Asia	S, D
<i>Petrorhagia prolifera</i> (L.) P.W.Ball ex Heywood	caryophyllaceae	Eurasian floral elements	T		D
<i>Petrorhagia saxifraga</i> (L.) Link	caryophyllaceae	South European-Mediterranean	H		S, D, M
<i>Peucedanum cervicaria</i> (L.) Lapeyr.	Apiaceae	South European-Mediterranean	H		M
<i>Phagnalon rupestre</i> (L.) DC.	Asteraceae	Eastern Mediterranean	Ch		D
<i>Phalaris canariensis</i> L.	Poaceae	Cultivated and adventitious	T	Western Mediterranean	S
<i>Phaseolus vulgaris</i> L.	Fabaceae	Cultivated and adventitious	T		M
<i>Phlomis fruticosa</i> L.	Lamiaceae	Circum-Mediterranean	H		D
<i>Phoenix canariensis</i> hort. ex Chabaud	Arecaceae	Cultivated and adventitious	P	Canary	S
<i>Phragmites australis</i> (Cav.) Trin. ex Steud.	Poaceae	Widespread	G		D, M
<i>Phytolacca americana</i> L.	Phytolaccaceae	Cultivated and adventitious	G	North America	S, D
<i>Picris echioides</i> L.	Cichoriaceae	Circum-Mediterranean	T		S, D, M
<i>Picris hieracioides</i> L.	Cichoriaceae	Eurasian	H		S, D, M
<i>Pimpinella peregrina</i> L.	Apiaceae	South European-Mediterranean	H		D
<i>Pinus halepensis</i> Miller	Pinaceae	Circum-Mediterranean	P		S
<i>Pinus nigra</i> Arnold	Pinaceae	South European-Mediterranean	P		S, D
<i>Piptatherum miliaceum</i> (L.) Cosson	Poaceae	Circum-Mediterranean	H		S, D, M
<i>Pistacia terebinthus</i> L.	Anacardiaceae	Circum-Mediterranean	P		D
<i>Plantago lanceolata</i> L.	Plantaginaceae	Widespread	H		S, D, M
<i>Plantago major</i> L.	Plantaginaceae	Widespread	H		S, D
<i>Plantago media</i> L.	Plantaginaceae	European	H		M
<i>Plantanus occidentalis</i> L.	Platanaceae	Cultivated and adventitious	P		M
<i>Plumbago europaea</i> L.	Plumbaginaceae	Circum-Mediterranean	Ch		S, D
<i>Poa annua</i> L.	Poaceae	Widespread	T		S
<i>Polycarpon tetraphyllum</i> (L.) L.	caryophyllaceae	South European-Mediterranean	T		S
<i>Polygonum aviculare</i> L.	Polygonaceae	Widespread	T		S, D, M
<i>Polygonum lapathifolium</i> L.	Polygonaceae	Widespread	T		S, D

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<i>Polygonum persicaria</i> L.	Polygonaceae	Widespread	T	S
<i>Polypodium cambricum</i> L.	Polypodiaceae	Eastern Mediterranean	H	S
<i>Polypodium vulgare</i> L.	Polypodiaceae	Circum-Holarctic	H	D
<i>Polygonum monspeliensis</i> (L.) Desf.	Poaceae	Widespread	T	S, D
<i>Portulaca oleracea</i> L.	Portulacaceae	Widespread	T	S, D
<i>Potentilla reptans</i> L.	Rosaceae	Widespread	H	S, D
<i>Prunus cerasifera</i> Ehrh.	Rosaceae	Cultivated and adventitious	P	S, M
<i>Bituminaria bituminosa</i> (L.) Stirton	Fabaceae	Circum-Mediterranean	H	S, D
<i>Pulicaria dysenterica</i> (L.) Bernh.	Asteraceae	South European-Mediterranean	H	S, D
<i>Ranunculus muricatus</i> L.	Ranunculaceae	Circum-Mediterranean	T	S
<i>Raphanus raphanistrum</i> L.	Brassicaceae	Cultivated and adventitious	T	S
<i>Raphanus sativus</i> L.	Brassicaceae	Cultivated and adventitious	T	S, D
<i>Reichardia picroides</i> (L.) Roth.	Cichoriaceae	Circum-Mediterranean	H	S, D, M
<i>Reseda alba</i> L.	Resedaceae	Circum-Mediterranean	H	S, D
<i>Reseda lutea</i> L.	Resedaceae	Widespread	H	S, D
<i>Reseda phyteuma</i> L.	Resedaceae	South European-Mediterranean	T	S, M
<i>Rhagadiolus stellatus</i> (L.) Gaertn.	Cichoriaceae	Circum-Mediterranean	T	S
<i>Ricinus communis</i> L.	Euphorbiaceae	Cultivated and adventitious	T	S
<i>Robinia pseudoacacia</i> L.	Fabaceae	Cultivated and adventitious	T	Paleotropical
<i>Rorippa sylvestris</i> (L.) Besser	Brassicaceae	Cultivated and adventitious	P	North America
<i>Rosa canina</i> L.	Rosaceae	European	H	S
<i>Rubus caesius</i> L.	Rosaceae	Widespread	P	D
<i>Rubus dalmanicus</i> Tratt. ex Focke	Rosaceae	Eurasian	P	D
<i>Rubus ulmifolius</i> Schott.	Rosaceae	Illyrian-Ademine	P	S, D, M
<i>Rumex crispus</i> L.	Rosaceae	Mediterranean-Atlantic	P	M
<i>Rumex pulcher</i> L.	Polygonaceae	Widespread	H	D
<i>Rumex pulcher</i> L. subsp. <i>woodsii</i> (De Not.) Arcangeli	Polygonaceae	South European-Pontic	H	S, D, M
<i>Salvia bertolonii</i> Vis.	Lamiaceae	Illyrian-Adriatic endemic	H	S, D
<i>Salvia officinalis</i> L.	Lamiaceae	Euro-Mediterranean	Ch	D
<i>Salvia pratensis</i> L.	Lamiaceae	European floral elements	H	M
<i>Sambucus nigra</i> L.	Caprifoliaceae	Cultivated and adventitious	P	S, D

<i>Sanguisorba minor</i> Scop. ssp. <i>muricata</i> Briq.	<i>Rosaceae</i>	South European-Mediterranean	H	S
<i>Saponaria officinalis</i> L.	<i>Caryophyllaceae</i>	Cultivated and adventitious	H	S
<i>Satureja montana</i> L.	<i>Lamiaceae</i>	Mediterranean-Pontic	Ch	D
<i>Saxifraga tridactylites</i> L.	<i>Saxifragaceae</i>	Widespread	T	S, D
<i>Scabiosa iriandra</i> L.	<i>Dipsacaceae</i>	South European-Mediterranean	H	S, D
<i>Scandix pecten-veneris</i> L.	<i>Apiaceae</i>	Widespread	T	S
<i>Scilla autumnalis</i> L.	<i>Liliaceae</i>	Mediterranean-Pontic	G	D
<i>Scolymus hispanicus</i> L.	<i>Cichoriaceae</i>	Circum-Mediterranean	H	S, D
<i>Scrophularia canina</i> L. ssp. <i>bicolor</i> (Sibth. & Sm.) Greuter	<i>Scrophulariaceae</i>	South European-Mediterranean	H	S, D, M
<i>Securigera securidaca</i> (L.) Degen & Dörfel	<i>Fabaceae</i>	Circum-Mediterranean	T	S
<i>Sedum acre</i> L.	<i>Crassulaceae</i>	Widespread	Ch	S
<i>Sedum dasycyllum</i> L.	<i>Crassulaceae</i>	South European-Mediterranean	Ch	S, D
<i>Sedum ochroleucum</i> Chaix in Vill.	<i>Crassulaceae</i>	South European-Mediterranean	H	S, D
<i>Sedum telephium</i> L.	<i>Crassulaceae</i>	European floral elements	H	S
<i>Sempervivum ictorum</i> L.	<i>Crassulaceae</i>	Central European	Ch	S
<i>Senecio bicolor</i> (Villd) ssp. <i>cineraria</i> (DC.) Chater	<i>Asteraceae</i>	Cultivated and adventitious	Ch	S, D
<i>Solidago canadensis</i> L.	<i>Asteraceae</i>	Cultivated and adventitious	H	D
<i>Senecio vulgaris</i> L.	<i>Asteraceae</i>	Widespread	T	S, M
<i>Seseli globiferum</i> Vis.	<i>Apiaceae</i>	Circum-Mediterranean	H	D
<i>Seseli montanum</i> L.	<i>Apiaceae</i>	Illyrian-South European	H	D
<i>Seseli tomentosum</i> Vis.	<i>Apiaceae</i>	Illyrian-Adriatic endemic	H	D
<i>Setaria italica</i> (L.) P. Beauv.	<i>Poaceae</i>	Cultivated and adventitious	T	S
<i>Setaria pumila</i> (Poir.) Schult.	<i>Poaceae</i>	Widespread	T	S, D, M
<i>Setaria verticillata</i> (L.) P. Beauv.	<i>Poaceae</i>	Widespread	T	S, D
<i>Setaria verticilliformis</i> Dumort.	<i>Poaceae</i>	Widespread	T	S, D
<i>Setaria viridis</i> (L.) P. Beauv.	<i>Poaceae</i>	Eurasian	T	S, D
<i>Sideritis romana</i> L.	<i>Lamiaceae</i>	Circum-Mediterranean	T	D
<i>Silene latifolia</i> Poiret ssp. <i>alba</i> (Miller) Greuter & Burdet		South European-Mediterranean	H	S, D
<i>Silene gallica</i> L.	<i>Caryophyllaceae</i>	Widespread	T	S
<i>Silene vulgaris</i> (Moench) Garcke	<i>Caryophyllaceae</i>	South European-Mediterranean	H	S, D, M

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<i>Sinapis arvensis</i> L.	Brassicaceae	Widespread	T	S, D
<i>Sisymbrium officinale</i> (L.) Scop.	Brassicaceae	Widespread	T	S
<i>Sisymbrium polyceratum</i> L.	Brassicaceae	Circum-Mediterranean	T	S
<i>Smyrniolum olusatrum</i> L.	Apiaceae	Mediterranean-Atlantic	H	D
<i>Synymium perfoliatum</i> L.	Apiaceae	Circum-Mediterranean	H	D
<i>Solanum nigrum</i> L. ssp. <i>nigrum</i>	Solanaceae	Widespread plant	T	S, D, M
<i>Solanum tuberosum</i> L.	Solanaceae	Cultivated and adventitious	T	S, D
<i>Solanum villosum</i> Mill. ssp. <i>alatum</i> (Moench) Dostál	Solanaceae	Eurasian	T	S, D
<i>Solidago gigantea</i> Ait.	Asteraceae	Cultivated and adventitious	H	S
<i>Sonchus arvensis</i> L.	Cichoriaceae	Eurasian	T	M
<i>Sonchus asper</i> (L.) Hill	Cichoriaceae	Circum-Mediterranean	T	M
<i>Sonchus asper</i> (L.) Hill. ssp. <i>glaucescens</i> (Jord.) Ball.	Cichoriaceae	Circum-Mediterranean	T	S, D
<i>Sonchus oleraceus</i> L.	Cichoriaceae	Widespread	T	S, D, M
<i>Sorghum halepense</i> (L.) Pers.	Poaceae	Widespread	G	S, D, M
<i>Spartium junceum</i> L.	Fabaceae	Circum-Mediterranean	P	S, D
<i>Spergularia media</i> (L.) C. Fresl.	Caryophyllaceae	Widespread	T	S, D
<i>Stellaria media</i> (L.) Vill.	Caryophyllaceae	Widespread	T	S, M
<i>Tagetes minuta</i> L.	Asteraceae	Cultivated and adventitious	T	S, M
<i>Tagetes patula</i> L.	Asteraceae	Cultivated and adventitious	T	S
<i>Tanacetum vulgare</i> L.	Asteraceae	European	H	S, D
<i>Taraxacum laevigatum</i> (Willd.) DC. agg.	Cichoriaceae	South European-Mediterranean	H	S
<i>Taraxacum officinale</i> Webber	Cichoriaceae	Widespread	H	S, D, M
<i>Campsis radicans</i> (L.) Seen.	Bignoniaceae	Cultivated and adventitious	P	S, D
<i>Teucrium flavum</i> L.	Lamiaceae	Circum-Mediterranean	Ch	D
<i>Thelygonum cynocrambe</i> L.	Theligonaceae	South European-Mediterranean	T	D
<i>Torilis nodosa</i> (L.) Gaertn.	Apiaceae	Mediterranean-Atlantic	T	S
<i>Tribulus terrestris</i> L.	Zygophyllaceae	South European-Mediterranean	T	S, D
<i>Trifolium campestre</i> Schreber	Fabaceae	Widespread	T	S

<i>Trifolium dalmaticum</i> Vis.	<i>Fabaceae</i>	Illyrian-South European	T	S
<i>Trifolium pratense</i> L.	<i>Fabaceae</i>	Eurasian floral elements	H	M
<i>Trifolium repens</i> L.	<i>Fabaceae</i>	Circum-Mediterranean	H	S, D
<i>Trigonella corniculata</i> (L.) L.	<i>Fabaceae</i>	Circum-Mediterranean	T	S
<i>Tussilago farfara</i> L.	<i>Asteraceae</i>	European	G	S, D
<i>Ulmus minor</i> Miller	<i>Ulmaceae</i>	Widespread	P	D
<i>Ulmus pinnato-ramosa</i> Dieck	<i>Ulmaceae</i>	Cultivated and adventitious	P	Asia
<i>Umbilicus horizontalis</i> (Guss.) DC.	<i>Cruciferae</i>	Circum-Mediterranean	Ch	S, D
<i>Urospermum picroides</i> (L.) Scop. ex F. W. Schmidt	<i>Cicoriaceae</i>	Circum-Mediterranean	T	S, D
<i>Urtica membranacea</i> Poiret	<i>Urticaceae</i>	South European-Mediterranean	H	S, D
<i>Urtica urens</i> L.	<i>Urticaceae</i>	Widespread	H	S
<i>Valantia muralis</i> L.	<i>Rubiaceae</i>	Circum-Mediterranean	T	D
<i>Verbascum sinuatum</i> L.	<i>Scrophulariaceae</i>	Circum-Mediterranean	H	S, D
<i>Verbena officinalis</i> L.	<i>Verbenaceae</i>	Widespread	H	S, D, M
<i>Veronica arvensis</i> L.	<i>Scrophulariaceae</i>	Eurasian	T	S
<i>Veronica cymbalaria</i> Bodard	<i>Scrophulariaceae</i>	South European-Mediterranean	T	S, D, M
<i>Veronica persica</i> Poit.	<i>Scrophulariaceae</i>	Widespread	T	S, D
<i>Viburnum tinus</i> L.	<i>Caprifoliaceae</i>	Circum-Mediterranean	P	M
<i>Vicia cracca</i> L.	<i>Fabaceae</i>	European	H	D
<i>Vicia hybrida</i> L.	<i>Fabaceae</i>	Circum-Mediterranean	T	S
<i>Vicia sativa</i> L.	<i>Fabaceae</i>	Widespread	T	S
<i>Vinca major</i> L.	<i>Apocynaceae</i>	Cultivated and adventitious	Ch	S, M
<i>Viola odorata</i> L.	<i>Violaceae</i>	Widespread	T	M
<i>Vitis vinifera</i> ssp. <i>sylvestris</i>	<i>Vitaceae</i>	Widespread	P	D
<i>Xanthium spinosum</i> L.	<i>Asteraceae</i>	Widespread	T	S, M
<i>Xanthium strumarium</i> L. ssp. <i>italicum</i> (Moretti) D. Löve	<i>Asteraceae</i>	Widespread	T	S, D