

## VASCULAR FLORA OF THE TOWN OF OMIŠ

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The flora of the town of Omiš was observed and researched during 2007 and 2008. In all, 870 species and subspecies were recorded. Among them, 614 grow indigenously or spread spontaneously out of cultivated conditions and 256 plant taxa occur only in culture. Cultivated taxa were not included in the analysis. The results of the flora analysis show a domination of therophytes (40.07 %) and Mediterranean floral element plants (37.95 %), strongly indicating the Mediterranean character of the flora of the researched area. The flora of the town of Omiš presented in this study is Mediterranean, and in both quality and quantity is comparable to that of other cities on the Croatian littoral as well as of cities in Greece and Italy.

**Key words:** vascular flora, town of Omiš, eastern Adriatic, Dalmatia, Croatia

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Tijekom 2007. i 2008. godine istraživana je flora grada Omiša. Pronađeno je ukupno 870 vrsta i podvrsta od kojih 614 raste samoniklo ili se spontano širi izvan uzgoja, a 256 taksona zabilježeno je isključivo u kulturi. Kultivirane svojte nisu uključene u analize. Rezultati analize flore pokazuju dominaciju terofita (40,07 %) i biljaka mediteranskog flornog elementa (37,95 %) što ukazuje na mediteranski karakter flore istraživanog područja. Flora grada Omiša prikazana u ovom radu ima mediteranski karakter i u kvantitativnom i kvalitativnom pogledu daje se usporediti s florama drugih gradova u primorskom dijelu Hrvatske te florama gradova u Grčkoj i Italiji.

**Ključne riječi:** vaskularna flora, grad Omiš, istočni Jadran, Dalmacija, Hrvatska

### INTRODUCTION

Systematic research into the flora of European towns and cities has been performed since the second half of 20th century (SUKOPP, 1990; PYŠEK, 1998; WITTIG, 2004). As for Croatia, not until recently has similar research been carried out. Works on the flora of some Dalmatian towns and cities – Šibenik (MILOVIĆ, 2000), Zadar (MILOVIĆ, 2008; MILOVIĆ & MITIĆ, 2012), Split and Dubrovnik (JASPRICA *et al.*, 2010) have recently been published.

The town of Omiš is situated in the southern part of Dalmatia, south of Split, at the mouth of the Cetina River (Fig. 1). In 2001 it had a population of 6 565 (FELDBAUER, 2005). It is situated in a narrow pass between the steep slopes of the Omiška Dinara and the sea. The Cetina River flows through the town, leaving its magnificent canyon.

The town of Omiš does not have climatological stations of its own so we took the data from the nearest one, the Marjan climatological station in Split, covering the period from 1976 to 2006. The annual average temperature for this thirty year period is 16.2 °C and annual precipitation is 787 mm. The absolute maximum temperature is 38.1 °C and the absolute minimum temperature –5.8 °C. These temperatures are typical of the Mediterranean climate to which the towns of Split and Omiš belong.

The narrow area along the coastline belongs to the vegetation zone of evergreen holm oak forests with the *Fraxino ornii-Quercetum ilicis* Horvatić (1956) 1958 association (alliance *Quercion ilicis* Br.-Bl. (1931) 1936). Due to the specific terrain orthography and influences of the Cetina River, there are fragments of a sub-Mediterranean vegetation zone scattered around (association *Quercus-Carpinetum orientalis* Horvatić 1939). The primary forest vegetation of the researched area was destroyed long ago so different degradation stages prevail: garrigue, macchia, dry meadows and cultivated fields.

Floristic literature offers only a few works on the plant species of the Omiš region. The majority of the information is given by Visiani (VISIANI, 1826, 1842–1852). However, Visiani registered species within the broader area around Omiš so it is not possible to distinguish species belonging to the area covered by this research from those beyond it.

Several individual finds of the endemic species (KOSTOVIĆ-VRANJEŠ *et al.*, 1994, 1999; MITIĆ *et al.*, 1999; MITIĆ & PAVLETIĆ, 1999) and neophytes (TRINAJSTIĆ *et al.*, 1993; PANDŽA *et al.*, 2001; MILOVIĆ, 2004; PANDŽA & TAFRA, 2008) have recently been published.

The aim of this study is to complete the inventory of the vascular flora of the area of Omiš and taxonomical and ecological analysis of flora. It will be an important contribution to the knowledge of the vascular flora of Dalmatian towns and cities in general.

## MATERIALS AND METHODS

Floristic research into the town of Omiš (Fig. 1) includes the following parts of the town: Priko, Stari grad, Punta, Mlija, Brzet, Ravnice, Nemira and Borak covering 3.5 km<sup>2</sup>.

The research includes indigenous and cultivated species (in culture only or those able to spread spontaneously out of cultivated condition).

The taxa were determined by standard determination keys and books: BONNIER (1911–1935), FIORI (1923–1929), HAYEK (1924–1933), HEGI (1936–1987), TUTIN *et al.* (1968–1980, 1993), HORVATIĆ & TRINAJSTIĆ (1967–1981), TRINAJSTIĆ (1975–1986), JAVORKA & CSAPODY (1975), PIGNATTI (1982), DOMAC (1994), DELFORGE (1995, 2006).

The species nomenclature was based on Pignatti (1982) and species not defined by this source on TUTIN *et al.* (1968–1980, 1993). Cultivated species not represented in the two previous sources are given in accordance with WALTERS *et al.* (1984–2000). Species from the list of flora given according to TUTIN *et al.* (1968–1980, 1993) are marked by one asterisk (\*) and those given according to WALTERS *et al.* (1984–2000) are marked by two asterisks (\*\*). The asterisks are given in front of the species names.

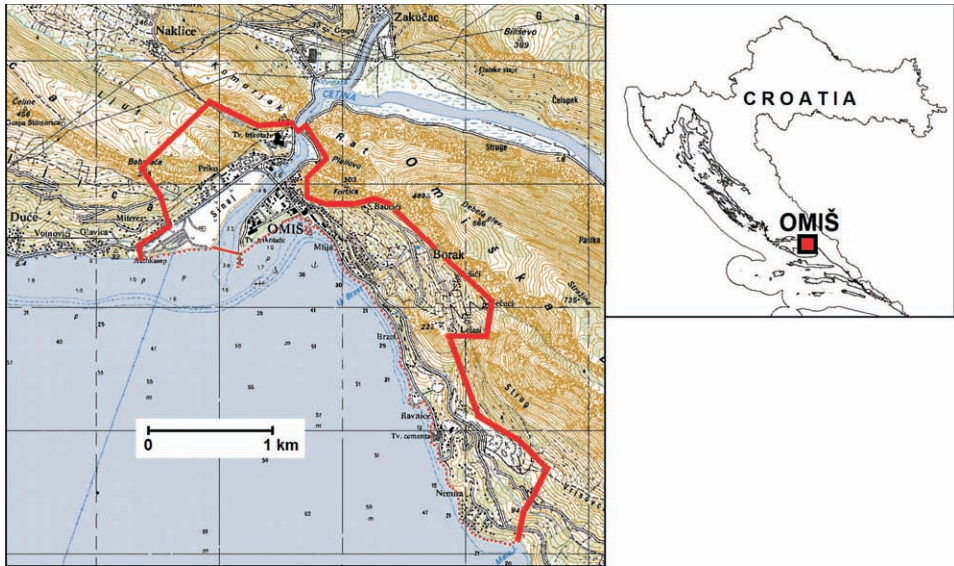


Fig. 1. Location and boundaries of the researched area.

Families, genera, species and subspecies in the list of flora are listed in alphabetical order within the higher systematic taxa.

In the flora list, the life form marks are placed in front of the taxa names. Life forms were interpreted according to Raunkiaer's system (RAUNKIAER, 1934) as presented by HORVAT (1949) and PIGNATTI (1982) and were denoted with the following abbreviations: **T** – *Therophyta*, **G** – *Geophyta*, **H** – *Hemicryptophyta*, **Ch** – *Chamaephyta*, **P** – *Phanerophyta* and **Hy** – *Hydrophyta*.

The analysis of floral elements was made according to HORVATIĆ (1963) and HORVATIĆ *et al.* (1967–1968). The floral elements are numerated in the list of flora as follows:

## 1. MEDITERRANEAN

- 1.1. Circum-Mediterranean plants (OPME)
- 1.2. West Mediterranean plants (ZAME)
- 1.3. East Mediterranean plants (ISME)
- 1.4. Illyrian Mediterranean plants
  - A) Illyrian South European plants (ILJUE)
  - B) Illyrian Adriatic plants
    - a) Illyrian Adriatic Endemic plants (ILJAE)
    - b) Illyrian Apennine plants (ILAPE)
- 1.5. Mediterranean Atlantic plants (MEAT)
- 1.6. European Mediterranean plants (EUME)
- 1.7. Mediterranean Pontic plants (MEPO)

2. SOUTH EUROPEAN
  - 2.1. South European Mediterranean plants (JEME)
  - 2.2. South European Pontic plants (JEPO)
  - 2.3. South European-continental plants (JEKO)
  - 2.4. South European-Atlantic plants (JEAT)
3. EAST EUROPEAN-PONTIC (IEPO)
4. SOUTHEAST EUROPEAN (JIEU)
5. EUROPEAN (EURO)
6. EUROASIATIC (EUAZ)
7. CIRCUM-HOLARCTIC PLANTS (CIHO)
8. WIDESPREAD PLANTS (WSP)
9. CULTURAL AND ADVENTIVE PLANTS (CUAD)

Abbreviations of floral elements are given in the list of flora following the species names. Species existing only in culture and with no ability to spread out of the cultivated condition are separated from the »cultural and adventive plants« group (CUAD). They are marked by the abbreviation »cult« in the list of flora and they were not included in the analysis.

Endemic species in a broader sense are defined according to NIKOLIĆ (2011) and marked by the abbreviation »end«.

Species listed in »The Red Book of the Vascular Flora of Croatia« (NIKOLIĆ & TOPIĆ, 2005) and its up-dated on-line version (NIKOLIĆ, 2011) are marked by abbreviations indicating the stage of their endangered: EN – Endangered, VU – Vulnerable.

The habitats are given behind the floral element in the list of flora. The habitats are marked by small letters as follows:

- a – in macchia
- b – lawns and rocky pastures
- c – abandoned crops and meadows under anthropogenic influences
- d – public greens
- e – walls (old houses, stone walls etc.)
- f – trampled habitats
- g – along roads and paths
- h – ruderal habitats (trash dumps, heaps of soil and construction waste etc.)
- i – planted fields (gardens, olive groves, vineyards)
- j – damp habitat (river banks, canals, ditches)
- k – along the seashore
- l – rocks

For species already registered for the area of research, the name of the author, as well as the name under which the species was registered if different from the one given in the flora list are stated in brackets: **V** – VISIANI (1826); **V1** – VISIANI (1842); **V2** – VISIANI (1847); **V3** – VISIANI (1852); **T** – TRINAJSTIĆ *et al.* (1993); **K-V** – KOSTOVIĆ-VRANJEŠ *et al.* (1994); **K-V1** – KOSTOVIĆ –VRANJEŠ *et al.* (1999); **Mit** – MITIĆ *et al.* (1999); **MitP** – MITIĆ & PAVLETIĆ (1999); **P** – PANDŽA *et al.* (2001); **Mi** – MILOVIĆ (2004); **PT** – PANDŽA & TAFRA (2008).

## RESULTS

## FLORISTIC LIST

*PTERIDOPHYTA*

## FILICOPSIDA

*Aspleniaceae*

- H *Asplenium trichomanes* L.; WSP; e, l  
 H *A. ruta-muraria* L.; CIHO; e, l  
 H *Ceterach officinarum* DC.; JEME; e, l

## SPHENOPSIDA

*Equisetaceae*

- G *Equisetum ramosissimum* Desf.; CIHO; j

*SPERMATOPHYTA*

## GYMNOSPERMAE

## CONIFEROPSIDA

*Cupressaceae*

- Cupressus arizonica* Green.; **cult**  
 P *C. sempervirens* L.; ISME; a, d, g, i  
 \*\**Juniperus horizontalis* Moench; **cult**  
 P *J. oxycedrus* L. ssp. *oxycedrus*; OPME; a, b, c  
*J. sabina* L.; **cult**  
*Thuja occidentalis* L.; **cult**  
*T. orientalis* L.; **cult**

*Ginkgoaceae*

- Ginkgo biloba* L.; **cult**

*Pinaceae*

- Cedrus atlantica* (Endl.) Carrière; **cult**  
*C. deodara* (D. Don) G. Don fil.; **cult**  
*Picea abies* (L.) Karsten; **cult**  
 \**P. pungens* Engelm.; **cult**  
*Pinus brutia* Ten.; **cult**  
 P *P. halepensis* Miller; OPME; a, b, c, d, i  
*P. pinea* L.; **cult**

*Taxodiaceae*

- Taxodium distichum* (L.) Richard; **cult**

## CYCADOPSIDA

*Cycadaceae*

- \*\**Cycas revoluta* Thunb.; **cult**

## GNETOPSIDA

*Ephedraceae*

- P *Ephedra fragilis* Desf.; ISME; a, l  
 P *E. major* Host; ISME; l

**TAXOPSIDA****Taxaceae**

*Taxus baccata* L.; **cult**

**ANGIOSPERMAE****MAGNOLIOPSIDA (DICOTYLEDONES)****Aceraceae**

- P *Acer campestre* L.; **CUAD**; d  
 P \**A. monspessulanum* L.; **JEME**; a, b  
 P *A. negundo* L.; **CUAD**; c, d, g, h; (PT)  
 \*\**A. palmatum* Murray; **cult**

**Actinidiaceae**

\*\**Actinidia chinensis* Planch.; **cult**

**Aizoaceae**

- Aptenia cordifolia* (L. fil.) N. E. Br.; **cult**  
*Carpobrotus edulis* (L.) N. E. Br.; **cult**  
 \*\**Delosperma cooperi* (Hook.) L. Bolus; **cult**  
 \*\**Lampranthus roseum* (Willd.) Schwantes; **cult**  
*Mesembryanthemum nodiflorum* L.; **cult**

**Amaranthaceae**

- T *Amaranthus blitoides* S. Watson; **CUAD**; d, h, i  
 T *A. caudatus* L.; **CUAD**; d, h, i  
 T *A. cruentus* L.; **CUAD**; h, i  
 T *A. deflexus* L.; **WSP**; d, f, g, h, i  
 T *A. graecizans* L.; **WSP**; i; D  
 T *A. paniculatus* L.; **CUAD**; h  
 T *A. retroflexus* L.; **WSP**; d, h, i  
*Gomphrena globosa* L.; **cult**

**Anacardiaceae**

- Cotinus coggygria* Scop.; **cult**  
 P *Pistacia lentiscus* L.; **OPME**; a, c  
 P *P. terebinthus* L.; **OPME**; a, b, c  
*Schinus molle* L.; **cult**

**Apiaceae**

- T *Ammoides pusilla* (Brot.) Breistr.; **OPME**; b, c  
*Apium graveolens* L.; **cult**  
 H \**Chaerophyllum coloratum* L.; **ILJAE**; **end**; b, c  
 Ch *Crithmum maritimum* L.; **MEAT**; k  
 H *Daucus carota* L. ssp. *carota*; **WSP**; h, i  
 H *D. carota* L. ssp. *major* (Vis.) Arcang.; **JEME**; c, g, h  
 H *Eryngium amethystinum* L.; **ILJUE**; b, c  
 H *E. campestre* L.; **JEME**; c, h  
 H *Foeniculum vulgare* Miller; **OPME**; c, d, g, h, i  
 H *Opopanax chironium* (L.) Koch; **OPME**; c

- T *Orlaya grandiflora* (L.) Hoffm.; **JEME**; b, c  
*Petroselinum sativum* Hoffm.; **cult**  
H *Portenschlagiella ramosissima* (Portenschl.) Tutin; **ILJAE**; **end**; (V3:45 as  
*Portenschlagia ramosissima* Vis.)  
H \**Seseli tomentosum* Vis.; **ILJAE**; **end**; (V:47; V3:40-41)  
T *Tordylium apulum* L.; **OPME**; b, h  
T *T. officinale* L.; **ISME**; b, h  
T *Torilis nodosa* (L.) Gaertner; **EUAZ**; c, g

### Apocynaceae

- \*\**Catharanthus roseus* (L.) G. Don; **cult**  
P *Nerium oleander* L.; **CUAD**; d, g, i  
\*\**Trachelospermum jasminoides* (Lindley) Lemaire; **cult**  
Ch *Vinca major* L.; **CUAD**; d, i  
*V. minor* L.; **cult**

### Aquifoliaceae

- Ilex aquifolium* L.; **cult**

### Araliaceae

- P *Hedera helix* L.; **EURO**; a, c, d, e, i  
\**H. helix* L. ssp. *canariensis* (Willd.) Cout; **cult**

### Aristolochiaceae

- G *Aristolochia rotunda* L.; **OPME**; j; (V1:195)

### Asteraceae

- \*\**Achillea filipendulina* Lam.; **cult**  
\**Ageratum houstonianum* Mill.; **cult**  
T *Anthemis arvensis* L.; **OPME**; g, h, i  
T *A. austriaca* Jacq.; **IEPO**; g  
T *A. segetalis* Ten.; **ILJUE**; g, i  
H *Arctium minus* (Hill) Bernh.; **OPME**; h  
Ch *Artemisia absinthium* L.; **EUAZ**; c, d, g, h  
H *A. verlotiorum* Lamotte; **CUAD**; c, d, g, h, i; (PT)  
*Aster novi-belgii* L.; **cult**  
T *A. squamatus* (Sprengel) Hieron.; **CUAD**; d, g, j, k; (P; PT)  
H *Bellis perennis* L.; **EURO**; b, c, d  
T \**Bidens subalternans* DC.; **CUAD**; c, d, g, h, i; (T; P; PT)  
T *Calendula arvensis* L.; **JEME**; d, g, i  
T *C. officinalis* L.; **CUAD**; h, i  
*Callistephus sinensis* (L.) Ness; **cult**  
H *Carduus micropterus* (Borb.) Teyber; **ILJAE**; **end**; b, c, d, g  
H *C. pycnocephalus* L.; **OPME**; b, c, d, g  
H *Carlina corymbosa* L.; **OPME**; b  
T *Carthamus lanatus* L.; **OPME**; b, c, g, h  
H *Centaurea calcitrapa* L.; **MEAT**; f, h  
T *C. cyanus* L.; **WSP**; i  
H *C. deusta* Ten. ssp. *concolor* (DC.) Matthäs et Pign.; **EUME**; b, g  
H *C. solstitialis* L.; **JEPO**; f, g, h

- T *Chrysanthemum coronarium* L.; **CUAD**; g, h, i  
*C. indicum* L. (incl. *C. japonicum* Thunb., *C. sinense* Hort., *C. koreanum* Hort.); **cult**
- H *Cirsium creticum* (Lam.) D'Urv. ssp. *creticum*; **EUAZ**; j
- H *C. vulgare* (Savi) Ten.; **EUAZ**; c, g, h, j
- T *Conyza albida* Willd.; **CUAD**; d, f, g, h, i; (Mi and PT as *Conyza sumatrensis* (Retz.) E. Walker)
- T *C. bonariensis* (L.) Cronq.; **CUAD**; f, g, h; (PT)
- T *C. canadensis* (L.) Cronq.; **CUAD**; f, g, h; (PT)
- T *Cosmos bipinnatus* Cav.; **CUAD**; h, i
- T *Crupina crupinastrum* (Moris) Vis.; **JEME**; b  
*Dahlia variabilis* (Willd.) Desf.; **cult**
- H *Echinops ritro* L.; **JEPO**; b; (V2:26)
- T *Erigeron annuus* (L.) Pers.; **CUAD**; c, d, h, i, j
- H *Eupatorium cannabinum* L.; **EUAZ**; j
- T *Filago pyramidata* L.; **JEME**; b, c, d  
 \**Gazania rigens* (L.) Gaertn.; **cult**
- T *Gnaphalium luteo-album* L.; **WSP**; d  
*Helianthus annuus* L.; **cult**
- G *H. tuberosus* L.; **CUAD**; h, i
- Ch *Helichrysum italicum* (Roth) Don; **OPME**; b
- H *Inula conyza* DC.; **JEPO**; c, g
- Ch *I. crithmoides* L.; **MEAT**; k
- T *I. graveolens* (L.) Desf.; **JEME**; c, g, h
- H *I. salicina* L.; **EUAZ**; b, c
- Ch *I. verbascifolia* (Willd.) Hausskn.; **ILJAE**; b, e, l
- H *I. viscosa* (L.) Aiton; **EUME**; c, g, h  
*Leucanthemum laciniatum* Huter, P. et R.; **cult**  
*L. vulgare* Lam.; **cult**
- T *Matricaria chamomilla* L.; **CUAD**; h, i
- H *Onopordum illyricum* L.; **OPME**; b, c, g  
 \*\**Osteospermum jucundum* (E. Phillips) Norl. (= *Dimorphotheca jucunda* E. Phillips); **cult**
- T *Pallenis spinosa* (L.) Cass.; **OPME**; b, c, g
- H *Picnomon acarna* (L.) Cass.; **OPME**; b, c, g
- H *Pulicaria dysenterica* (L.) Bernh.; **JEME**; j  
*Santolina marchii* Arrigoni (= *S. chamaecyparissus* Auct. p.max.p., non L.); **cult**  
 \**S. rosmarinifolia* L. (= *S. viridis* Willd.); **cult**  
*Senecio angulatus* L. fil.; **cult**
- Ch *S. cineraria* DC. (= *Cineraria maritima* L.); **CUAD**; d, i
- T *S. vulgaris* L.; **WSP**; d, f, g, h, i  
*Tagetes erecta* L.; **cult**
- T *T. minuta* L.; **CUAD**; g, h
- T *T. patula* L.; **CUAD**; h, i
- Ch *Tanacetum cinerariifolium* (Trevir.) Sch.-Bip.; **ILJAE**; end; b, l; (V:31 as *Chrysanthemum turreanum*)
- H *T. parthenium* (L.) Sch.-Bip.; **CUAD**; g, h, i  
*T. vulgare* L.; **cult**



- G *Tussilago farfara* L.; **EUAZ**; j  
 T *Tyrinnus leucographus* (L.) Cass.; **OPME**; b, c  
 T *Xanthium spinosum* L.; **CUAD**; h, j  
 T *X. italicum* Moretti; **CUAD**; c, d, h, i; (PT as *X. strumarium* L. ssp. *italicum* (Moretti) D. Löve)  
*Zinnia elegans* Jacq.; **cult**

### **Balsaminaceae**

- \*\**Impatiens walleriana* Hook.; **cult**  
*I. balsamina* L.; **cult**

### **Begoniaceae**

- \*\**Begonia cucullata* Willdenow; **cult**

### **Berberidaceae**

- \**Berberis darwinii* Hook.; **cult**  
 \*\**B. julianae* Schneid.; **cult**  
 \*\**B. thunbergii* DC.; **cult**  
 \*\**Nandina domestica* Thunb.; **cult**

### **Betulaceae**

- Betula pendula* Roth; **cult**

### **Bignoniaceae**

- Catalpa bignonioides* Walt.; **cult**  
*Paulownia tomentosa* (Sprengel) Steudel; **cult**  
 P *Tecoma radicans* (L.) Juss.; **CUAD**; g, h, i

### **Boraginaceae**

- H *Anchusa italica* Retz.; **JEME**; c, g, i  
 T *Buglossoides arvensis* (L.) Johnston; **EUAZ**; b, c, h  
 H *Cerinthe minor* L.; **JEME**; c; (V2:243)  
 T *Cynoglossum columnae* Ten.; **ISME**; b, c, g, h  
 H *C. creticum* Miller; **OPME**; c  
 T *Echium italicum* L.; **OPME**; c, d, g  
 T *E. plantagineum* L.; **MEAT**; c, d, g, h  
 T *Heliotropium europaeum* L.; **MEPO**; d, g, h, i  
 Ch \**Moltkia petraea* (Tratt.) Griseb.; **ILJAE**; l; (V:34 as *Echium petraeum* Trattinn.; V2:247 as *Lithospermum petraeum* A. DC. in DC.)  
 Ch *Onosma echioides* L.; **ILAPE**; **end**; b, l

### **Brassicaceae**

- Ch *Aetionema saxatile* (L.) R. Br.; **JEME**; a, b, l  
 Ch *Alyssoides sinuata* (L.) Medicus; **ILAPE**; **end**; b, e, g, l  
 Ch *A. urticulata* (L.) Medicus; **JEME**; l  
 T *Alyssum minus* (L.) Rothm.; **OPME**; b, c, e, g, h  
 H \**A. murale* Waldst. et Kit.; **JIEU**; c  
 H *Arabis hirsuta* (L.) Scop.; **WSP**; b, c, g  
 G *Armoracia rusticana* Gaertner, Meyer et Scherb.; **CUAD**; i  
 H *Berteroa mutabilis* (Vent.) DC.; **ISME**; c, g, h

- T *Biscutella cichoriifolia* Loisel.; **JEME**; b, h, l; (V:28 as *B. dilatata*; V3:113 as *B. hispida* DC.)  
 Ch *Brassica oleracea* L.; **CUAD**; i  
 H *Capsella bursa-pastoris* (L.) Medicus; **WSP**; d, i  
 T *C. rubella* Reuter; **OPME**; d, f, g, h, i  
 H *Cardaria draba* (L.) Desv.; **WSP**; c, h, i  
 T *Diplotaxis muralis* (L.) DC.; **WSP**; d, i  
 H *D. tenuifolia* (L.) DC.; **WSP**; c, d, f, g, h, i  
 T *Eruca sativa* Miller; **CUAD**; i  
   *Erysium cheiri* (L.) Crantz (= *Cheiranthus cheiri* L.); **cult**  
 H *E. sylvestre* (Crantz) Scop.; **ILAPE**; **end**; b  
 Ch \**Fibigia triquetra* (DC.) Boiss. ex Prantl; **ILJAE**; **end**; l; (K-V; K-V1)  
   *Iberis sempervirens* L.; **cult**  
 H *Isatis tinctoria* L.; **IEPO**; c, g; (V3:107-108 as *I. canescens* DC.)  
 H *Lepidium graminifolium* L.; **JEPO**; d, f, g, h, i  
 T *L. virginicum* L.; **CUAD**; g, h  
 H *Lobularia maritima* (L.) Desv.; **CUAD**; g, i  
 H *Lunaria annua* L.; **JIEU**; c; (V3:120)  
 Ch *Matthiola incana* (L.) R. Br.; **CUAD**; i  
 H *Raphanus sativus* L.; **CUAD**; h, i  
 T *Sisymbrium officinale* (L.) Scop.; **WSP**; c, d, f, g, h

### **Buddlejaceae**

- Buddleja davidii* Franchet; **cult**

### **Buxaceae**

- Buxus sempervirens* L.; **cult**

### **Cactaceae**

- Ch *Opuntia compressa* (Salisb.) Mcbride; **CUAD**; b, c  
 P *O. ficus-indica* (L.) Miller; **CUAD**; i  
 \*\**O. microdasys* (Lehm.) Pfeiff.; **cult**

### **Campanulaceae**

- T *Campanula erinus* L.; **OPME**; b, e, l  
   *C. garganica* Ten.; **cult**  
 H *C. lingulata* W. et K.; **JEME**; b  
   *C. medium* L.; **cult**  
 H \**C. portenschlagiana* Schultes; **ILJAE**; **end**; d, e, l; (V:29; V2:133)  
 H *C. pyramidalis* L.; **ILJAE**; b, e, l  
 Ch \**Edraianthus tenuifolius* (Waldst. et Kit.) A. DC.; **ILJAE**; b  
 T *Legousia hybrida* (L.) Delarbre; **JEAT**; c, i  
 T *L. speculum-veneris* (L.) Chaix; **OPME**; i

### **Capparaceae**

- P *Capparis orientalis* Veill.; **OPME**; e

### **Caprifoliaceae**

- \*\**Abelia ×grandiflora* (Andre) Rehder; **cult**  
 P *Lonicera etrusca* Santi; **OPME**; a, b  
   *L. japonica* Thunb.; **cult**

**\*L. nitida** Wilson; **cult**

*L. periclymenum* L.; **cult**

P *Sambucus nigra* L.; **CUAD**; c, i

P *Viburnum tinus* L.; **OPME**; a, d, i; (V:51; V3:16)

*Weigela florida* (Bunge) DC.; **cult**

### **Caryophyllaceae**

T *Arenaria leptoclados* Guss.; **EUAZ**; c, d, e, f, g, h, i

T *A. serpyllifolia* L.; **WSP**; b, c, e

T *Cerastium glutinosum* Fries; **WSP**; c, d, g, h, i

Ch \**C. grandiflorum* Waldst. et Kit.; **ILJAE**; **end**; b; (V3:185)

Ch *C. tomentosum* L.; **CUAD**; d, i

*Dianthus barbatus* L.; **cult**

\**D. caryophyllus* L.; **cult**

T \**Minuartia globulosa* (Labill.) Schinz et Thell.; **JIEU**; b

T *M. mediterranea* (Link) Maly; **OPME**; b, d, f

H *Petrorhagia saxifraga* (L.) Link; **JEME**; b, c, d, e, f

T *P. prolifera* (L.) P. W. Ball et Heywood; **OPME**; b, g

T *Polycarpon tetraphyllum* L.; **JEME**; f, g, h

T *Sagina maritima* G. Don; **MEAT**; f, k

H *Saponaria officinalis* L.; **CUAD**; i, j

T *Silene gallica* L.; **WSP**; f, g

H *S. latifolia* Poiret; **JEME**; c, d, g, h

H *S. vulgaris* (Moench) Garcke ssp. *angustifolia* (Miller) Hayek; **JEME**; b, c

T *Spergularia marina* (L.) Griseb.; **WSP**; k

T *Stellaria media* (L.) Vill. ssp. *media*; **WSP**; d, f, h, i

### **Celastraceae**

*Euonymus japonicus* L.; **cult**

### **Chenopodiaceae**

T *Atriplex latifolia* Wahlenb.; **WSP**; k

H *Beta vulgaris* L. ssp. *vulgaris*; **CUAD**; h, i

T *Celosia cristata* L.; **CUAD**; h, i

T *Chenopodium album* L.; **WSP**; c, d, f, g, h, i

T *Ch. ambrosioides* L.; **CUAD**; h

T *Ch. murale* L.; **WSP**; g, h

T *Ch. opulifolium* Schrader; **WSP**; h

T *Kochia scoparia* (L.) Schrader; **CUAD**; g, h, i

T *Salsola kali* L.; **WSP**; VU; k

T *S. soda* L.; **JEPO**; VU; k

*Spinacia oleracea* L.; **cult**

### **Cichoriaceae**

G *Aetheorrhiza bulbosa* (L.) Cass.; **OPME**; b, c

H *Chondrilla juncea* L.; **EUAZ**; c, d, f, g, i

T *Cichorium endivia* L.; **CUAD**; h, i

H *C. intybus* L.; **WSP**; c, d, f, g, h, i, j

T *Crepis foetida* L. ssp. *rheoadifolia* Sch. et K.; **JEME**; c, d, g, h, i

- T *C. neglecta* L.; **EUME**; b, c  
 T *C. sancta* (L.) Babç.; **ISME**; c, d, f, g, h, i  
 T *C. zacintha* (L.) Babç.; **OPME**; b, c  
*Cynara cardunculus* L. ssp. *scolymus* (L.) Hayek; **cult**  
 T *Hedypnois cretica* (L.) Willd.; **OPME**; b, c  
*Lactuca sativa* L.; **cult**  
 H *L. serriola* L.; **WSP**; c, d, g, h, i  
 H *L. viminea* (L.) Presl.; **JEPO**; b, c, g, h, i  
 H *Leontodon crispus* Vill.; **JEME**; b, c  
 T *Picris echioides* L.; **OPME**; d, i, j  
 H *P. hieracioides* L.; **EUAZ**; b, c, d, f, h, i  
 H *P. hispidissima* (Bartl.) W. Koch; **ILJAE**; b, l; (V2:101-102 as *P. laciniata* Vis.)  
 H *Podospermum laciniatum* (L.) DC.; **WSP**; c  
 H *Reichardia picroides* (L.) Roth; **OPME**; b, c, d, g, l  
 T *Rhagadiolus stellatus* (L.) Willd.; **OPME**; c, i  
 H *Scolymus hispanicus* L.; **OPME**; g, h  
 H *Scorzonera villosa* Scop.; **ILJUE**; b, c  
 T *Sonchus glaucescens* Jordan; **OPME**; d, g, h, i  
 T *S. oleraceus* L.; **WSP**; d, g, h, i  
 T *S. tenerrimus* L.; **OPME**; d, g, h, i  
 H *Taraxacum officinale* Weber; **WSP**; c, d, f, g, i  
 H *Tragopogon porrifolius* L.; **OPME**; b, c; (V2:108)  
 T *Urospermum picroides* (L.) Schmidt; **OPME**; b, c, d, g, h

### **Cistaceae**

- P *Cistus incanus* L.; **OPME**; a, b  
 Ch *Fumana ericoides* (Cav.) Gandog.; **OPME**; b, c  
 Ch *F. thymifolia* (L.) Spach; **OPME**; b

### **Convolvulaceae**

- H *Calystegia sepium* (L.) R. Br.; **WSP**; j  
 H *C. sylvatica* (Kit.) Griseb.; **JEME**; j  
 G *Convolvulus arvensis* L.; **WSP**; c, d, f, g, h, i  
 H *C. cantabrica* L.; **JEME**; b, c  
*C. cneorum* L.; **cult**  
 H *C. elegantissimus* Miller; **ISME**; b, c  
*C. sabatius* Viv.; **cult**  
 G *Dichondra micrantha* Urban; **CUAD**; d, f, i  
 T *Ipomoea purpurea* Roth.; **CUAD**; g, h

### **Cornaceae**

- Aucuba japonica* Thunb.; **cult**  
 P *Cornus mas* L.; **JEKO**; c

### **Corylaceae**

- P *Carpinus orientalis* Miller; **ILJUE**; a, b  
*Corylus avellana* L.; **cult**

### **Crassulaceae**

- Echeveria glauca* Hort. ex Baker; **cult**

- E. secunda* Booth ex Lindl.; **cult**  
 \*\**Kalanchoe blossfeldiana* von Poellnitz; **cult**  
 Ch *Sedum acre* L.; **WSP**; b, c, e, l  
 Ch *S. album* L.; **EUAZ**; l  
 Ch *S. anopetalum* DC. (= \**S. ochroleucum* Chaix.); **JEME**; b, l  
 Ch *S. dasyphyllum* L.; **JEME**; l  
 T *S. hispanicum* L.; **JEPO**; b, l  
 H *S. maximum* (L.) Suter; **EURO**; a, b, l  
 \*\**S. rubrotinctum* R. T. Clausen; **cult**  
 Ch *S. sexangulare* L. (= *S. boloniense* Loisel.); **JEME**; b, l  
 \*\**S. sieboldii* Sweet; **cult**  
 \*\**S. spectabile* Boreau; **cult**  
*S. spurium* Bieb.; **cult**  
 Ch *Sempervivum tectorum* L.; **CUAD**; e, i  
 G *Umbilicus horizontalis* (Guss.) DC. (= *Cotyledon horizontalis* Guss.); **OPME**; e

### **Cucurbitaceae**

- Citrullus lanatus* (Thunb.) Mansfeld; **cult**  
*Cucumis melo* L.; **cult**  
*C. sativus* L.; **cult**  
*Cucurbita pepo* L.; **cult**  
 Ch *Ecballium elaterium* (L.) S. Rich.; **OPME**; g, h  
*Lagenaria siceraria* (Molina) Standley; **cult**

### **Dipsacaceae**

- H *Cephalaria leucantha* (L.) Schrader; **OPME**; b, c; (V:30)  
 H *Scabiosa maritima* L.; **JEME**; c, d, g  
 T *Tremastelma palaestinum* (L.) Janchen; **ISME**; b, c, g; (V2:15-16 as *Pterocephalus palaestinum* Coult)

### **Ebenaceae**

- \*\**Diospyros virginiana* L.; **cult**  
*D. kaki* L.; **cult**

### **Ericaceae**

- Arbutus unedo* L.; **cult**  
 Ch *Erica manipuliflora* Salisb.; **OPME**; a, b

### **Euphorbiaceae**

- Ch *Andrachne telephioides* L.; **OPME**; c, e, g; (V3:231)  
 T *Chrozophora tinctoria* (L.) Juss.; **MEPO**; d, g, i  
 T *Euphorbia chamaesyce* L. ssp. *massiliensis* (DC.) Thell.; **JEME**; d, i  
 T *E. exigua* L.; **JEME**; b  
 T *E. falcata* L.; **JEME**; c, g, h  
 Ch *E. fragifera* Jan; **ILJAE**; b, l  
 T *E. helioscopia* L.; **WSP**; c, d, g, h, i  
 T *E. maculata* L.; **CUAD**; d, f, g; (PT)  
*E. marginata* Pursh; **cult**  
 Ch *E. myrsinites* L.; **JEPO**; d  
 T *E. peplus* L.; **WSP**; d, g, h, i

T *E. prostrata* Aiton; **CUAD**; d, f, g, h, i; (PT)

Ch *E. spinosa* L.; **OPME**; b, c

T *E. taurinensis* All.; **JEME**; b

P *E. wulfenii* Hoppe; **ILJAE**; c, g

T *Mercurialis annua* L.; **WSP**; c, d, g, h, i

P *Ricinus communis* L.; **CUAD**; d, h, i

### **Fabaceae**

*Acacia dealbata* Link; **cult**

P *Albizzia julibrissin* (Willd.) Durazzo; **CUAD**; d, i

P *Amorpha fruticosa* L.; **CUAD**; j; (PT)

Ch *Argyrolobium zanonii* (Turra) P. W. Ball.; **ZAME**; b, l

T *Astragalus hamosus* L.; **OPME**; c, f, g, h

H *A. muelleri* Steudel et Hochst.; **ILJAE**; **end**; b

T *A. sesameus* L.; **ZAME**; b

*Ceratonia siliqua* L.; **cult**

P *Cercis siliquastrum* L.; **CUAD**; d, g, i

T *Cicer arietinum* L.; **CUAD**; i

P *Colutea arborescens* L.; **OPME**; a, b

T *Coronilla cretica* L.; **ISME**; c, d, g, i

P *C. emerus* L. ssp. *emeroides* (Boiss. et Spruner) Hayek; **ISME**; a, b

T *C. scorpioides* (L.) Koch; **OPME**; b, c, i

P *C. valentina* L.; **ZAME**; k, l

Ch *Dorycnium hirsutum* (L.) Ser.; **OPME**; a, b, c

H *D. pentaphyllum* Scop. ssp. *herbaceum* (Vill.) Rouy; **JEKO**; b, c

Ch *Genista sylvestris* Scop. ssp. *dalmatica* (Bartl.) H. Lindb.; **ILJAE**; **end**; a, b

T *Hippocrepis ciliata* Willd.; **OPME**; b

H *H. comosa* L.; **JEME**; b, c

T *H. unisiliquosa* L.; **OPME**; b, c, f

T *Hymenocarpus circinnatus* (L.) Savi; **OPME**; b, c

T *Lathyrus cicera* L.; **OPME**; b, c

T *L. latifolius* L.; **JEME**; c, i

T *L. saxatilis* (Vent.) Vis.; **OPME**; b, c

T *L. sphaericus* Retz.; **OPME**; b, c

Ch *Lotus allionii* Desf.; **OPME**; k

T *L. edulis* L.; **OPME**; b, c

T *L. ornithopodioides* L.; **OPME**; b

H *L. tenuis* W. et K.; **WSP**; j

T *Medicago arabica* (L.) Hudson; **OPME**; c, d, g

T *M. coronata* (L.) Bartal.; **OPME**; b, c

T *M. disciformis* DC.; **OPME**; b

T *M. hispida* Gaertner; **JEME**; b, c, d, g

T *M. litoralis* Rohde; **OPME**; h, k

T *M. lupulina* L.; **WSP**; b, c, d, g, i

T *M. minima* (L.) Bartal.; **WSP**; b, c, g

T *M. orbicularis* (L.) Bartal.; **OPME**; c, d, i

H *M. prostrata* Jacq.; **JEME**; b

T *M. rigidula* (L.) All.; **MEPO**; b, c, d

- H *M. sativa* L. ssp. *falcata* (L.) Arcang.; **EUAZ**; c, g  
H *M. sativa* L. ssp. *sativa*; **WSP**; c, g  
T *Melilotus alba* Medicus; **EUAZ**; c, g, h, j  
T *M. indica* (L.) All.; **OPME**; b  
T *M. italica* (L.) Lam.; **OPME**; b; (V3:288)  
T *M. neapolitana* Ten.; **OPME**; b  
H *M. officinalis* (L.) Pallas; **EUAZ**; c, d, g, h, i  
T *M. sulcata* Desf.; **OPME**; c, j  
H *Ononis natrix* L.; **OPME**; b, c  
H *O. pusilla* L.; **JEME**; b, c  
T *O. reclinata* L.; **OPME**; b, c  
*Phaseolus vulgaris* L.; **cult**  
*Pisum sativum* L. ssp. *sativum*; **cult**  
\*\**Poinciana gilliesii* Hook.; **cult**  
H *Psoralea bituminosa* L.; **OPME**; b, c, d, g, i  
P *Robinia pseudoacacia* L.; **CUAD**; c, d, g, i  
T *Scorpiurus muricatus* L. (incl. *S. subvillosus* L.); **OPME**; b, c  
T *Securigera securidaca* (L.) Degen et Doerlf.; **OPME**; c, g, i  
*Sophora japonica* L.; **cult**  
P *Spartium junceum* L.; **OPME**; b, c, d, g, i  
T *Trifolium angustifolium* L.; **OPME**; b, c  
T *T. arvense* L.; **EUAZ**; b, c  
T *T. campestre* Schreber; **WSP**; b, c, d  
T \**T. dalmaticum* Vis.; **ILJAE**; **end**; b  
T *T. echinatum* Bieb.; **JIEU**; j  
H *T. fragiferum* L.; **EUAZ**; j  
T *T. glomeratum* L.; **JEME**; d, f  
T *T. pratense* L.; **EUAZ**; c, d  
T *T. repens* L. ssp. *repens*; **WSP**; c, d, j  
T *T. repens* L. ssp. *prostratum* (Biasoletto) Nyman; **OPME**; d, j  
T *T. scabrum* L.; **OPME**; b, c, g  
T *T. stellatum* L.; **OPME**; b, c  
T *T. suffocatum* L.; **OPME**; f, j  
T *Trigonella corniculata* L.; **OPME**; c, d, g, h, i  
T *T. monspeliaca* L.; **MEPO**; b, c  
H *Vicia dalmatica* Kerner; **JEME**; b  
T *V. faba* L.; **CUAD**; i  
T *V. hirsuta* (L.) S. F. Gray; **WSP**; b  
T *V. hybrida* L.; **OPME**; c, d, g  
T *V. lutea* L.; **OPME**; c  
T *V. narbonensis* L.; **OPME**; c  
T *V. sativa* L. ssp. *angustifolia* (Grufb.) Gaudin; **EURO**; b, c, d  
T *V. tenuissima* (Bieb.) Sch. et Th.; **JEME**; b, c  
T *V. villosa* Roth ssp. *varia* (Host) Corb.; **IEPO**; c  
P *Wisteria sinensis* (Sims) Sweet; **CUAD**; d, i

### **Fagaceae**

- P *Quercus ilex* L.; **OPME**; a, d

P *Q. virgiliana* (Ten.) Ten.; **JIEU**; a, b

### **Fumariaceae**

T *Fumaria capreolata* L.; **OPME**; b

T *F. officinalis* L.; **WSP**; c, d, h, i

T *F. parviflora* Lam.; **WSP**; d, i

### **Gentianaceae**

T *Centaurium pulchellum* (Swartz) Druce; **EUAZ**; b, c

### **Geraniaceae**

T *Erodium cicutarium* (L.) L'Hér.; **WSP**; c, f

T *E. malacoides* (L.) L'Hér.; **OPME**; c, f, g, h

T *Geranium brutium* Gasparr.; **ISME**; c, d, h, i

T *G. columbinum* L.; **EUAZ**; a, b, c

T *G. purpureum* Vill.; **JEME**; a, e, l

T *G. robertianum* L.; **WSP**; a, h

T *G. rotundifolium* L.; **EUAZ**; c, d, g, h

*Pelargonium graveolens* L'Hér.; **cult**

*P. peltatum* (L.) Aiton; **cult**

*P. zonale* (L.) Aiton; **cult**

### **Hippocastanaceae**

*Aesculus hippocastanum* L.; **cult**

*Ae. ×carnea* Hayne; **cult**

### **Hypericaceae**

*Hypericum calycinum* L.; **cult**

H *H. perforatum* L. (incl. *H. veronense* Schrank); **JEME**; b, c

\*\**H. reptans* Dyer.; **cult**

### **Juglandaceae**

P *Juglans regia* L.; **CUAD**; d, i

### **Lamiaceae**

T *Acinos arvensis* (Lam.) Dandy; **EURO**; b, c, l

T *Ajuga chamaepytis* (L.) Schreber; **OPME**; b, c, h

*A. reptans* L.; **cult**

*Ballota pseudodictamnus* (L.) Bentham; **cult**

H *B. nigra* L. ssp. *foetida* Hayek; **JEME**; g, h

H *B. nigra* L. ssp. *uncinata* (Fiori et Beg.) Patzak; **OPME**; h

H *Calamintha nepeta* (L.) Savi; **JEPO**; b, c, h

*Glechoma hederacea* L.; **cult**

T *Lamium amplexicaule* L.; **EUAZ**; h, i

*Lavandula angustifolia* Miller; **cult**

*L. dentata* L.; **cult**

\*\**L. ×intermedia* Loisel.; **cult**

*L. multifida* L.; **cult**

*L. stoechas* L.; **cult**

H *Marrubium incanum* Desr.; **ILAPE**; b, c

H *M. vulgare* L.; **WSP**; c, h



- H *Melissa officinalis* L.; **JEME**; c, i  
 H *Mentha longifolia* (L.) Hudson; **WSP**; d, i, j  
 H *M. spicata* L.; **CUAD**; i  
 Ch *Micromeria juliana* (L.) Bentham; **OPME**; b, c, l  
   *Ocimum basilicum* L.; **cult**  
 H *Origanum heracleoticum* L.; **ISME**; b  
   *O. majorana* L.; **cult**  
 H *O. vulgare* L.; **EUAZ**; b, c, i  
 Ch *Prasium majus* L.; **OPME**; a, b, l; (V2:221)  
 H *Prunella vulgaris* L.; **WSP**; d  
 P *Rosmarinus officinalis* L.; **CUAD**; d, i  
   \*\**Salvia microphylla* Kunth; **cult**  
   *S. nemorosa* L.; **cult**  
 Ch *S. officinalis* L.; **EUME**; b, d, i  
   \*\**S. patens* Cav.; **cult**  
 H *S. sclarea* L.; **JEME**; g, h, i  
   *S. splendens* Sellow; **cult**  
 H *S. verbenaca* L.; **MEAT**; c, g, f  
 T *S. viridis* L.; **JEME**; c, d  
 Ch *Satureja montana* ssp. *variegata* (Host.) Ball; **MEPO**; c, g  
 T *Sideritis romana* L.; **OPME**; b  
   *Stachys byzantina* Koch; **cult**  
 H *S. salvifolia* Ten.; **ILAPE**; b, c  
 Ch *Teucrium chamaedrys* L.; **JEPO**; a, b, c  
 Ch *T. flavum* L.; **OPME**; b, c, l  
   *T. fruticans* L.; **cult**  
 Ch *T. montanum* L.; **JEME**; b  
 Ch *T. polium* L.; **MEPO**; b  
 Ch *Thymus longicaulis* Presl; **ILAPE**; b, c  
   \*\**Westringia fruticosa* (Willd.) Druce; **cult**

### **Lauraceae**

- P *Laurus nobilis* L.; **CUAD**; d, i

### **Linaceae**

- H *Linum bienne* Miller; **OPME**; c  
 T *L. nodiflorum* L.; **MEPO**; b, c  
 T *L. strictum* L. ssp. *corymbulosum* (Rchb.) Rouy; **MEPO**; b, c  
 T *L. strictum* L. ssp. *strictum*; **OPME**; b, c  
 Ch *L. tenuifolium* L.; **JEPO**; b, c  
 T *L. usitatissimum* L.; **CUAD**; i

### **Loranthaceae**

- P *Arceuthobium oxycedri* (DC.) Bieb.; **JEPO**; a, b

### **Lythraceae**

- Lagerstroemia indica* L.; **cult**  
 H *Lythrum salicaria* L.; **WSP**; j

### **Magnoliaceae**

- Liriodendron tulipifera* L.; **cult**  
*Magnolia grandiflora* L.; **cult**  
 \*\**M. ×soulangiana* Soulange-Bodin; **cult**

### Malvaceae

- H *Alcea pallida* (Willd.) W. et K.; **MEPO**; g  
 H *A. rosea* L.; **CUAD**; d, g, h; (V3:208-209 as *Althaea rosea* Cav.)  
 H *Althaea officinalis* L.; **WSP**; j  
 \*\**Hibiscus rosa-sinensis* L.; **cult**  
*H. syriacus* L.; **cult**  
 T *H. trionum* L.; **JEPO**; EN; i  
 H *Lavatera arborea* L.; **EUME**; h, k  
 T *Malva neglecta* Wallr.; **WSP**; f, g  
 T *M. nicaeensis* All.; **OPME**; f, g; (V3:204)  
 H *M. sylvestris* L.; **WSP**; c, d, g, h

### Meliaceae

- P *Melia azedarach* L.; **CUAD**; d, i

### Moraceae

- P *Broussonetia papyrifera* (L.) Vent.; **CUAD**; c, d, i  
 P *Ficus carica* L.; **OPME**; d, e, i  
 \*\**F. pumila* L.; **cult**  
*Maclura pomifera* (Rafin.) C. K. Schneider; **cult**  
 P *Morus alba* L.; **CUAD**; d, i  
*M. nigra* L.; **cult**

### Myrtaceae

- \*\**Acca sellowiana* Berg.; **cult**  
 \*\**Callistemon citrinus* (Curtis) Skeels; **cult**  
*Eucalyptus camaldulensis* Dehnhardt; **cult**  
 P *Myrtus communis* L.; **OPME**; a, d, i

### Nyctaginaceae

- Bougainvillea spectabilis* Willd.; **cult**  
 G *Mirabilis jalapa* L.; **CUAD**; g, h, i

### Oenotheraceae

- H *Oenothera biennis* L.; **CUAD**; i  
 \*\**Oe. missouriensis* Sims.; **cult**

### Oleaceae

- \*\**Forsythia ×intermedia* Zabel; **cult**  
*Fraxinus excelsior* L.; **cult**  
 P *F. ornus* L.; **JEME**; a, c  
 P *F. oxycarpa* Bieb.; **OPME**; j  
 \*\**Jasminum azoricum* L.; **cult**  
*J. grandiflorum* L.; **cult**  
*J. nudiflorum* Lindley; **cult**  
 \*\**Ligustrum delavayanum* Hariot.; **cult**  
*L. lucidum* Ait.; **cult**

- L. ovalifolium* Hassk.; **cult**  
 P *Olea europaea* L.; **CUAD**; d, i  
 P *Phillyrea media* L.; **OPME**; a, b  
 P *Syringa vulgaris* L.; **CUAD**; i

### **Orobanchaceae**

- T *Orobanche ramosa* L.; **JEPO**; b, c

### **Oxalidaceae**

- G *Oxalis articulata* Savigny; **CUAD**; h, i  
 H *O. corniculata* L.; **WSP**; d, e, f, g, h, i

### **Paeoniaceae**

- \*\**Paeonia lactiflora* Pallas; **cult**

### **Papaveraceae**

- H *Chelidonium majus* L.; **WSP**; h, i  
 T *Papaver rhoeas* L.; **WSP**; c, g, h, i

### **Passifloraceae**

- P *Passiflora coerulea* L.; **CUAD**; h, i

### **Phytolaccaceae**

- G *Phytolacca americana* L.; **CUAD**; d, h; (V1:234 as *Phytolacca decandra* L.; PT)

### **Pittosporaceae**

- P *Pittosporum tobira* (Thunb.) Aiton, fil.; **CUAD**; d, i

### **Plantaginaceae**

- H *Plantago altissima* L.; **JEME**; j  
 H *P. coronopus* L. ssp. *commutata* (Guss.) Pilger; **MEPO**; f, k  
 H *P. lanceolata* L.; **WSP**; c, d, f, g, h, i  
 H *P. major* L. ssp. *intermedia* (Godr.) Lange; **EUAZ**; f, h, j  
 H *P. major* L. ssp. *major*; **WSP**; f, j  
 T *P. psyllium* L. (= *P. afra* L.); **OPME**; b

### **Platanaceae**

- P *Platanus hybrida* Brot. (= *P. acerifolia* ŠAitonĆ Willd.); **CUAD**; d, i  
 P *P. occidentalis* L.; **CUAD**; d, i  
 P *P. orientalis* L.; **CUAD**; d

### **Plumbaginaceae**

- H *Limonium cancellatum* (Bernh.) Kuntze; **ILAPE**; **end**; k  
 \**L. sinuatum* (L.) Mill.; **cult**  
 Ch *Plumbago europaea* L.; **OPME**; c, g, h

### **Polygalaceae**

- Polygala myrtifolia* L.; **cult**

### **Polygonaceae**

- P *Fallopia aubertii* (L. Henry) Holub (= *Polygonum aubertii* L.); **CUAD**; h, i  
 T *F. convolvulus* (L.) Holub (= *Polygonum c.* L.); **WSP**; i  
 T *Polygonum arenastrum* Boreau; **WSP**; d, f  
 T *P. aviculare* L.; **WSP**; d, f, h, i

- H *Rumex conglomeratus* Murray; **WSP**; j  
 H *R. crispus* L.; **WSP**; j  
 H *R. pulcher* L.; **JEPO**; c, d, f, g, h

### **Portulacaceae**

- Portulaca grandiflora* Hooker; **cult**  
 T *P. oleracea* L.; **WSP**; d, i

### **Primulaceae**

- T *Anagallis arvensis* L.; **WSP**; b, c, g, h, i  
 T *A. foemina* Miller; **WSP**; b, c, g, h, i

### **Proteaceae**

- \*\**Grevillea rosmarinifolia* Cunn.; **cult**

### **Punicaceae**

- P *Punica granatum* L.; **CUAD**; d, i

### **Ranunculaceae**

- P *Clematis flammula* L.; **OPME**; a, b, c, e, g, h, j  
 P *C. vitalba* L.; **EURO**; a, b, c, e, g, h, j  
 T *Consolida regalis* S. F. Gray ssp. *paniculata* (Host) Soo; **OPME**; b, c  
 T *Delphinium peregrinum* L.; **JEME**; EN; b, c, d  
 T *Nigella damascena* L.; **OPME**; c, i  
 T *Ranunculus arvensis* L.; **CUAD**; d, i  
 T *R. muricatus* L.; **OPME**; c, g, i  
 H *R. neapolitanus* Ten.; **JEME**; c  
 H *Thalictrum minus* L.; **EUAZ**; b, l

### **Resedaceae**

- H *Reseda alba* L.; **OPME**; c, h  
 H *R. lutea* L.; **WSP**; b, c, g, h  
 T *R. phyteuma* L.; **JEME**; b, i

### **Rhamnaceae**

- \*\**Ceanothus thyrsoiflorus* Eschsch.; **cult**  
 P *Frangula rupestris* (Scop.) Schur; **ILJAE**; a, b, l  
 P *Paliurus spina-christi* Miller; **ILJUE**; a, b, c  
 P *Rhamnus alaternus* L.; **OPME**; a, b  
 P \**Rh. intermedius* Steud. et Hochst.; **ILJAE**; **end**; a, b, c  
*Ziziphus jujuba* Miller; **cult**

### **Rosaceae**

- H *Agrimonia eupatoria* L.; **CIHO**; c, i, j  
 \**Chaenomeles japonica* (Thunb.) Spach.; **cult**  
 \*\**Cotoneaster dammeri* Schneid.; **cult**  
*C. horizontalis* Decne; **cult**  
 P *Crataegus monogyna* Jacq.; **EUAZ**; a, b  
*Cydonia oblonga* Miller; **cult**  
 \**Eryobotrya japonica* (Thunb.) Lindl.; **cult**  
*Fragaria vesca* L.; **cult**

- Kerria japonica* (L.) DC.; **cult**  
*Malus domestica* Borkh.; **cult**  
 \*\**Photinia ×fraseri* Dress; **cult**
- H *Potentilla reptans* L.; **WSP**; d, f, j  
*Prunus armeniaca* L.; **cult**  
*P. avium* L.; **cult**
- P *P. cerasifera* Ehrh.; **CUAD**; d, g, i  
*P. cerasus* L.; **cult**  
*P. domestica* L.; **cult**
- P *P. dulcis* (Miller) D. A. Webb (= *Amygdalus communis* L.); **CUAD**; c, i  
*P. laurocerasus* L.; **cult**
- P *P. mahaleb* L.; **JEPO**; a, b
- P *P. persica* (L.) Batsch; **CUAD**; h, i  
 \*\**Prunus serrulata* Lindl.; **cult**
- P *P. spinosa* L.; **EUAZ**; c, j  
*Pyracantha coccinea* M. J. Roemer; **cult**
- P *Pyrus amygdaliformis* Vill.; **JEME**; a, b  
*P. communis* L.; **cult**  
 \*\**Rosa banksiae* Aiton, f.; **cult**
- P *R. canina* L.; **WSP**; a, c  
 \**R. rugosa* Thunb.; **cult**
- P *R. sempervirens* L.; **OPME**; a, b
- P *Rubus caesius* L.; **EUAZ**; h, j  
*R. idaeus* L.; **cult**
- P *R. ulmifolius* Schott; **MEAT**; a, b, c, g
- H *Sanguisorba minor* Scop. ssp. *muricata* (Gremli) Briq.; **JEME**; b, c
- P *Sorbus domestica* L.; **CUAD**; a, i; (V:48; V3:246 as *Pyrus sorbus* Gaertn.)  
*Spiraea japonica* L. fil.; **cult**  
 \**S. ×vanhouttei* (Briot) Zabel; **cult**

### **Rubiaceae**

- H *Asperula aristata* L. ssp. *scabra* (Presl) Nyman; **JEME**; b, c
- T *Crucianella latifolia* L.; **OPME**; b
- T *Galium aparine* L.; **WSP**; c, d, g, h, i
- H *G. corrudifolium* Vill.; **JEME**; a, b, c, l
- H *G. lucidum* All.; **JEME**; l
- H *G. mollugo* L.; **EUAZ**; j
- T *G. parisiense* L.; **JEME**; b, g  
*Gardenia taitensis* DC.; **cult**
- P *Rubia peregrina* L.; **OPME**; a, c
- T *Sherardia arvensis* L.; **WSP**; b, c
- T *Valantia muralis* L.; **OPME**; b, c, e, l

### **Rutaceae**

- Citrus deliciosa* Ten.; **cult**  
*C. limon* (L.) Burm. fil.; **cult**  
*C. sinensis* (L.) Osbeck; **cult**  
 \*\**Fortunella margarita* (Lour.) Swingle; **cult**

Ch *Ruta graveolens* L. (incl. *Ruta divaricata* Ten.); **ILAPE**; b, c

### Salicaceae

- P *Populus alba* L.; **CUAD**; d, g  
*P. canadensis* L.; **cult**  
 P *P. italica* Duroi; **EUAZ**; d, j  
*P. nigra* L.; **cult**  
*P. tremula* L.; **cult**  
 P *Salix alba* L.; **EUAZ**; d, i, j  
*S. caprea* L.; **cult**

### Santalaceae

- P *Osyris alba* L.; **OPME**; a, b

### Sapindaceae

- \**Koelreuteria paniculata* Laxm.; **cult**

### Saxifragaceae

- Bergenia crassifolia* (L.) Fritsch.; **cult**  
 \**Hydrangea hortensis* Sm.; **cult**  
*H. macrophylla* (Thunb.) DC.; **cult**  
*Philadelphus coronarius* L.; **cult**

### Scrophulariaceae

- Ch *Antirrhinum majus* L.; **ZAME**; b, c, e, i  
 H *Cymbalaria muralis* Gaertn., Mey. et Sch.; **JEME**; e; (V:39 as *Linaria pilosa*;  
 V2:160-161 as *Linaria cymbalaria* Mill.)  
 T *Kickxia spuria* (L.) Dumort.; **EUAZ**; d, i  
 \**Hebe speciosa* (R. Cunn. ex A. Cunn.) Andersen; **cult**  
 T *Linaria chalepensis* (L.) Miller; **JEME**; i  
 H *L. repens* (L.) Miller; **ZAME**; c, i; (V2:164)  
 T *Misopates orontium* (L.) Rafin.; **EUAZ**; h, i  
 \*\**Russelia equisetiformis* Schlechtendahl et Chamiso; **cult**  
 H *Scrophularia canina* L.; **JEME**; b, h  
 H *S. nodosa* L.; **WSP**; c, g; (V2:159)  
 H \**Verbascum orientale* (L.) All.; **ISME**; b, c; (V2:158 as *Celsia orientalis* L.)  
 H *V. sinuatum* L.; **OPME**; a, d, g  
 H *Veronica anagallis-aquatica* L.; **EURO**; j  
 T *V. arvensis* L.; **EUAZ**; d, g, h, i  
 T *V. cymbalaria* Bodard; **JEME**; e, l  
 T *V. hederifolia* L.; **EUAZ**; g, i  
 T *V. persica* Poiret; **CUAD**; c, i

### Simaroubaceae

- P *Ailanthus altissima* (Mill.) Swingle; **CUAD**; c, g, h

### Solanaceae

- \*\**Brunfelsia pauciflora* (Charm. et Schltld.) Benth.; **cult**  
*Capsicum annuum* L.; **cult**  
 T *Datura innoxia* Miller; **CUAD**; h, i; (P)  
 T *D. stramonium* L.; **WSP**; h

- T *Lycopersicon esculentum* Mill. (= *Solanum lycopersicum* L.); **CUAD**; h, i  
*Petunia ×hybrida* Hort.; **cult**  
*Physalis alkekengi* L.; **cult**  
 \**Solanum laciniatum* Aiton; **cult**  
*S. melongena* L.; **cult**
- T *S. nigrum* L.; **WSP**; h, i  
 \**S. pseudocapsicum* L.; **cult**
- T *S. tuberosum* L.; **CUAD**; h, i

#### **Tamarixaceae**

- Tamarix africana* Poiret; **cult**  
*T. dalmatica* Baum; **cult**  
*T. gallica* L.; **cult**  
 \**T. ramosissima* Ledeb.; **cult**  
 \**T. tetrandra* Pall. ex M. Bieb.; **cult**

#### **Theaceae**

- \*\**Camellia japonica* L.; **cult**

#### **Theligonaceae**

- T *Theligonum cynocrambe* L.; **JEME**; e

#### **Tiliaceae**

- Tilia cordata* Miller; **cult**  
*T. platyphyllos* Scop.; **cult**  
*T. tomentosa* Moench (= *T. argentea* DC.); **cult**

#### **Tropaeolaceae**

- Tropaeolum majus* L.; **cult**

#### **Ulmaceae**

- Celtis aetnensis* (Tornabene) Strobl; **cult**
- P *C. australis* L.; **JEME**; a, d, i  
*Ulmus glabra* Hudson; **cult**  
*U. laevis* Pallas; **cult**
- P *U. minor* Miller; **WSP**; d, i  
 P *U. pinnato-ramosa* Dieck ex Koehne L.; **CUAD**; d, i

#### **Urticaceae**

- H *Parietaria diffusa* W. et K.; **JEME**; c, d, e, h, i, l  
 H *Urtica dioica* L.; **WSP**; g, h, i  
 T *U. urens* L.; **WSP**; h, i

#### **Valerianaceae**

- Ch *Centranthus ruber* (L.) DC.; **MEAT**; c, e, g  
 T *Valerianella ramosa* Bastard; **OPME**; i

#### **Verbenaceae**

- Lantana camara* L.; **cult**  
 \*\**L. montevidensis* (Sprengel) Briquet; **cult**
- H *Verbena officinalis* L.; **WSP**; c, d, i  
 \**V. peruviana* (L.) Druce; **cult**

P *Vitex agnus-castus* L.; **OPME**; d, j, k

### **Violaceae**

H *Viola odorata* L.; **CUAD**; i  
*V. xwittrockiana* Gams; **cult**

### **Vitaceae**

P *Partenocissus quinquefolia* (L.) Planchon; **CUAD**; g, i  
*P. tricuspidata* (Sieb. et Zucc.) Planchon; **cult**  
P *Vitis vinifera* L.; **CUAD**; c, i; (V3:219)

### **Zygophyllaceae**

T *Tribulus terrestris* L.; **JEME**; f, h, i

## **LILIOPSIDA (MONOCOTYLEDONES)**

### **Agavaceae**

P *Agave americana* L.; **CUAD**; d, i, k  
*\*Aloe arborescens* Mill.; **cult**  
*A. barbadensis* Miller (= *A. vera* Auct. non L.); **cult**  
\*\**Cordyline australis* (Forst.) Endl.; **cult**  
\*\**C. indivisa* (Forst.) Steud; **cult**  
*\*Phormium tenax* J. R. Forst. et G. Forst.; **cult**  
*\*Yucca filamentosa* L.; **cult**  
P *Y. gloriosa* L.; **CUAD**; d, i

### **Amaryllidaceae**

\*\**Hippeastrum puniceum* (Lam.) Kuntze; **cult**  
*Narcissus pseudonarcissus* L.; **cult**  
G *N. tazetta* L.; **CUAD**; i

### **Araceae**

G *Arum italicum* Miller; **MEAT**; a, c, d  
*Zantedeschia aethiopica* (L.) Sprengel; **cult**

### **Arecaceae**

*Butia capitata* (Mart.) Beccari; **cult**  
*Chamaerops humilis* L.; **cult**  
P *Phoenix canariensis* Chabaud; **CUAD**; d, i  
*Trachycarpus fortunei* (Hooker) Wendl.; **cult**  
*Washingtonia filifera* (Linden) Wendl.; **cult**  
*W. robusta* Wendl.; **cult**

### **Cannaceae**

G *Canna indica* L.; **CUAD**; d, i

### **Commelinaceae**

G *Commelina communis* L.; **CUAD**; i  
\*\**Tradescantia pallida* (Rose) Hunt; **cult**  
G *T. virginiana* L.; **CUAD**; i

### **Cyperaceae**

H *Carex divulsa* Stokes; **WSP**; c, j  
H *C. extensa* Good.; **WSP**; EN; j



- H *C. otrubae* Podp.; **JEME**; j  
 H *C. vulpina* L.; **EUAZ**; j  
   \**Cyperus alternifolius* L.; **cult**  
 G *C. longus* L.; **WSP**; VU; j  
 G *C. rotundus* L.; **WSP**; EN; j  
 G *Holoschoenus romanus* (L.) Fritsch; **OPME**; j

### **Dioscoreaceae**

- G *Tamus communis* L.; **JEME**; a

### **Iridaceae**

- \*\**Gladiolus ×gandavensis* Van Houthe; **cult**  
 G *Iris germanica* L.; **CUAD**; h, i  
 G *I. pseudacorus* L.; **EUAZ**; j; (V1:117 as *Iris pseudo-acorus* L.)  
 G \**I. pseudopallida* Trinajstić; **ILJAE**; **end**; b, d, l; (Mit; MitP)  
   *I. xiphium* L.; **cult**

### **Juncaceae**

- G *Juncus gerardi* Loisel.; **WSP**; j, k  
 G *J. inflexus* L.; **EUAZ**; j  
 G *J. maritimus* Lam.; **WSP**; k

### **Liliaceae**

- \*\**Agapanthus africanus* (L.) Hoffmannsegg; **cult**  
 G *Alium cepa* L.; **CUAD**; i  
 G *A. oleraceum* L.; **EUAZ**; b, c  
 G *A. commutatum* Guss; **OPME**; k  
 G *A. roseum* L.; **OPME**; c  
   *A. sativum* L.; **cult**  
 G *A. sphaerocephalon* L.; **JEME**; b, c  
 G *A. subhirsutum* L.; **OPME**; a, b; (V1:134-135)  
 G *Asparagus acutifolius* L.; **OPME**; a, b, c, g, i  
   \*\**A. densiflorus* (Kunth) Jessop; **cult**  
 G *Asphodeline lutea* (L.) Rchb.; **ISME**; c, g, i; (V1:152 as *A. lutea* Reiche)  
 H *Asphodelus fistulosus* L.; **OPME**; g  
   \*\**Aspidistra elatior* Blume; **cult**  
 G *Colchicum bivonae* Guss.; **ILAPE**; b, c  
   \*\**Hemerocallis fulva* (L.) L.; **cult**  
   \*\**Hosta fortunei* (Baker) Bailey; **cult**  
   \**Hyacinthus orientalis* L.; **cult**  
   \*\**Kniphofia uvaria* L.; **cult**  
 G *Leopoldia comosa* (L.) Parl.; **OPME**; b, i  
   *Lilium bulbiferum* L.; **cult**  
   *L. candidum* L.; **cult**  
   \**L. lancifolium* Thunb.; **cult**  
   *L. martagon* L.; **cult**  
   \*\**Liriope muscari* (Decaisne.) Bailey; **cult**

\*\**L. spicata* (Thunberg) Lour.; **cult**

\*\**Ophiopogon japonicus* (L.) Ker Gawl.; **cult**

\*\**O. planiscapus* Nakai; **cult**

G *Ornithogalum narbonense* L.; **OPME**; c

Ch *Ruscus aculeatus* L.; **OPME**; a, l

P *Smilax aspera* L.; **OPME**; a, b, c, e, g, i

*Tulipa gesneriana* L.; **cult**

### **Orchidaceae**

G *Ophrys apifera* Hudson; **OPME**; EN; c

G *O. sphegodes* Miller; **EUME**; EN; c

### **Poaceae**

T *Aegilops geniculata* Roth; **OPME**; d, g, i

T *Ae. neglecta* Reg.; **OPME**; b, c, g

T *Ae. triuncialis* L.; **OPME**; c, g

G *Agropyron pungens* (Pers.) R. et S.; **OPME**; k

G *A. repens* (L.) Beauv.; **ŠIRA**; c, i, j

G *Arundo donax* L.; **OPME**; j

T *Avena barbata* Potter; **WSP**; c, d, g, h, i

T *A. sterilis* L.; **JEPO**; c, d, g, h, i

H *Bothriochloa ischaemon* (L.) Keng.; **JEME**; b, c, g

T *Brachypodium distachyum* (L.) Beauv.; **OPME**; b, c

H *B. pheonicoides* (L.) R. et S.; **ZAME**; c

H *B. pinnatum* (L.) Beauv.; **WSP**; b, c

H *B. ramosum* (L.) R. et S.; **OPME**; a, b, c, g, k, l

T *Briza maxima* L.; **OPME**; b; (V1:84)

H *Bromus erectus* Hudson; **JEME**; b, c

T *B. hordeaceus* L.; **JEME**; c, d, g

T *B. japonicus* Thunb.; **EUAZ**; g

T *B. madritensis* L.; **MEAT**; d, g, h

T *B. molliformis* Lloyd; **JEME**; c, d, g

T *B. rigidus* Roth.; **IEPO**; d, g, h

T *B. sterilis* L.; **WSP**; g, h

T *Catapodium marinum* (L.) Hubbard; **MEAT**; VU; k

T *C. rigidum* (L.) Hubbard; **MEAT**; b, c, e, f, l

H *Cleistogenes serotina* (L.) Keng; **JEPO**; b, c

H *Cymbopogon hirtus* (L.) Janchen; **OPME**; b

G *Cynodon dactylon* (L.) Pers.; **WSP**; d, f, g, h, i, j

T *Cynosurus echinatus* L.; **JEME**; b, c, g, i

H *Dactylis glomerata* L.; **EUAZ**; h

H *D. hispanica* Roth.; **OPME**; b, c, g

T *Dasypyrum villosum* (L.) Borbás; **JEME**; c, d, g, h, i

T *Digitaria sanguinalis* (L.) Scop.; **WSP**; c, g, h, i

T *Echinochloa crus-galli* (L.) Beauv.; **WSP**; d, i

T *Eleusine indica* (L.) Gaertner; **CUAD**; d, f, g; (PT)

T *Eragrostis megastachya* (Koeler) Link; **WSP**; d, f, g

- Fargesia murielae* (Gamble) T. P. Yi; **cult**  
 H *Festuca arundinacea* Schreber; **EURO**; j  
 \*\**F. glauca* Lamarck; **cult**  
 H *F. pratensis* Hudson; **WSP**; c, j  
 T *Heteropogon contortus* (L.) Beauv.; **MEPO**; b  
 H *Holcus lanatus* L.; **EUAZ**; j  
 H *Hordeum bulbosum* (L.); **JEME**; g  
 T *H. leporinum* Link; **OPME**; d, f, g, h, i  
 H *Koeleria splendens* Presl; **JEME**; b, c  
 T *Lagurus ovatus* L.; **OPME**; c  
 H *Lolium perenne* L.; **EURO**; d, f, g  
 T *L. rigidum* Gaudin (incl. *L. strictum* Presl); **JEME**; c, h  
 T *Lophochloa cristata* (L.) Hyl.; **MEAT**; d, h, g  
 H *Melica ciliata* L.; **EUAZ**; b, g, l  
 H *Oryzopsis miliacea* (L.) Asch. et Schweinf.; **JEME**; c, h  
 T *Parapholis incurva* (L.) Hubbard; **MEAT**; VU; k  
 H *Paspalum dilatatum* Poir.; **CUAD**; d, j, k  
 G *P. paspaloides* (Michx.) Scribner; **CUAD**; j; (PT)  
 H *Phleum pratense* L.; **CIHO**; c, i  
 G *Phragmites australis* (Cav.) Trin.; **WSP**; j; (V1:78 as *Arundo phragmites* L.)  
 T *Poa annua* L.; **WSP**; d, f, g, h, i  
 H *P. bulbosa* L.; **EUAZ**; b  
 H *P. pratensis* L.; **WSP**; c  
 H *P. sylvicola* Guss.; **OPME**; c, j  
 H *Polypogon viridis* (Gouan) Breistr.; **OPME**; j  
 T *Psilurus incurvus* (Gouan) Sch. et Th.; **OPME**; b, c  
 H *Sesleria autumnalis* (Scop.) Schultz; **ILJUE**; a, c  
 H *Setaria geniculata* (Lam.) Beauv.; **CUAD**; d  
 T *S. glauca* (L.) Beauv.; **WSP**; d, i  
 T *S. verticillata* (L.) Beauv.; **WSP**; d, g, h, i  
 T *S. viridis* (L.) Beauv.; **EUAZ**; c, d, g, h, i  
 H *Stipa capillata* L.; **EUAZ**; b  
 H *S. pennata* L. ssp. *ericaulis* (Borbás) Martinovský et Skalický; **EUAZ**; b, c  
 G *Sorghum halepense* (L.) Pers.; **WSP**; c, d, g, h, i  
 T *Triticum turgidum* L.; **CUAD**; i  
 T *Vulpia ciliata* (Danth.) Link; **JEME**; b, c  
 T *V. myuros* (L.) Gmelin; **WSP**; d

### **Potamogetonaceae**

- Hy *Potamogeton perfoliatus* L.; **WSP**; j

### **Sparganiaceae**

- G *Sparganium erectum* L.; **EUAZ**; j

### **Typhaceae**

- G *Typha angustifolia* L.; **WSP**; j

## ANALYSIS OF THE FLORA

### 1. Taxonomical analysis

In the researched area of the town of Omiš, 870 taxa of vascular plants were recorded. Among them, 614 grow indigenously or spread subspontaneously out of cultivated conditions and 256 plant taxa occur only in culture. The taxonomical analysis of the researched area includes 614 autochthonous and subspontaneous species. They are sorted into 365 genera and 98 families (Tab. 1).

**Tab. 1.** Taxonomical analysis

Taxa	<i>Pteridophyta</i>	<i>Gymnospermae</i>	<i>Angiospermae</i>		Total
			<i>Dicotyledones</i>	<i>Monocotyledones</i>	
<b>Families</b>	2	3	77	16	98
<b>Genera</b>	3	4	289	69	365
<b>Species</b>	4	4	466	108	582
<b>Subspecies</b>	0	1	29	2	32
<b>Species and subspecies</b>	4	5	495	110	614
%	0.65	0.81	80.62	17.92	100

Out of 98 families, 11 are represented by more than 10 species and subspecies (Tab. 2).

**Tab. 2.** Families with more than 10 species and subspecies

Families	No. of species and subspecies	% of total flora (614)
<i>Asteraceae s. l.</i>	81	13.19
– <i>Asteraceae s. s.</i>	55	8.96
– <i>Cichoriaceae</i>	26	4.23
<i>Fabaceae</i>	79	12.87
<i>Poaceae</i>	69	11.24
<i>Lamiaceae</i>	29	4.72
<i>Brassicaceae</i>	26	4.23
<i>Caryophyllaceae</i>	17	2.77
<i>Euphorbiaceae</i>	16	2.61
<i>Apiaceae</i>	15	2.44
<i>Rosaceae</i>	15	2.44
<i>Scrophulariaceae</i>	15	2.44
<i>Liliaceae</i>	14	2.28

### 2. Life forms

Therophytes prevailed with 40.07 % followed by hemicyptophytes (28.34 %), Fig. 2.

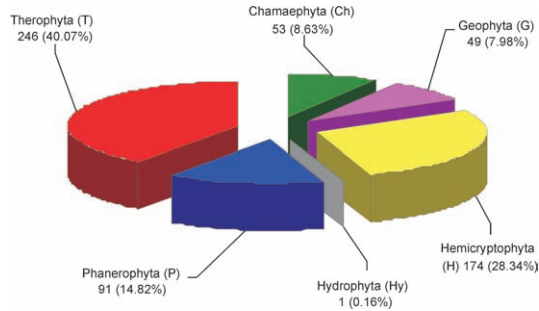


Fig. 2. Spectrum of life forms

### 3. Floral elements

Most of the plants were Mediterranean taxa (233; 37.95%), followed by cultural and adventive (107 taxa; 17.43%), widespread (103; 16.78%) and South European plants (101; 16.45%), Tab. 3.

Tab. 3. Analysis of floral elements in the flora of the town of Omiš

Floral element	No. of taxa	% of taxa
<b>1. MEDITERRANEAN FLORAL ELEMENT</b>	<b>233</b>	<b>37.95</b>
1.1. Circum-Mediterranean plants (OPME)	145	23.62
1.2. West Mediterranean plants (ZAME)	6	0.98
1.3. East Mediterranean plants (ISME)	15	2.44
1.4. Illyrian-Mediterranean plants	36	5.86
A) Illyrian-South European plants (ILJUE)	6	0.98
B) Illyrian-Adriatic plants	30	4.89
a) <i>Illyrian-Adriatic endemic plants (ILJAE)</i>	21	3.42
b) <i>Illyrian-Apennine plants (ILAPE)</i>	9	1.47
1.5. Mediterranean-Atlantic plants (MEAT)	14	2.28
1.6. European-Mediterranean plants (EUME)	6	0.98
1.7. Mediterranean-Pontic plants (MEPO)	11	1.79
<b>2. SOUTH EUROPEAN FLORAL ELEMENT</b>	<b>101</b>	<b>16.45</b>
2.1. South European-Mediterranean plants (JEME)	80	13.03
2.2. South European-Pontic plants (JEPO)	18	2.93
2.3. South European-continental plants (JEKO)	2	0.33
2.4. South European-Atlantic plants (JEAT)	1	0.16
<b>3. EASTERN EUROPEAN-PONTIC (IEPO)</b>	<b>4</b>	<b>0.65</b>
<b>4. SOUTHEAST EUROPEAN (JIEU)</b>	<b>5</b>	<b>0.81</b>
<b>5. EUROPEAN (EURO)</b>	<b>9</b>	<b>1.47</b>
<b>6. EURASIAN (EUAZ)</b>	<b>48</b>	<b>7.82</b>
<b>7. CIRCUM-HOLARTIC PLANTS (CIHO)</b>	<b>4</b>	<b>0.65</b>
<b>8. WIDESPREAD PLANTS (WSP)</b>	<b>103</b>	<b>16.78</b>
<b>9. CULTURAL &amp; ADVENTIVE (CUAD)</b>	<b>107</b>	<b>17.43</b>
<b>TOTAL</b>	<b>614</b>	<b>100.00</b>

In the flora of the town of Omiš there are 17 taxa that, according to NIKOLIĆ (2011), have the status of endemic plants and 11 taxa that are considered to be threatened (NIKOLIĆ & TOPIĆ, 2005; NIKOLIĆ, 2011).

## DISCUSSION AND CONCLUSION

In the researched area a total of 614 vascular plant taxa from 365 genera and 98 families were recorded (Tab. 1). The supplement of 256 plant taxa which occur only in culture was added also into the flora list presented in this study but not included in the analysis. The great richness of the flora of relatively small surface of the Omiš area researched (3.5 km<sup>2</sup> app.) results from the phytogeographical location of the town, a diversity of habitats and a long-lasting anthropogenic influences.

If we take into consideration the differences between the surface of urban areas and the number of inhabitants, the total number of taxa recorded for the town of Omiš is largely similar to the numbers of taxa recorded for some other Mediterranean cities (Tab. 4) in Croatia (Split, Šibenik and Zadar), Greece (Patras, Salonika) and Italy (HRUSKA, 1989).

**Tab. 4.** Comparison of the number of taxa of the flora of Omiš and floras of some other Mediterranean cities in Croatia and Greece

City	No. of taxa	Area (km <sup>2</sup> )	No. of inhabitants	Literature
Zadar (Croatia)	926	30	70.000	MILOVIĆ & MITIĆ (2012)
Šibenik (Croatia)	617	4	40.000	MILOVIĆ (2000)
Split (Croatia)	842	30	175.000	RUŠČIĆ (2002)
<b>Omiš (Croatia)</b>	<b>614</b>	<b>3.5</b>	<b>6.400</b>	<b>This study</b>
Patras (Greece)	818	58	180.000	CHRONOPOULOS & CHRISTODOULAKIS (2003)
Salonika (Greece)	718	61	1.000.000	KRIGAS & KOKKINI (2005)

Of the 614 species in the flora of Omiš, 50 species were previously registered and 564 species and subspecies were recorded in the researched area for the first time in his study.

Out of 88 taxa previously registered for the Omiš area, 38 taxa recorded by VISIANI (1826, 1842–1852) were not confirmed by this research. Some of the unconfirmed species probably exist on the researched area but were overlooked. Others disappeared during the last 160 years because of urbanization and corresponding changes in the local people's way of life – a decreasing number of cultivated fields and areas devoted to stock-rearing, their place being taken by the tourist industry.

The vast majority of taxa belongs to *Asteraceae* s. l. (81 taxa; 13.19%), *Fabaceae* (79; 12.87%) and *Poaceae* (69; 11.24%). The same three families were dominant in the taxa in the floras of the other Mediterranean cities in Croatia: Šibenik (MILOVIĆ, 2000), Split (RUŠČIĆ, 2002), Zadar (MILOVIĆ & MITIĆ, 2012), Dubrovnik (Jasprica *et al.*, 2010) as well as in the floras of some cities in Greece (CHRONOPOULOS & CHRISTODOULAKIS, 2003; KRIGAS & KOKKINI, 2005) and Italy (HRUSKA, 1989).

The largest number of life forms in the flora of Omiš consists of therophytes with 246 species (40.07%), followed by hemicriptophytes with 174 taxa (28.34%).

The given results match the data for the neighbouring Dalmatian cities (Split, Šibenik and Zadar) and those for the urban floras of Italian cities (Tab. 5). The dominance of therophytes in urban floras is not unexpected as their short life-cycles and high number of easily dispersed seeds make these plants very effective colonizers of heterogeneous man-made habitats.

**Tab. 5.** Life forms of the flora of Omiš and the floras of Šibenik (MILOVIĆ, 2000), Split (RUŠČIĆ, 2002), Zadar (MILOVIĆ & MITIĆ, 2012) and the urban flora of Italy (HRUSKA, 1989)

Life form	Omiš	Split	Šibenik	Zadar	Urban flora of Italy
Phanerophyta	<b>14.82%</b>	15.6	10.7%	12.85%	<b>5-25%</b>
Chamaephyta	<b>8.63%</b>	6.7	7.29%	6.26%	<b>1-11%</b>
Hemicryptophyta	<b>28.34%</b>	29.6	27.55%	26.57%	<b>22-49%</b>
Geophyta	<b>7.98%</b>	9.5	6.81%	11.02%	<b>4-12%</b>
Terophyta	<b>40.07%</b>	37.8	47.65%	42.98%	<b>31-61%</b>
Hydrophyta	<b>0.16%</b>	–	–	0.32%	<b>-%</b>

In the spectrum of floral elements (see Tab. 3), Mediterranean plants dominate (233 taxa; 37.95 %), followed by the South European plants (101 taxa; 16.45 %), reflecting the phytogeographic location of the researched area. A significant number of cultural and adventive plants (107 taxa; 17.43 %) as well as widespread plants (103 taxa; 16.78%) is a consequence of a strong, long-lasting human influence upon the flora and the vegetation of the Omiš region.

**Tab. 6.** Comparison of the representation of the main floral elements in the flora of the town of Omiš and in the floras of the cities of Split (RUŠČIĆ, 2002), Šibenik (MILOVIĆ, 2000) and Zadar (MILOVIĆ & MITIĆ, 2012).

Floral element	Omiš	Split	Šibenik	Zadar
Mediterranean	<b>37.95%</b>	36.2%	39.71%	32.83%
South European	<b>16.45%</b>	16.7%	19.94%	17.06%
Eurasian	<b>7.82%</b>	8.8%	7.46%	9.61%
Widespread plants	<b>16.78%</b>	15.8%	17.18%	15.55%
Cultural & Adventive plants	<b>17.43%</b>	16.6%	10.53%	19.22%
Others	<b>3.57%</b>	5.9%	5.18%	5.73%
Total	<b>100%</b>	100%	100%	100%

The comparison of floral elements in the floras of the cities of Omiš, Split, Šibenik and Zadar (Tab. 6), shows that there are great similarities, in the highest presence of Mediterranean taxa and a significant presence of South European, widespread and cultural and adventive taxa, as well. The given results match the data for those recorded for the urban floras of Italian cities (HRUSKA, 1989, 1993/1994) and for the flora of the Greek city of Patras (CHRONOPOULOS & CHRISTODOULAKIS, 2003). These data indicates that the flora assemblages (in terms of life forms and floral elements)

of Mediterranean urban areas mainly result from the general conditions of the Mediterranean climate as well as from anthropogenic impacts.

In the vascular flora of Omiš there are 17 species (2.77 %) registered as endemic according to NIKOLIĆ (2011). Most of the registered endemic species belong among Illyrian-Adriatic endemic plants (HORVATIĆ, 1963; HORVATIĆ *et al.*, 1967-1968). The urban area of Omiš has a relatively large number of endemic species, mostly resulting from their habitats: mountain-top rocks and rocky grounds within the urban areas.

According to the National Red List of Vascular Flora (NIKOLIĆ & TOPIĆ, 2005; NIKOLIĆ, 2011), 11 taxa of the flora of the town of Omiš are in some threat category. Six taxa are categorised as Endangered (EN) and five taxa as Vulnerable (VU).

Most of the endangered species grow on salty habitats by the sea (*Catapodium marinum*, *Parapholis incurva*, *Salsola kali* and *Salsola soda*) and damp habitats (*Carex extensa*, *Cyperus longus* and *Cyperus rotundus*). Such habitats are already known as being highly endangered by human activities. Species on planted fields with traditional farming (*Delphinium peregrinum* and *Hibiscus trionum*) are endangered by the disappearance of such habitats. Species growing on rocky pastures and scarce underbrush (*Ophrys apifera* and *Ophrys sphegodes*) are endangered by the natural processes of overgrowing.

The flora of town of Omiš presented in this study is Mediterranean, and in both quality and quantity is comparable to that of other cities in the Croatian littoral as well as of cities in Greece and Italy.

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## SAŽETAK

### Vaskularna flora grada Omiša

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Tijekom 2007. i 2008. istraživana je vaskularna flora grada Omiša. Na razmjerno maloj površini (3,5 km<sup>2</sup>), pronađeno je ukupno 870 svojti od kojih 614 raste samoniklo ili se subspontano širi izvan uzgoja, a 256 dolazi isključivo u kulturi. Svojte koje rastu isključivo u kulturi nisu obuhvaćene u analizi flore. Od 614 svojti, 50 svojti je bilo prethodno zabilježeno, a 564 se navode prvi put u ovome radu.

Brojem vrsta najzastupljenije su porodice *Asteraceae* s. l. (13,19%), *Fabaceae* (12,87%), *Poaceae* (11,24%). Terofiti (40,07%) su dominantni životni oblik u flori Omiša, a zatim sljede hemikriptofiti (28,34%). U spektru flornih elemenata prevladavaju biljke mediteranskog rasprostranjenja (37,95%) što je rezultat utjecaja mediteranske klime, dok je značajna zastupljenost biljaka širokog rasprostranjenja (16,78%) i kultiviranih i adventivnih biljaka (17,43%) indikator antropogenog utjecaja.

U flori Omiša je zabilježeno 17 endemičnih te 11 svojti koje su kategorizirane kao ugrožene. To pokazuje da se dio endemičnih i ugroženih svojti uspijeva održati i na sekundarnim staništima pod utjecajem čovjeka i tako povećavaju svoju šansu za opstanak.

Sastav flore Omiša, uzimajući u obzir najzastupljenije porodice, životne oblike i florne elemente, sličan je flori drugih gradova u Dalmaciji te gradova u Grčkoj i Italiji.