

ALIEN FLORA FROM DOLJ COUNTY, ROMANIA

FLORA ALOHTONĂ DIN JUDEȚUL DOLJ, ROMÂNIA

Daniel RĂDUȚOIU¹, Ioana SIMION², Violeta BORUZ²

Abstract: The areas covered by alien plants in Europe have expanded during recent years. Romania ranks 17th out of all European countries, with 740 allochthonous species. Most of these plants are classified as neophytes (703), the rest being archaeophytes (23), or archaeophyte-neophytes (14).

The analysis of alien plants on the territory of Dolj County led to the identification of 160 taxa that belong to 49 botanical families. The best represented family is Asteraceae, with 30 taxa. There is a significant gap between the family holding the first position and the following two, i.e., Amaranthaceae, with 11 taxa and Fabaceae, with 10 taxa. Even though almost half of the families with identified alien plant species have only one representative, the reality in the field shows a completely different image, as the populations of the respective taxon are abundant (e.g., *Phytolacca americana*, *Ailanthus altissima*, *Acer negundo*, *Asclepias syriaca*, etc.).

The analysis of the plant inventory revealed the presence of certain invasive taxa (*Ambrosia artemisiifolia*, *Erigeron canadensis*, *Vallisneria spiralis*, *Erigeron annuus*, *Robinia pseudacacia*), which found good development conditions on the territory of Dolj County. Some of them are of interest to the European Union (*Asclepias syriaca*, *Ailanthus altissima*, *Elodea nuttallii*). Climate changes occurred during recent years, associated with human activities in all domains, have led to obvious transformations in the chorology of some alien species on the territory of Dolj County. Xerophilous, thermophilic, heliophilous, and anthropophilic species (e.g., *Abutilon theophrasti*) are favoured.

Key-words: alien plants, invasive, Dolj, Romania.

Cuvinte cheie: plante străine, invazive, Dolj, România.

1. INTRODUCTION

Data on adventive plants in this part of Romania are found in several specialized documents that focus on the flora or vegetation of a territory (Buia, 1959, 1961, 1964; Dobrescu et al., 1962; Țopa, 1962, 1972; Păun, 1964; Morariu, 1963, 1966; Ștefureac et al., 1971; Dihoru et al., 1972, 1973; Roman, 1974; Popescu et al., 2001; Matacă, 2003; Răduțoiu, 2004, 2005, 2008; Costache, 2005) or in several works that comprise information about this plant category in Romania/Oltenia (Anastasiu & Negrean, 2005, 2007; Sîrbu & Oprea 2011;

¹ University of Craiova, Faculty of Horticulture, Department of Biology and Environmental Engineering, 13 A.I. Cuza Street, 410087, Craiova, Dolj, Romania, email: radutoiudaniel@yahoo.com (correspondent author)

² University of Craiova, "Al. Buia" Botanical Garden, 32 C-tin Lecca Street, Craiova, Dolj, Romania

Răduțoiu & Stan, 2013; Anastasiu et al., 2019, 2024; Răduțoiu & Băloniu, 2021; Răduțoiu & Niculescu, 2023; Răduțoiu, 2024).

Information on the adventive plants is necessary because of its importance in the understanding of the invasion process, on the one hand, and for the control and management of these taxa, on the other hand (Pyšek et al., 2012).

The present paper aims at achieving an inventory of adventive species in Dolj County and at supplying significant information on the distribution of these taxa, knowing that some of them undergo a luxuriant development to the detriment of the native flora (e.g., *Ailanthus altissima*, *Acer negundo*, *Ambrosia artemisiifolia*, *Elodea nuttallii*).

2. DATA AND METHODS

2.1 Area under study

Dolj County is located in the southwestern part of Romania (Fig. 1); it is bordered by Gorj County to the north, Vâlcea County to the northeast, Olt County to the east and Mehedinți County to the northwest.

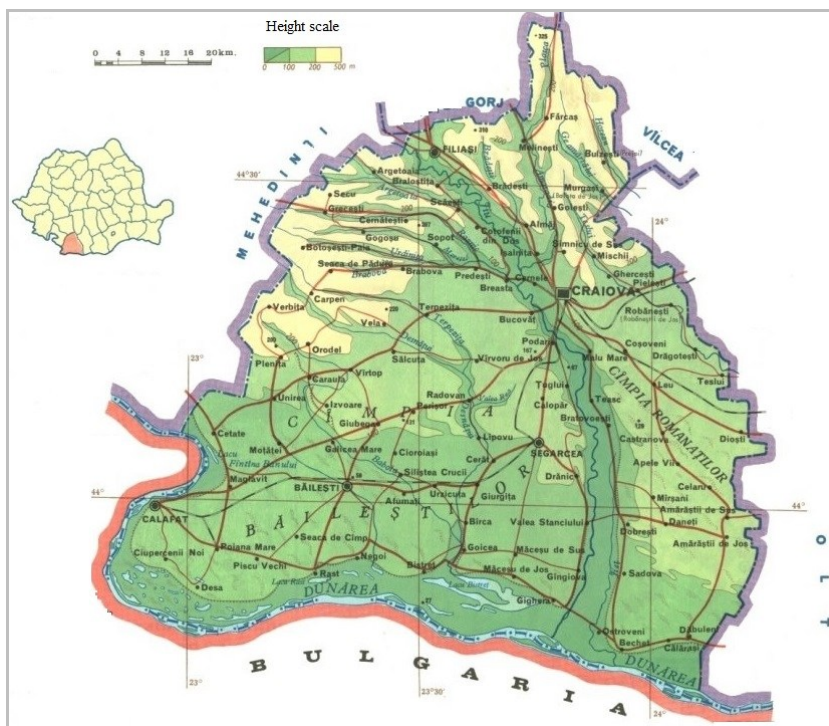


Fig. 1 General map of Dolj County

(Source: processing of Dolj County Council information)

Dolj is one of the largest counties in Romania, comprising 111 local-administrative units (LAUs): three municipalities (Craiova, Calafat, and Băilești), four towns (Filiași, Segarcea, Bechet, and Dăbuleni), as well as 104 communes

with 364 villages (without taking into account those belonging to municipalities and towns), covering an area of 7414 sq. km (NIS, 2024a). The municipality of Craiova represents the administrative center of the county.

The area under study is located in the western extremity of the structural unit known as the Moesian Platform. The deep geological drillings conducted in the area revealed the deposits of the region's foundation through formations belonging to the Silurian, Triassic, Jurassic, Cretaceous, and Neogene periods.

Dolj County is characterized by temperate – continental climate with Mediterranean influences specific to the plain area. The mean annual temperature is around 11°C in the north of the county, while in the south, it exceeds 12°C. The annual precipitation amounts varies between approximately 600 mm, in the north, at Craiova, and 530-550 mm in the south, along the Danube (NIS, 2024b).

To the south, between Cetate and Dăbuleni LAUs, the county border is represented by the Danube River; another important water course is represented by its tributary, the Jiu, which crosses the county from Filiași town to Zăval commune, covering a distance of 154 km. The Jiu River receives a number of tributaries on Dolj County territory, such as the Amaradia on the eastern side, as well as the Brabova, the Rasnic, and the Argetoaia on the western side. The easternmost river is the Teslui and the westernmost is the Sărăceaua. Moreover, the county is characterized by the presence of numerous permanent or temporary lakes and ponds (*Bistreț Lake, Fântânele, Fântâna Banului, Maglavit, Golenti, Ciuperceni, Hunia, Preajba*, etc.).

2.2. Materials

The working methodology implied numerous field trips to almost all settlements within the county, with the aim of grasping the current state and the dynamics of this type of flora. The research was conducted over a five-year period (i.e., 2019-2024), respectively between April and November of each year. There were mainly inventoried the anthropized lands, railway stations, cemeteries, roadsides, rivers and their floodplains, cultivated lands, and protected areas in the county (four SCI and eight SPA).

The information resulted from field research was subsequently compared with that in the specialized literature that comprised data about the flora within Dolj County; the aim was to observe similarities and differences that have emerged over time. A database was created and it included the personally identified taxa and those mentioned in the specialized literature. The nomenclature of the species is in accordance with the Euro+Med (2006-) and Sârbu et al. (2013).

The analyzed taxa are arranged in a taxonomic outline, in alphabetical order, which facilitates their rapid finding. The research of the taxa comprised multiple points of consideration, namely: the taxonomy, their relative abundance, the residence time, their lifespan, their origin, the bioforms, the pathway of introduction, and the invasiveness.

Abbreviations: **Life form:** Ch - Chamaephytae; G - Geophyte; H - Hemicryptophyte; Hd - Hydrophyte; HH - Helohydrophyte; PhLi - Liana; PhM -

Macrophanerophyte; PhN - Nanophanerophyte; T - Therophyte; Ht - Hemitherophyte. **Origin:** Af - Africa; Am - America; As - Asia; Atl - Atlantic; Eu - Europe; Trop - Tropical; Med - Mediterranean; N - North; E - East; S - South; W - West; C - Centre (Central). **Pathway of introduction:** a - accidental; d - deliberate. **Residence time:** arh - archaeophyte; neo - neophyte; cry - cryptogenic taxa. **Invasive status:** c = casual; n = naturalized; i = invasive. **Relative abundance:** Rare (R): less than 5 points; Scattered (S): few points (typically <20) and locally scarce; Locally abundant (L): few points but locally abundant; Common (C): widespread and often locally abundant. **Other abbreviations:** FOE - Flora Olteniae Exsiccata; corr. - corrigi; auct. - auctorum; det. - determined; leg. - legit (collected by).

3. RESULTS AND DISCUSSIONS

3.1 Results

Abutilon theophrasti Medik. (*A. avicennae* Gaertn.; *Sida abutilon* L.) - Craiova (Grecescu, 1898); common in all settlements in the south of Dolj County.

Acer negundo L. - Craiova (Tarnavski & Diaconescu, 1965); common in all settlements of Dolj County.

Achillea × *rosealba* Ehrend. (*A. setacea* × *asplenifolia*) - Costache & Răduțoiu, 2008), Seaca de Câmp and Rast (Dolj County) (Răduțoiu & Costache, 2008), Malu Mare, Valea Stanciului.

Agrostemma githago L. - Călugărei, Bechet, Orodel - on cultivated areas, Rastu Vechi.

Ailanthus altissima (Mill.) Swingle - Plaiul Vulcăneștilor near Craiova, around vineyards, Ciupercenii-Noi (Călinescu, 1942), Pisculeț (Sanda et al., 1983, quoted by Decă et al., 2006); Craiova, Calafat, Băilești, Bistreț, Cârna, Gighera, Zăval, Filiași, Brădești, Bratovoiești, Fratoșțița, Ciutura, Ciupercenii Noi, Comoșteni, in all settlements of Dolj County. Desa, Piscu Vechi, Pisculeț, Ghindeni, Călugărei, Orodel, Terpezița, Râpa Roșie, Cornu, Teiu, Bechet, Gubauea, Suharu, Geblești - common throughout the county.

Amaranthus × *theveneau* Deg. et Thell. (*A. deflexus* var. *rufescens* × *crispus*) - Calafat (Ciocârlan, 2006).

Amaranthus albus L. - Malu Mare, Ghindeni, Secui, Tâmburești, Ocolna, Dăbuleni, Ogrin, Ianca (Buia & Păun, 1958), Obedeanu Fountain (Maloș et al., 1960-FOE-48), Ișalnița (Popescu et al., 1997), Craiovița Pond (Ro: *Balta Craiovița*) (Prodan, 1950, from Sîrbu & Oprea, 2011), Romanai, Studina forest (Prodan, 1950, from Sîrbu & Oprea, 2011), Piatra Olt (Nyárady, 1950, from Sîrbu & Oprea, 2011), Jieni (Șerbănescu, 1952, from Sîrbu & Oprea, 2011), Băilești (Șerbănescu, 1951, from Sîrbu & Oprea, 2011), Craiova (Grințescu, 1953 from Sîrbu & Oprea, 2011; Prodan, 1950, from Sîrbu & Oprea, 2011; Maloș et al., 1948 from Sîrbu & Oprea, 2011), Desa, *La 4 Cioace* Monitoring Cabin, Pietrele (Negrean, 1979; Costea, 1998), Craiova, Filiași, Băilești, Calafat, Pielești, Moțăței, Dobridor, Dobrotești, Amărăștii de Jos, Amărăștii de Sus, Zvorsca, Daneți, Mârșani,

ROSCI0038 *Ciuperceeni-Desa*, ROSCI0045 *Coridorul Juilui* (Negoi, Bistreț, Cârna, Nedeia, Săpata, Măceșu de Jos, Gighera, Ostroveni, Bechet, Malu Mare).

Amaranthus blitoides S. Watson - Afumați, Cerăt, Portărești, Giurgiza, Bârca, Măceșul de Sus (Cârțu & Cârțu, 1972), Ișalnița (Popescu et al., 1997), Jieni (leg. Șerbănescu 1952, sub. *A. albus*!).

Amaranthus crispus (Lesp. et Thévenau) J. M. Coult. & S. Watson - Craiova (Grințescu, 1911 from Sîrbu & Oprea, 2011) (Morariu, in Săvulescu, 1952), Craiova (Cârțu & Cârțu; 1965-FOE 406).

Amaranthus cruentus L. (*A. paniculatus* L.; *A. hybridus* L. subsp. *cruentus* (L.) Thell. var. *paniculatus* (L.) Thell.; *A. sanguineus* L. p. p.) - Banu Mărăcine (Beldie, 1977).

Amaranthus deflexus L. (*Albersia deflexa* (L.) Fourr.; *A. prostrata* Kunth) - Craiova (leg. Cârțu, 1972), Filiași (leg. Nyárády A. 1961) (Costea, 1998), Craiova.

Amaranthus hypochondriacus L. - Dobridor, Craiova.

Amaranthus palmeri S. Watson - Craiova, Băilești, Voita-Brabova (Dolj County).

Amaranthus powellii S. Watson (*A. chlorostachys* Willd.; *A. hybridus* L. subsp. *chlorostachys* (Willd.) Hejn.; *A. hybridus* L. subsp. *hypochondriacus* (L.) Thell. var. *chlorostachys* (Willd.) Thell.; *A. hybridus* L. var. *pseudoretroflexus* (Thell.) Carretero; *A. hypochondriacus* L. var. *chlorostachys* sensu Morariu in Săvulescu (ed.); *A. hybridus* sensu Aellen in Tutin et al. (eds.)) - Malu Mare (leg. Negrean 1978), Ciuperceeni Vechi (leg. Negrean 1979) (Costea, 1998); common in all settlements of Dolj County.

Amaranthus retroflexus L. - Craiova (Grecescu, 1898), the sandy areas located on the left of the Jiu River (Buia & Păun, 1958), Dăbuleni, Ianca (Popescu, 1991), Ișalnița (Popescu et al., 1997), Studina, Romanai (leg. Zahariadi, 1951), Calafat Oraș (leg. Negrean 1956), Desa (leg. Negrean 1979), Poiana Mare (leg. Negrean 1979), Sălcuța (leg. Negrean 1978) (Costea, 1998); common in all settlements of Dolj County.

Amaranthus viridis L. (*A. gracilis* Poir.) - Craiova.

Ambrosia artemisiifolia L. (*A. elatior* L.) - Craiova (Costache et al., 1998), without location, (Ciocârlan, 2000), Băilești, Calafat (Popescu et al., 2003), Ișalnița (Popescu et al., 1997), Cetate (Răduțoiu et al., 2005); Filiași, Brădești, Poiana Mare, Segarcea, Bistreț, Măceșu de Jos, Plosca, Ostroveni, Bechet, Dăbuleni (Hodișan & Morar, 2008); common in all settlements of Dolj County.

Amorpha fruticosa L. - in the main river floodplains within Dolj County; sometimes also along the roads.

Anethum graveolens L. - Rast.

Antirrhinum majus L. - Craiova.

Apium graveolens L. - Craiova, Calopăr (Beldie, 1977).

Aquilegia vulgaris L. - Preajba, Malu Mare, Craiova, Filiași, Braloștița.

Armoracia rusticana P. Gaertn., B. Mey. et Scherb. (*A. lapathifolia* auct.) – Breasta.

Artemisia annua L. - Rast, Leamna de Jos (Nyárády, in Săvulescu, 1964); the ash dumps from Ișalnița, Zvorsca, Amărăștii de Sus, Amărăștii de Jos, Dobrotești.

Asclepias syriaca L. - Rast, Braloștița, Hunia, Maglavit, Cetate, Ciuperceni, Nebuna, Desa, Pisculeț, Desa, Piscu Vechi, Ghindeni.

Asperula orientalis Boiss. et Hohen. (*A. azurea* Jaub. et Spach) - Tâmburești (Buia et al., 1961; Morariu, 1979) and between Craiova and Craiovița Pond (Buia & Păun, 1961) (Oprea, 2005).

Atriplex hortensis L. - Rast, Negoii, Catane, Bistreț, Moțăței, Dobrotești, Amărăștii de Sus, Călugărei.

Avena sativa L. - few specimens found in numerous settlements within the county (e.g., Almăj).

Azolla filiculoides Lam. - in the Danube Floodplain between Calafat and Bechet towns, the "Al. Buia" Botanical Garden (Popescu et al., 2001), Rast.

Bassia scoparia (L.) A. J. Scott (*Kochia scoparia* (L.) Schrad. *Chenopodium scoparia* L.) - Apele Vii, Mârșani, Ghindeni, Malu Mare (Buia & Păun, 1964), Bratovoiești, Celaru, Zvorsca, Amărăștii de Sus, Dobrotești, Daneți, ROSCI0038 *Ciuperceni-Desa*, ROSCI0045 *Coridorul Jiului* (Bechet, Secui, Piscu Sadovei, Sadova, Malu Mare) (incl. *K. scoparia* var. *densiflora* Moq. in DC.) - DJ: Craiova (Popescu et al., 2003), Copanița island (Niculescu et al., 2022).

Bidens frondosa L. - common in floodplain of the Danube and in those of the main rivers (e.g., the Jiu), Preajba.

Brassica juncea (L.) Czern. (*B. nigra* × *rapa*) - between Băilești and Siliștea Crucii (Popescu, 1979);

Broussonetia papyrifera (L.) Vent – Craiova, in the park located near the Chemistry High School and in the "Al. Buia" Botanical Garden.

Buddleja davidii Franch. - Craiova.

Cannabis sativa L. subsp. *sativa* - Băilești (through forest clearings and on sandy areas) (Grințescu, in Săvulescu, 1952) ROSCI *Ciuperceni-Desa*, Băilești, ROSCI0045 *Coridorul Jiului*.

Catalpa bignonioides Walter - Craiova.

Celtis australis L. N. Romanescu Park – Craiova

Centaurea solstitialis L. - common in all settlements of Dolj County.

Commelina communis L. - Mileni (sub *C. coelestis*) (Țopa, in Borza, 1944 - FRE 2642), Craiova (Țopa, in Săvulescu, 1966).

Cucurbita pepo - Cârcea.

Cuscuta campestris Yunck. (*C. glabrior* auct. rom., non (Engelm.) Yunck.; *C. pentagona* auct. rom., non Engelm.; *C. gymnocarpa* Engelm. subsp. *deflexa* Buia; *C. basarabica* Buia; *C. arvensis* auct.) - Craiova, Filiași, Maglavit, Ciuperceni, Segarcea (Buia, 1938-1939), Perișoru, Radovanu (sub *C. pentagona*) (Buia, 1938), Dăbuleni, Ianca (Popescu, 1991); common in all settlements of Dolj County.

Cuscuta suaveolens Ser. - (Buia, 1938). It is also mentioned from Valea Rea (Dolj County) (Cârțu, 1970; Beldie, 1979).

Cyanus segetum Hill (*Centaurea cyanus* L.) - common in all settlements within Dolj County.

Cydonia oblonga Mill. (*C. vulgaris* Pers.) - Plaiul Vulcăneștilor (subspont.) (Călinescu, 1942), Podari, Palilula, Braniște, Bucovăț, Breasta, Preajba, Gogoșu, Călugărei, Orod, Carpen, Cornu, Geblești, Plenița, Cetate, Caraula, Cornu, Teiu, Verbiciuoaara, Verbița, Castrele Traiane, Gubaucea, Bucovicior, Suharu, Vela, Brabove, Terpezița, Sălcuța, Predești, Breasta, Vârvor, Vârvoru de Jos, Mărăcinele, Fântânele and in all settlements located in Dolj.

Cymbalaria muralis P. Gaertn., B. Mey. et Scherb. (*Linaria cymbalaria* (L.) Mill.) – Craiova.

Cyperus difformis L. - Tâmburești (leg. Păun et al., 1970-FOE 775), between Filiași and Zăval (Rojiște, Tâmburești, Dobrești, Sadova, in *Echinochloa-Oryzetum sativae* Soó et Ubrizsy 1948 *cyperetosum difformis*) (Păun & Popescu, 1974), Gighera (Cârțu & Cârțu, 1972); Copanița island (Niculescu et al., 2022).

Cytisus scoparius (L.) Link. (*Sarothamnus scoparius* (L.) Wimm. ex W. D. J. Koch; *Spartium scoparium* L.) - Ghindeni Forest, Radovan.

Datura innoxia - Craiova.

Datura stramonium L. - Craiova (Grecescu, 1898); Craiova, Secui, Teasc, Cerăt, Segarcea, Booveni, Bistreț, Bechet, Calopăr, Cleanov, Cioroiși, Bulzești, Coțofenii din Față, Cârna, Câmpeni, Robănești, Criva, Dobromira, Amărăștii de Jos, Amărăștii de Sus, Zvorsca, Dobrotești, Apele Vii, Celaru, Leu, Coșoveni, Podari, Daneți, Mârșani, Preajba, Dobromir, Mățăței, Sopot, Călugărei, Bechet, Orod, Cornu, Terpezița, Verbița, Plenița, Carpen, Geblești.

Datura wrightii Regel – Craiova, Sârsca, Sopot, Poiana Mare, and Potmelțu.

Dracocephalum moldavica L. (*Moldavica suaveolens* Gilib.; *M. punctata* Moench) - DJ: (without location) (Doltu et al., 1984).

Dysphania ambrosioides (L.) Mosyakin & Clemants (*Chenopodium ambrosioides* L.) - at the confluence of the Jiu and the Danube rivers (Oprea et al., 2005), Teslui.

Dysphania botrys (L.) Mosyakin & Clemants (*Chenopodium botrys* L., *Roubieva botrys* Fuss) - Craiova in Breasta forest (Brândză, 1879-1883) - ROSCI0038 *Ciuperceni-Desa*, on sands.

Dysphania multifida (L.) Mosyakin & Clemants - Ciupercenii Noi (Păun, 1967-FOE 618), Calafat (Negrean, 1987), Dăbuleni (Popescu, 1991), Tâmburești, Desa, Pisculeț, Teslui, on the banks of the Jiu River.

Dysphania schraderiana (Schult.) Mosyakin & Clemants (*Chenopodium schraderianum* Schult., *Ch. foetidum* Schrad., non Lam.) - Craiova (Buia, in Săvulescu, 1952).

Echinochloa colona (L.) Link. – Copanița island (Niculescu et al., 2022).

Echinochloa oryzoides (Ard.) Fritsch (*Panicum oryzoides* Ard.; *P. phyllopogon* Stapf; *E. phyllopogon* (Stapf) Stapf ex Koss.; *E. hostii* Link; *E. macrocarpa* Vasing.; *E. crus-galli* (L.) Beauv. subsp. *oryzoides* Bolos & Masclans; *E. crusgalli* (L.) Beauv. var. *macrocarpa* (Vasing.) Morariu in Săvulescu) - between Filiași and Zăval: Rojiște, Tâmburești, Dobrești, Sadova (in *Echinochloa-Oryzetum sativae* Soó et Ubrizsy 1948) (Păun & Popescu, 1974).

Echinocystis lobata (Michx.) Torr. et A. Gray (*E. echinata* (Muhl.) Britt., Sterns et Pogg.; *Momordica echinata* Mühl. ex Willd.; *Sicyos lobata* Michx.; *Micrampelis lobata* (Michx.) Greene) – Secui, Rast, spread on Copănița island (Niculescu et al., 2022).

Eclipta prostrata (L.) L. (*E. alba* (L.) Hassk.) - Copanița island (Niculescu et al., 2022).

Elaeagnus angustifolia L. - Bechet, Calafat, Desa, Pisculeț and on the sandy surfaces located on the left side of the Jiu River, planted on the irrigation canals and subsequently subsponaneous.

Eleusine indica (L.) Gaertn. - Craiova, Rastu Vechi.

Elodea canadensis Michx. - Damian-Sadova (Buia & Păun, 1964), Dobrești, Murta (Buia, 1959; Buia & Maloș, 1963), Tâmburești, (Buia & Maloș, 1963), Căciulătești, Raeti, Piscul Sadovei, Damian (*Elodeetum canadensis* Egler 1933) (Păun & Popescu, 1973), between Ciupercenii Vechi and Ghidici (the Danube Floodplain) (Rudescu et al., 1977), Drănic.

Elodea nuttallii (Planch.) H. St John (*Anacharis nuttallii* Planch.; *E. canadensis* var. *angustifolia* (Muhl.) Asch. et Graebn.) - Nebuna (Oprea et al., 2005), often in the ponds located within the Danube Floodplain (Oprea, 2005); Piscu Sadovei, Sadova, Drănic, Gighera.

Erigeron annuus (L.) Pers. (*Aster annuus* L.; *Stenactis annua* (L.) Ness.) - Apele Vii, Marotinul de Sus (Buia & Păun, 1958), Desa (Doltu et al., 1983), Ișalnița (Popescu et al., 1997), Bratovoști forest (Popescu et al., 1998); ***Erigeron annuus*** (L.) Pers. subsp. ***strigosus*** (Muhl. ex Willd.) Wagenitz: - Ișalnița (Popescu et al., 1997), Bașcov, Cetate (Răduțoiu et al., 2005), common in all settlements of Dolj County.

Erigeron bonariensis L. – the sandy areas from Dăbuleni (CRA herbarium material).

Erigeron canadensis L. (*Conyza canadensis* (L.) Cronq.) - sandy areas located on the left of the Jiu river - Tâmburești, Ocolna, Măgura Verde, Zvorsca, Propor forest, (Buia & Păun, 1958), Dăbuleni (Popescu, 1991), Ișalnița (Popescu et al., 1997), Craiova, Obdeanu Fountain (Săndulescu & Pădure, 2003); common in all settlements of Dolj County.

Erigeron sumatrensis Retz. - Rastu Vechi, through ditches and on the roadside, Craiova – ruderal places, Copanița island (Niculescu et al., 2022).

Eruca vesicaria (L.) Cav. (*E. sativa* Mill.) - Mofleni (Nyárády, in Săvulescu, 1955), Radovan.

Euphorbia maculata L. (*Chamaesyce maculata* (L.) Small, *Euphorbia maculata* L.) - DJ: Craiova (Prodan, in Săvulescu, 1953), Lișteava (Roman, 1960), Ișalnița (Popescu et al., 1997), Cernele (Buia & Păun, 1964), between Calafat and Ciupercenii Vechi (Păun, 1967), Bechet (Oprea et al., 2005); common in all settlements of Dolj County.

Euphorbia marginata Pursh (*E. variegata* Sims; *Agaloma marginata* (Pursh) A. Löve et D. Löve) - Secui, Almăj, Moșneni; observed as a plant

cultivated for ornamental purposes in the settlements of Daneți, Dobrotești, Gogoșu, Ștefănel, Sopot, Sârsca, etc.

Euphorbia prostrata - Craiova - GB.

Euthamia graminifolia (L.) Nutt. - Craiova - "Al. Buia" Botanical Garden.

Fallopia baldschuanica (Regel) Holub (*Fallopia aubertii* (L. Henry) Holub (*Polygonum aubertii* L. Henry; *P. baldschuanicum* auct., non Regel; *Reynoutria aubertii* (L. Henry) Moldenke; *Bilderdykia aubertii* (L. Henry) Moldenke) - Craiova: "Al. Buia" Botanical Garden.

Ficus carica L. - Preajba, Craiova,

Fimbristylis bisumbellata (Forssk.) Bubani (*F. dichotoma* auct., non (L.) Vahl) – westward of Lișteava, northwestward of Căciulătești, Gura Jiului, Segarcea (Roman, 1960), northwestward of Craiova (Obedeanu Fountain) (Roman, 1960), Obedeanu Fountain (sub *F. dichotoma* (L.) Vahl) (Păun, 1965 - FRE nr. 484), Desa, Nebuna, Ciupercenii Noi, Calafat (Păun, 1967), "La Patru Cioace Pietrele" (Negrean, 1973, quoted by Dihoru & Negrean, 2009); the outskirts of Calafat municipality.

Foeniculum vulgare Mill. - Oltenia: (without location) (Borza, 1947); between Rast and Băilești, on the side of the road.

Fraxinus pennsylvanica Marshall - Craiova, Copanița island (Niculescu et al., 2022).

Galinsoga parviflora Cav. (*G. quinquerradiata* Ruiz et Pav.; *Adventina parviflora* Raf.) - Craiova (FOE 42), Dăbuleni (Popescu, 1991); common in all settlements of Dolj County.

Galinsoga quadriradiata Ruiz et Pav. - common in all settlements of Dolj County, especially within vegetable gardens.

Gleditsia caspica Desf. - Zvorsca, Gogoșu, Ștefănel.

Gleditsia triacanthos L. - DJ: Romula forest, Bratovoiești forest (Popescu et al., 1998), Radovan, Craiova, Preajba, Teslui, Secui, Cârcea, Coșoveni, Rast, Ghidici, Desa, Poiana Mare, Ciupercenii Noi, Ciupercenii Vechi, Daneți, Dobrotești, Amărăștii de Sus, Amărăștii de Jos, Zvorsca.

Helianthus annuus - in settlements located within the Danube Floodplain.

Helianthus tuberosus L. (*H. tomentosus* Michx.; *H. subcanescens* (A. Gray) E. E. Watson) – Carpen, Căciulătești, Cârlichei, Brădești, Cernătești, Bulzești, Daneți, Amărăștii de Sus, Zvorsca, Dobrotești, Celaru, Apele Vii, Gogoșu, Ștefănel, Sopot, Sârsca, on the banks of the Balasan river at Moțăței and Dobridor.

Helminthotheca echioides (L.) Holub - Craiova - "Al. Buia" Botanical Garden.

Hemerocallis fulva (L.) L. - Lazu, Preajba, near the town of Filiași.

Juglans nigra L. - Dăbuleni, Ocolna, Mârșani (Doltu et al., 1983), Cârcea.

Juglans regia L. - Plaiul Vulcăneștilor near Craiova (Călinescu, 1941), the Olteț Valley (Păun et al., 1971; Buia, 1959, quoted by Oprea, 2005), Craiova, Teslui, Secui, Bâzdâna, Beharca, Booveni, Coșoveni, Cernătești, Desnățui, Dobromira, Moțăței, Amărăștii de Sus, Amărăștii de Jos, Dobrotești, Zvorsca, Celaru, Apele Vii, Daneți, Preajba, Gogoșu, Ștefănel, all settlements located in Dolj.

Juncus tenuis Willd. (*J. macer* S. F. Gray) – Bucovicior, Cârlichei, Dobromira, Rojiște.

Koeleria paniculata Laxm. - Craiova (Tarnavski & Diaconescu, 1964-1965).
Lathyrus aphaca L. - DJ: Zăval (Cârțu, 1970, citat de Oprea, 2005);
 Picăturile, Murgăși.
Lemna minuta Kunth. - Gighera.
Lepidium densiflorum Schrad. (*L. neglectum* Thell.; *L. ramosum* A. Nelson)
 - Zăval (FOE no. 951, IAGB 18180, leg. Păun 21.VI.1976, sub *L. virginicum*, corr. Sîrbu, 2006; BUAG 19189, leg. Păun, 21.VI.1976, sub *L. virginicum*, corr. Ciocârlan, 3.VII.1998; BUCAR 282869, leg. Păun, 21.VI.1976, corr. Negrean 2001);
 Malu Mare south of Craiova (leg. Negrean 1978, including sub *L. neglectum*)
 (Negrean, 1980, 1987).
Lepidium virginicum - Craiova.
Lolium multiflorum Lam. (*L. italicum* A. Braun) - Craiova (Nyárady A. et al. 1961, quoted by Oprea, 2005).
Lycium barbarum L. (*L. halimifolium* Mill.; *L. vulgare* Dunal) - Ianca (Buia & Păun, 1958), Valea Rea (Doltu et al., 1983); Amărăștii de Sus, Zvorskă, Dobrotești, Apele Vii, Celaru, common in all settlements of the county.
Lycopersicon esculentum Mill. (*Solanum lycopersicum* L.) – Rastu Vechi, Cârcea.
Maclura pomifera (Raf.) C. K. Schneid. – Craiova, Plaiul Vulcănești, Radovan, between Leu and Coșoveni, Cârcea, Banu Măracine.
Malva trimestris (L.) Salisb. (*Lavatera trimestris* L.) - Preajba, Malu Mare.
Malva verticillata L. (*M. crispa* (L.) L.) - DJ: Craiova (sub *M. crispa*) (Cârțu, 1970).
Matricaria discoidea DC. (*Chamomilla suaveolens* (Pursh) Rydb. *Matricaria suaveolens* (Pursh) Buchenau, non L.; *M. discoidea* DC.; *M. matricarioides* (Less.) Porter p. p.) - Leamna de Jos (Nyárady, in Săvulescu, 1964).
Medicago sativa L. subsp. *sativa* - DJ: Obedeanu (Doltu et al., 1983); Braniște, Râpa Roșie, Terpezița, Vela, Răcari, Braniște, Gogoșu, Călugărei, Orodel, Carpen, Geblești, Cornu, Sălcuța, Galicea Mare, Giubega, Perișor.
Mentha x piperita - Preajba, Cârcea.
Morus alba L. - Ocolna, Dăbuleni (Buia & Păun, 1964), common in all settlements of the county.
Morus nigra L. - Dăbuleni, Ocolna, Mârșani (Doltu et al., 1983).
Nicandra physalodes (L.) Gaertn. - DJ: (without location) (Oprea, 2005).
Nonea lutea (Desr.) DC. – "Al. Buia" Botanical Garden.
Oenothera biennis L. - Ișalnița (Popescu et al., 1997); Murta, Motoci, Segarcea, Zvorskă, Dobrotești, Daneți, Mârșani, Mofleni, Craiova.
Oenothera glazioviana Micheli (*O. erythrosepala* Borbás; *O. lamarckiana* auct., non Sér.) - Copanița island (Niculescu et al., 2022), Dăbuleni, Desa, Pisculeț, Tunari, Poiana Mare; common in the acacia plantations within ROSAC0039 Ciuperceni Desa.
Oenothera rosea Aiton - Amărăștii de Sus, Dobrotești.
Oxalis corniculata L. (*Xanthoxalis corniculata* (L.) Small.) - common in all settlements within Dolj County.

Oxalis dillenii Jacq. (*O. navieri* Jord.; *O. stricta* sensu Young, in Tutin et al. 1969, non L.) - Craiova.

Oxalis stricta L. (*O. europaea* Jord.; *O. fontana* Bunge; *Xanthoxalis stricta* (L.) Small.; *X. europaea* (Jord.) Mold.) - Ișalnița (Popescu et al., 1997); Rojiște, Preajba, Malu Mare, Craiova, Calafat.

Panicum capillare L. - Craiova (cultivated, popularized) (Grecescu, 1898), Nedeia, Zăval (Cârțu & Cârțu, 1972), Ișalnița, (Popescu et al., 1997); Copanița island (Niculescu et al., 2022), Teslui, Secui, Craiova.

Panicum dichotomiflorum Michx. – Craiova (Negrean & Karácsonyi, 1984); Craiova.

Panicum miliaceum L. - Copanița island (Niculescu et al., 2022).

Papaver somniferum L. - Maglavit, Cetate, Hunia.

Parthenocissus inserta (A. Kerner) Fritsch (*P. vitacea* (Knerr) A. S. Hitchcock; *Ampelopsis hederacea* Mchx., non DC.) – the port of Calafat.

Parthenocissus quinquefolia (L.) Planchon (*Hedera quinquefolia* L.; *Ampelopsis hederacea* DC.) – Castranova, Puțuri.

Parthenocissus tricuspidata (Sieb. et Zucc.) Planchon (*Ampelopsis tricuspidata* Sieb. et Zucc.) - Craiova.

Paspalum distichum L. (*Paspalum paspalodes* (Michx.) Scribn., *Digitaria paspalodes* Michx.) - near the port of Rast.

Paulownia tomentosa (Thunb.) Siebold & Zucc. - Dăbuleni.

Physalis alkekengi L. - Leamna (Brândză, 1879-1883), Craiova (Grecescu, 1898); Coșoverni, Bratovoiești, Foișor.

Phytolacca americana L. (*Ph. decandra* L.) - Craiova (Grecescu, 1898), Maglavit (Grecescu, 1898), the sandy areas on the left of the Jiu River, Măgura Verde near Ogrin (Buia & Păun, 1958; 1964), Izvoarele, Poiana Mare, Tunarii Vechi, Calafat (Păun, 1967), Bratovoiești (Popescu et al., 1998), Tâmburești (Cârțu & Cârțu, 1964 - herb IASI; FOE nr. 619), Rast (Oprea, 2005), Bașcov (Răduțoiu et al., 2005), Copanița island (Niculescu et al., 2022), Ghindeni, Preajba, Bratovoiești, Bâzdâna, Drănic, Dudovicești, Gângiova, Gârlești, Ghercești, Lazu, Leamna de Jos, Mischii, Melinești, Meteu, Motoci, Moțăței, Murgași, Murta, Negoiești, Obedin, Ostroveni, Rasnicu Oghian, Rast, Perișor, Pielești, Picăturile, Piscu Sadovei, Sadova, Piscu Vechi, Rojiște, Șitoaia, Spineni, Sopot, Sfârcea, Secui, Salcia, Sășcuța, Tencănaș, Terpezița, Zănoaga, Zăval, Urdinița, Vârtop, Vela, Verbița, Viișoara, Zăval, Poiana Mare, Răcari, Daneți, Mârșani, Amărăștii de Sus, Amărăștii de Jos, Dobrotești, Zvorsca, Celaru, Apele Vii, Gogoșu, Ștefănel, Sopot, Sârșca, Dobridor, Ciupercenii Noi, Ciupercenii Vechi, Desa, Piscu Vechi, Pisculeț, in all acacia forests within ROSCI0039.

Polycarpon tetraphyllum (L.) L. - Craiova.

Polypogon monspeliensis (L.) Desf. - the Teslui, on the islet, Zăval.

Populus* × *canadensis Moench (= *P. deltoides* × *nigra*; *P. marilandica* Bosc ex Poir.) - in the Danube Floodplain it is very resistant to long-lasting flooding.

Portulaca grandiflora Hook. - Malu Mare, Bădoși, Daneți.

Portulaca oleracea L. - common in all settlements located in Dolj County.

Potentilla indica (Jacks.) Th. Wolf (*Duchesnea indica* (Andrews) Focke) – Craiova.
Prunus cerasifera Ehrh. - common in all settlements located in Dolj County.
Prunus cerasus L. - Rast, Ghidici, Piscu Vechi.
Reynoutria japonica Houtt. (*Polygonum cuspidatum* Sieb. et Zucc.; *Fallopia japonica* (Houtt.) Ronse Decr.) - Craiova, Leamna, Braloștița, Craiova: "Al. Buia" Botanical Garden.

Ricinus communis - Cârcea.

Robinia pseudoacacia L. - According to Enculescu (1923), quoted by Călinescu (1941), in the second half of the 19th century, extensive acacia plantations were established by Prince Al. Știrbei, at Băilești (1852) and by Prince Obrenovici, la Desa (1860-1870), in order to stabilize the moving sands within Oltenia (Dolj County). Dăbuleni, Ianca (Popescu, 1991), Romula forest, Bratovoiești forest (Popescu et al., 1998); common in all settlements of Dolj county.

Rudbeckia laciniata L. - Terpezița.

Salvia sclarea L. - Oltenia (Prodan, 1939), Maglavit (Prodan, 1939), Ciuperceni (Buia, 1959); Băilești, Șitoaia, Radovan, Lipovu de Sus, Lipovu de Jos.

Sedum sarmentosum Bunge – Leu cemetery, Craiova.

Sicyos angulatus L. – Plaiul Vulcănești, Copănița island (Niculescu, 2022).

Sigesbeckia orientalis L. – the sandy areas located on the left of the Jiu river (Apele Vii) (within acacia plantations) (Buia & Păun, 1958), Tâmburești, Sadova, Dăbuleni, Cernele (Buia & Maloș, 1963; Buia & Păun, 1964).

Silybum marianum (L.) Gaertn. (*Carduus marianus* L.) - Calafat, Maglavit, Moțăței, Poiana Mare, Seaca de Câmp (Tiță, 1990, quoted by Oprea, 2005), Bașcov (Răduțoiu et al., 2005).

Sinapis alba L. subsp. ***alba*** - Craiova (Grecescu, 1898); ***Sinapis alba*** L. subsp. ***dissecta*** (Lag.) Bonnier (*Sinapis dissecta* Lag.) - Craiova (Doltu et al., 1983).

Solidago canadensis L. - Dobromira.

Solidago gigantea Aiton (*S. serotina* Aiton; *S. gigantea* subsp. *serotina* (Kuntze) McNeill) - Terpezița, Dobrotești, Teasc.

Sorghum halepense (L.) Pers. - Mofleni (Motaș et al. 1960-herb. IASI), Dăbuleni (Popescu, 1991) (Oprea, 2005); common in all settlements of the county, on cultivated lands and ruderal places.

Symphyotrichum lanceolatum (Willd.) G. L. Nesom - Copănița island (Niculescu et al., 2022), Bechet, on the banks of the Balasan river at Moțăței, the Preajba lacustrine complex.

Symphyotrichum novi-belgii (L.) G. L. Nesom - Ghindeni, Craiova.

Tanacetum parthenium (L.) Sch. Bip. - Ciupercenii Noi.

Taxodium distichum L. C. M. Richard - along certain canals within Bratovoiești forest and at Malu Mare (the Jiu floodplain), as well as in Murta forest (Sîrbu & Oprea, 2011).

Trifolium hybridum L. (*T. fistulosum* Gilib.) - Craiova (incl. *T. elegans*), Robănești (Grecescu, 1898).

Trifolium incarnatum L. subsp. ***incarnatum*** (*T. incarnatum* L. var. *sativum* Ducomm.) - Popoveni-Craiova (Cârțu et al., 1972, quoted by Oprea, 2005).

Trigonella caerulea (L.) Ser. (*Melilotus coerulea* (L.) Desr.) - Zăval (Grințescu, in Săvulescu 1957).

Vallisneria spiralis L. - the ponds of the Danube, which are located near Rast and Bistreț (Popescu et al., 2001), Preajba, Desa.

Veronica acinifolia L. - Radovan at Valea Rea (Popescu et al., 2003, quoted by Oprea, 2005).

Veronica peregrina L. - *Prundu cel Mare* near Calafat (sands) (Buia et al., 1960), Desa (leg. Buia & Pop), Rast (Răduțoiu A., 2008; Răduțoiu & Costache, 2008); Rastu Vechi.

Veronica persica Poir. (*V. byzantina* (Sibth. et Sm.) Degen; *V. tournefortii* C. C. Gmel. pro parte, non Vill.; *V. buxbaumii* Ten., non F. W. Schmidt; *V. filiformis* Baumg. et auct. transs., non Sm.) - Craiova (Buia & Popescu-Mihăilă, 1952; Oprea, 2005), Ciupercenii Noi, Craiova, Obedeanu (herb. CRA) (Răduțoiu, 2008); Radovan, Valea Rea, Bucovăț, Ciupercenii, common in all settlements located in Dolj County.

Vicia lutea L. - Preajba, Boureni, Băilești.

Vicia sativa L. - Craiova (Grecescu, 1898).

Xanthium orientale L. subsp. *italicum* (Moretti) Greuter - DJ: Baba Opiřiți Sandbank at the Danube (Prodan, 1939), Ișalnița (Popescu et al., 1997), Valea Rea (Cârțu, 1971-herb. IASI), Șimnic, Craiova (Cârțu, 1975), Dăbuleni (Popescu, 1991), Bratovoești forest (Popescu et al., 1998), Cetate (Răduțoiu et al., 2005), common in all settlements of Dolj County.

Xanthium orientale L. subsp. *orientale* - (without location) (Doltu et al., 1983).

Xanthium spinosum L. (*Acanthoxanthium spinosum* (L.) Fourr.) – Plosca, Poiana Mare, Popânzălești, Sălcuța, Tâmburești, Teasc, Tencănaș, Toceni, Vela, Șitoaia, Tunarii Vechi, Urzicuța, Zvorsca, Zăval, Zănoaga, Răcari, Rasnicu Oghian, Pielești, Perișor, Daneți, Mârșani, Amărăștii de Sus, Amărăștii de Jos, Zvorsca, Dobrotești, Nisipuri, Celaru, Apele Vii, Gogoșu, Ștefănel, Sopot, Sârșca, on the banks of the Balasan river.

3.2 Discussions

A total number of 160 taxa belonging to 49 botanical families have been identified to the date on the territory of Dolj County. According to the number of representatives, the first place is held by the family Asteraceae, with 30 taxa, while the following places belong to the families Amaranthaceae, Fabaceae, Poaceae, etc. (Fig. 2). The rest of the families have less than three representatives. Out of the total 49 botanical families, 22 have only one representative. Nevertheless, many of the taxa belonging to the latter botanical families have much larger development areas compared to the representatives of families characterized by a higher number of species (e.g., *Phytolacca americana*, *Ailanthus altissima*, *Acer negundo*, *Asclepias syriaca*). The genus with the best representation is *Amaranthus*.

The analysis of the plant inventory revealed the presence of 61 taxa that are included on the list of invasive or potentially invasive species in Romania: *Vallisneria spiralis*, *Solidago gigantea*, *Matricaria discoidea*, *Artemisia annua*,

Cuscuta campestris, *Echinocystis lobata*, *Abutilon theophrasti*, *Oxalis corniculata*, *Oenothera biennis*, *Robinia pseudoacacia*, *Amorpha fruticosa*, *Amaranthus powellii*, *Bassia scoparia*, *Phytolacca americana*, *Azolla filiculoides*, etc. (Fig. 3).

Some of these are species of concern for the European Union: *Ailanthus altissima*, *Elodea nuttallii*, and *Asclepias syriaca*.

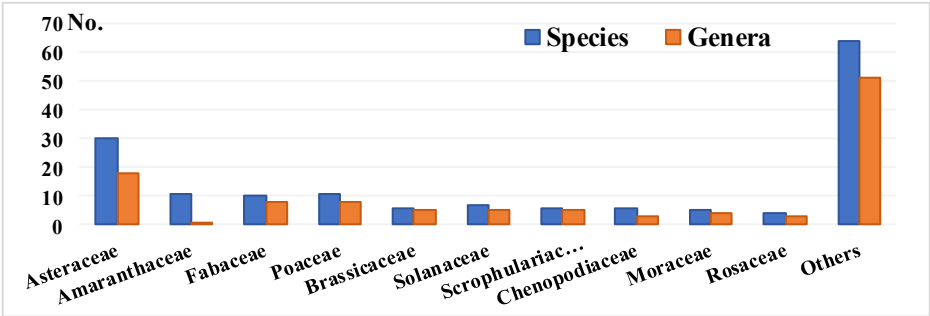


Fig. 2 Spectrum of the families of alien plant species identified in Dolj County, which are characterized by more than three taxa

By analyzing the lifespan of the taxa identified in Dolj County area, the authors found that the annual species account for over 50% of the total. They are closely followed by the perennial species, while the remaining categories have a weak representation (e.g., biennial species – 4%) (Fig. 4). The presence of a relatively large number of perennial taxa can also be explained by the numerous species introduced for ornamental purposes, a similar case being mentioned for Buzău County (Camen-Comănescu et al., 2023).

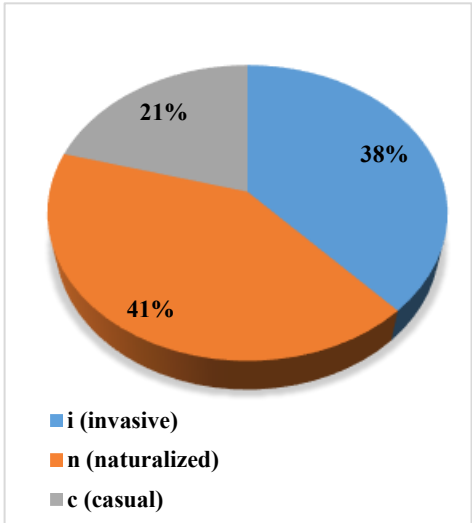


Fig. 3 Structure of the analyzed species according to their *alien status*

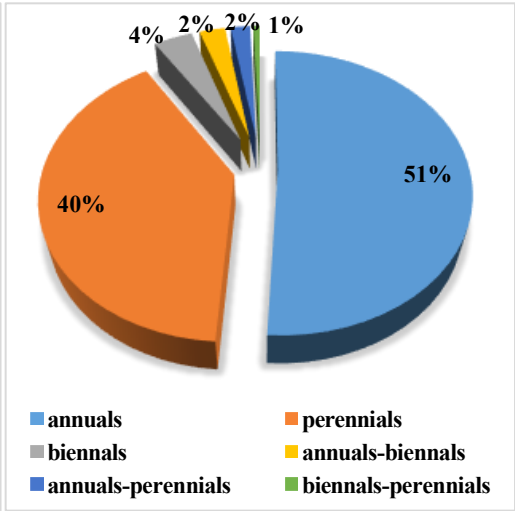


Fig. 4 Structure of the taxa under study from the viewpoint of their lifespan

With respect to the life forms, the first place belongs to the therophytes, which are followed by the phanerophytes and the hemicryptophytes with similar shares (18% each), while the rest of the bioforms account for an insignificant share (below 6%) (Appendix 1).

The spectrum of geoelements highlights the predominance of taxa originating in the Americas (48%), especially in North America (Fig. 5). These are followed by Asian (22%) and Mediterranean (14%) taxa (Fig. 5). European elements account for 8% of the total number of alien taxa identified in Dolj County, while cosmopolitan, tropical and African elements account for 2% each. The share of the remaining taxa is not significant.

Of the total number of analyzed taxa, 87% are neophytes, 12% are archaeophytes, and only 1% are cryptogenic (*Abutilon theophrasti*, *Armoracia rusticana*) (Fig. 6).

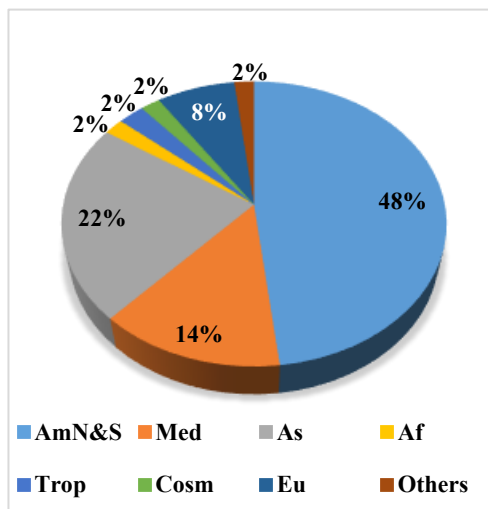


Fig. 5 Structure of the alien plant species from Dolj County according to their origin

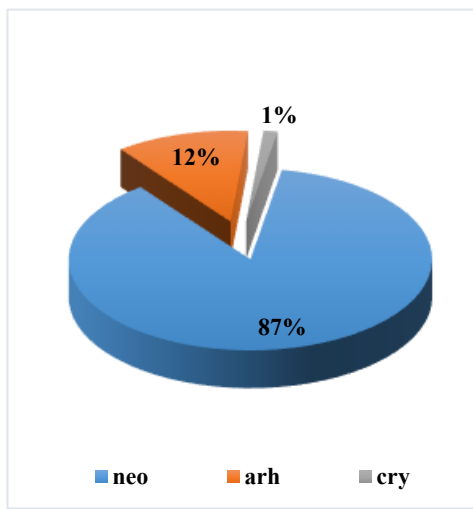


Fig. 6 The degree of naturalization of alien plant species identified in Dolj County

Note: abbreviations are rendered in the Materials subsection

The analysis of the relative abundance of alien species found on Dolj County territory shows that rare species have the highest presence (63 taxa). They are followed by the occasional species, with 46 taxa (Fig. 7). The low share of common species (19%) shows that many of the identified elements are just beginning to spread within Dolj County. Only 21 taxa are locally abundant (in few places), in cemeteries located on the outskirts of rural settlements, as well as near the railway tracks and especially in railway stations.

By analyzing the pathways of introduction of the alien species that have been identified within the rural and urban settlements of Dolj County, the authors can state that the shares are approximately equal (Fig. 8).

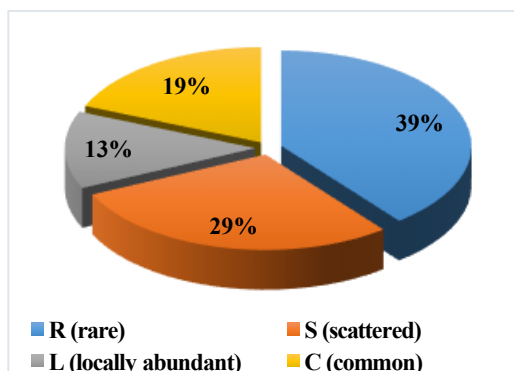


Fig. 7 Relative abundance of the analyzed alien species identified in Dolj County

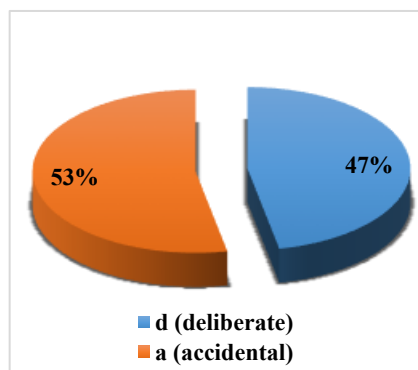


Fig. 8 Structure of the analyzed taxa according to the pathways of introduction

4. CONCLUSIONS

The adventive flora in Dolj County is abundant, both in terms of the number of species and especially in terms of the number of individuals. Many of the analyzed taxa have a close connection with the places where there are obvious marks of human activity (both in the terrestrial and aquatic environments; both in ruderal and cultivated areas).

Numerous analyzed species are common, being also found in other regions of the country, but the present research has also identified other taxa that have not been mentioned so far in Dolj County: *Juglans nigra*, *Amaranthus hypochondriacus*, *Gleditsia caspica*, *Oenothera rosea*, *Malva trimestris*, *Buddleja davidii*, *Symphytotrichum novi-belgii*, etc.

Out of the total 160 identified taxa, 12 were encountered in all the settlements under study. Among them, we mention: *Sorghum halepense*, *Ambrosia artemisiifolia*, *Amaranthus retroflexus*, *Xanthium orientale* subsp. *italicum*, *Erigeron annuus* subsp. *strigosus*, *Erigeron canadensis*, *Datura stramonium*, *Euphorbia maculata*, *Acer negundo*, *Prunus cerasifera*, *Portulaca oleracea*, *Morus alba*, and *Ailanthus altissima*.

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Appendix 1

List of alien plants recorded in Dolj County

No.	Taxa	Family	Lifespan	Life form	Origin	Pathways of introduction	Residence time	Invasivity	Relative abundance
1.	<i>Abutilon theophrasti</i>	Malvaceae	Annual	T	As	a	cry	i	R
2.	<i>Acer negundo</i>	Aceraceae	Perennial	PhM	AmN	d	neo	i	C
3.	<i>Achillea</i> × <i>roseoalba</i>	Asteraceae	Perennial	H	EuC&S	a	neo	n	S
4.	<i>Agrostemma githago</i>	Caryophyllaceae	Annual	T	Cosm	a	arh	c	L
5.	<i>Ailanthus altissima</i>	Simaroubaceae	Perennial	PhM	AsE	d	neo	i	C
6.	<i>Amaranthus theveneauii</i> ×	Amaranthaceae	Annual	T		a	neo	c	R
7.	<i>Amaranthus albus</i>	Amaranthaceae	Annual	T	AmN&C	a	neo	i	L
8.	<i>Amaranthus blitoides</i>	Amaranthaceae	Annual	T	AmN	a	neo	n	S
9.	<i>Amaranthus crispus</i>	Amaranthaceae	Annual	T	Argentina	a	neo	i	C
10.	<i>Amaranthus cruentus</i>	Amaranthaceae	Annual	T	AmTrop	d	neo	n	R
11.	<i>Amaranthus deflexus</i>	Amaranthaceae	Annual	T	AmS	a	neo	i	S
12.	<i>Amaranthus hypochondriacus</i>	Amaranthaceae	Annual	T		a	neo	n	R
13.	<i>Amaranthus palmeri</i>	Amaranthaceae	Annual	T	AmN	a	neo	i	L
14.	<i>Amaranthus powellii</i>	Amaranthaceae	Annual	T	AmN&S	a	neo	i	L
15.	<i>Amaranthus retroflexus</i>	Amaranthaceae	Annual	T	AmN	a	neo	i	C
16.	<i>Amaranthus viridis</i>	Amaranthaceae	Annual	T	AmS	a	neo	i	R
17.	<i>Ambrosia artemisiifolia</i>	Asteraceae	Annual	T	AmN	a	neo	i	C
18.	<i>Amorpha fruticosa</i>	Fabaceae	Perennial	PhN	AmN	d	neo	i	L
19.	<i>Anethum graveolens</i>	Apiaceae	Annual	T	AsSV	a	arh	n	S
20.	<i>Antirrhinum majus</i>	Scrophulariaceae	Annual/ Perennial	T	EuSW	d	neo	n	R
21.	<i>Apium graveolens</i>	Apiaceae	Biennial	Ht	AtlMedit	a	arh	n	R
22.	<i>Aquilegia vulgaris</i>	Ranunculaceae	Perennial	H	Eu	a	arh	n	R

23.	<i>Armoracia rusticana</i>	Brassicaceae	Perennial	H	EuSE, AsW	d	cry	n	C
24.	<i>Artemisia annua</i>	Asteraceae	Annual	T	AsC&S	a	neo	i	S
25.	<i>Asclepias syriaca</i>	Asclepiadaceae	Perennial	H	AmN-E	d	neo	i	R
26.	<i>Asperula orientalis</i>	Rubiaceae	Annual	T	AsV	a	neo	c	R
27.	<i>Atriplex hortensis</i>	Chenopodiaceae	Annual	T	AsC	d	neo	c	R
28.	<i>Avena sativa</i>	Poaceae	Annual	T	As	a	arh	c	R
29.	<i>Azolla filiculoides</i>	Azollaceae	Annual	T(Hd)	AmN	a	neo	i	L
30.	<i>Bassia scoparia</i>	Chenopodiaceae	Annual	T	AsTemp	d	neo	i	C
31.	<i>Bidens frondosa</i>	Asteraceae	Annual	T	AmN	a	neo	i	R
32.	<i>Brassica juncea</i>	Brassicaceae	Annual	T	AsS&E	a	arh	c	R
33.	<i>Broussonetia papyrifera</i>	Moraceae	Perennial	PhN	AsE	d	neo	n	S
34.	<i>Buddleja davidii</i>	Buddlejaceae	Perennial	PhN	AsE (China)	d	neo	n	S
35.	<i>Cannabis sativa</i>	Cannabinaceae	Annual	T	AsSW	d	arh	n	S
36.	<i>Catalpa bignonioides</i>	Bignoniaceae	Perennial	PhM	AmN	d	neo	n	R
37.	<i>Celtis australis</i>	Ulmaceae	Perennial	PhM	Medit	d	neo	i	L
38.	<i>Centaurea solstitialis</i>	Asteraceae	Biennial	Ht	Medit	a	arh	n	L
39.	<i>Commelina communis</i>	Commelinaceae	Annual	T	AsTemp	a	neo	n	S
40.	<i>Cucurbita pepo</i>	Cucurbitaceae	Annual	T	NAm Centr	a	arh	n	R
41.	<i>Cuscuta campestris</i>	Cuscutaceae	Annual	T	AmN	a	neo	i	C
42.	<i>Cuscuta suaveolens</i>	Cuscutaceae	Annual	T	AmS (Chile)	a	neo	i	S
43.	<i>Cydonia oblonga</i>	Rosaceae	Perennial	PhM	AsSW	d	arh	n	S
44.	<i>Cymbalaria muralis</i>	Scrophulariaceae	Perennial	H	EuS	a	neo	n	R
45.	<i>Cyanus segetum</i>	Asteraceae	Annual	T	Medit	a	arh	i	L

46.	<i>Cyperus difformis</i>	Cyperaceae	Annual	T	Ins. Azore	a	neo	n	R
47.	<i>Cytisus scoparius</i>	Fabaceae	Perennial	PhN	Centr. Eur. Atl. Medit.	d	neo	n	R
48.	<i>Datura innoxia</i>	Solanaceae	Annual	T	AmS&C	d	neo	c	S
49.	<i>Datura stramonium</i>	Solanaceae	Annual	T	AmN	d	neo	i	C
50.	<i>Datura wrightii</i>	Solanaceae	Annual	T	AmN	d	neo	c	S
51.	<i>Dracocephalum moldavica</i>	Lamiaceae	Annual	T	AsC	a	neo	c	R
52.	<i>Dysphania ambrosioides</i>	Chenopodiaceae	Annual	T	AmTrop	d	neo	n	R
53.	<i>Dysphania botrys</i>	Chenopodiaceae	Annual	T	Cosm	a	neo	n	S
54.	<i>Dysphania multifida</i>	Chenopodiaceae	Perennial	H	AmS	a	neo	n	R
55.	<i>Dysphania schraderiana</i>	Chenopodiaceae	Annual	T	Afr	d	neo	c	R
56.	<i>Echinochloa colona</i>	Poaceae	Annual	T	Trop & Subtrop	a	neo	n	L
57.	<i>Echinochloa oryzoides</i>	Poaceae	Annual	T	Euras	a	neo	n	L
58.	<i>Echinocystis lobata</i>	Cucurbitaceae	Annual	T	AmN	a	neo	i	C
59.	<i>Eclipta prostrata</i>	Asteraceae	Annual	T	AmTrop	a	neo	n	R
60.	<i>Elaeagnus angustifolia</i>	Elaeagnaceae	Perennial	PhN	AsTemp	d	neo	i	C
61.	<i>Eleusine indica</i>	Poaceae	Annual	T	Trop	a	neo	i	R
62.	<i>Elodea canadensis</i>	Hydrocharitaceae	Perennial	HH	AmN	a	neo	i	R
63.	<i>Elodea nuttallii</i>	Hydrocharitaceae	Perennial	HH	AmN	a	neo	i	R
64.	<i>Erigeron annuus</i>	Asteraceae	Annual	T	AmN	a	neo	i	C
65.	<i>Erigeron bonariensis</i>	Asteraceae	Annual	T	AmS	a	neo	n	S
66.	<i>Erigeron canadensis</i>	Asteraceae	Annual	T	AmN	a	neo	i	C
67.	<i>Erigeron sumatrensis</i>	Asteraceae	Annual	T	AmS	a	neo	n	R
68.	<i>Eruca vesicaria</i>	Brassicaceae	Annual	T	Medit	a	arh	c	R

69.	<i>Euphorbia maculata</i>	Euphorbiaceae	Annual	T	AmN	a	neo	i	L
70.	<i>Euphorbia marginata</i>	Euphorbiaceae	Annual	T	AmN	d	neo	n	R
71.	<i>Euphorbia prostrata</i>	Euphorbiaceae	Annual	T	AmN	a	neo	n	S
72.	<i>Euthamia graminifolia</i>	Asteraceae	Perennial	H	AmN	d	neo	c	R
73.	<i>Fallopia baldschuanica</i>	Polygonaceae	Perennial	PhLi	As	d	neo	c	L
74.	<i>Ficus carica</i>	Moraceae	Perennial	PhN	AsSW	d		n	S
75.	<i>Fimbristylis bisumbellata</i>	Cyperaceae	Annual	T	Subcosm	a	neo	n	R
76.	<i>Foeniculum vulgare</i>	Apiaceae	Perennial	H	Medit	a	arh	n	S
77.	<i>Fraxinus pennsylvanica</i>	Oleaceae	Perennial	PhN	Am	d	neo	i	C
78.	<i>Galinsoga parviflora</i>	Asteraceae	Annual	T	AmS	a	neo	i	L
79.	<i>Galinsoga quadriradiata</i>	Asteraceae	Annual	T	AmN	a	neo	n	R
80.	<i>Gleditsia caspica</i>	Caesalpiniaceae	Perennial	PhM	AsW	d	neo	c	R
81.	<i>Gleditsia triacanthos</i>	Caesalpiniaceae	Perennial	PhM	AmN-C&E	d	neo	i	C
82.	<i>Helianthus annuus</i>	Asteraceae	Annual	T	AmN	d	neo	c	R
83.	<i>Helianthus tuberosus</i>	Asteraceae	Perennial	H	AmN	d	neo	i	C
84.	<i>Helminthotheca echinoides</i>	Asteraceae	Annual/ Biennial	T/Ht	Medit	a	neo	n	R
85.	<i>Hemerocallis fulva</i>	Liliaceae	Perennial	H	AsE	d	neo	c	C
86.	<i>Juglans nigra</i>	Juglandaceae	Perennial	PhM	EAmN	d	neo	c	R
87.	<i>Juglans regia</i>	Juglandaceae	Perennial	PhM	Medit	d	arh	n	C
88.	<i>Juncus tenuis</i>	Juncaceae	Perennial	H	AmN	a	neo	n	S
89.	<i>Koeleria paniculata</i>	Sapindaceae	Perennial	PhM	AsE	d	neo	c	S
90.	<i>Lathyrus aphaca</i>	Fabaceae	Annual	T	Medit	a	neo	n	S
91.	<i>Lemna minuta</i>	Lemnaceae	Perennial	Hd	Am	a	neo	n	S
92.	<i>Lepidium densiflorum</i>	Brassicaceae	Annual	T	AmN	a	neo	i	L
93.	<i>Lepidium virginicum</i>	Brassicaceae	Annual/ Biennial	T/Ht	AmN	a	neo	n	R

94.	<i>Lolium multiflorum</i>	Poaceae	Annual/ Biennial	T/Ht	Medit	d	neo	n	S
95.	<i>Lycium barbarum</i>	Solanaceae	Perennial	PhN	As (China)	d	neo	i	C
96.	<i>Lycopersicon esculentum</i>	Solanaceae	Annual	T	AmS	d	neo	c	R
97.	<i>Maclura pomifera</i>	Moraceae	Perennial	PhM	AmN	d	neo	n	S
98.	<i>Malva trimestris</i>	Malvaceae	Annual	T	Medit	d	neo	n	R
99.	<i>Malva verticillata</i>	Malvaceae	Annual/ Biennial	T/Ht	AsE	a	neo	n	R
100.	<i>Matricaria discoidea</i>	Asteraceae	Annual	T	AmN, AsNE	a	neo	i	R
101.	<i>Medicago sativa</i>	Fabaceae	Perennial	H	AsC&W	d	arh	n	L
102.	<i>Mentha x piperita</i>	Lamiaceae	Perennial	H	Eu	d	neo	n	S
103.	<i>Morus alba</i>	Moraceae	Perennial	PhM	As (China)	d	neo	i	C
104.	<i>Morus nigra</i>	Moraceae	Perennial	PhM	AsC	d	neo	n	C
105.	<i>Nicandra physalodes</i>	Solanaceae	Annual	T	AmS	d	neo	c	R
106.	<i>Nonea lutea</i>	Boraginaceae	Perennial	H	AsV	d	neo	c	R
107.	<i>Oenothera biennis</i>	Onagraceae	Biennial	Ht	AmN	d	neo	i	S
108.	<i>Oenothera glazioviana</i>	Onagraceae	Biennial	Ht	AmN	d	neo	i	C
109.	<i>Oenothera rosea</i>	Onagraceae	Biennial	Ht	AmN	d	neo	n	S
110.	<i>Oxalis corniculata</i>	Oxalidaceae	Perennial	H	EuS	a	neo	i	S
111.	<i>Oxalis dillenii</i>	Oxalidaceae	Annual/P erennial	T-H	AmN	a	neo	i	S
112.	<i>Oxalis stricta</i>	Oxalidaceae	Annual/P erennial	T-H	AmN- C&E	a	neo	i	R
113.	<i>Panicum capillare</i>	Poaceae	Annual	T	AmN	d	neo	n	S
114.	<i>Panicum dichotomiflorum</i>	Poaceae	Annual	T	AmN	a	neo	n	R
115.	<i>Papaver somniferum</i>	Papaveraceae	Annual	T	Medit	d	neo	c	S

116.	<i>Parthenocissus inserta</i>	Vitaceae	Perennial	PhLi	AmN	d	neo	i	C
117.	<i>Parthenocissus quinquefolia</i>	Vitaceae	Perennial	PhLi	AmN	d	neo	i	R
118.	<i>Parthenocissus tricuspidata</i>	Vitaceae	Perennial	PhLi	As	d	neo	c	R
119.	<i>Paspalum distichum</i>	Poaceae	Perennial	H	Trop	a	neo	n	S
120.	<i>Paulownia tomentosa</i>	Scrophulariaceae	Perennial	PhM	AsE (Japonia)	d	neo	c	R
121.	<i>Physalis alkekengi</i>	Solanaceae	Perennial	H	AmN	a	neo	n	R
122.	<i>Phytolacca americana</i>	Phytolaccaceae	Perennial	H	AmN	d	neo	i	S
123.	<i>Polycarpon tetraphyllum</i>	Caryophyllaceae	Perennial	H	EuSW	a	neo	n	R
124.	<i>Polypogon monspeliensis</i>	Poaceae	Annual	T	Medit	a	neo	n	R
125.	<i>Populus × canadensis</i>	Salicaceae	Perennial	PhM	Eur	d	neo	i	S
126.	<i>Portulaca grandiflora</i>	Portulacaceae	Annual	T	AmS	d	neo	n	S
127.	<i>Portulaca oleracea</i>	Portulacaceae	Annual	T	As	d	arh	n	C
128.	<i>Potentilla indica</i>	Rosaceae	Perennial	H	AsSW	a	neo	n	S
129.	<i>Prunus cerasifera</i>	Rosaceae	Perennial	PhM	AsW, EuSE	d	arh	i	C
130.	<i>Prunus cerasus</i>	Rosaceae	Perennial	PhM	EuSE, AsV .	d	arh	c	C
131.	<i>Reynoutria japonica</i>	Polygonaceae	Perennial	G-H	As (Japonia)	d	neo	i	L
132.	<i>Ricinus communis</i>	Euphorbiaceae	Perennial	PhN	AfrTrop	d	neo	c	R
133.	<i>Robinia pseudoacacia</i>	Fabaceae	Perennial	PhM	AmN- E,C	d	neo	i	C
134.	<i>Rudbeckia laciniata</i>	Asteraceae	Perennial	H	AmN	d	neo	i	R
135.	<i>Salvia sclarea</i>	Lamiaceae	Biennal/ Perennial	Ht/H	Medit	d	neo	c	S
136.	<i>Sedum sarmentosum</i>	Crassulaceae	Perennial	Ch	AsE	d	neo	n	L

137.	<i>Sicyos angulatus</i>	Cucurbitaceae	Annual	T	AmN	a	neo	i	S
138.	<i>Sigesbeckia orientalis</i>	Asteraceae	Annual	T	AsV	a	neo	n	R
139.	<i>Silybum marianum</i>	Asteraceae	Biennial	Ht	Medit	d	neo	c	R
140.	<i>Sinapis alba</i>	Brassicaceae	Annual	T	Medit	d	neo	c	R
141.	<i>Solidago canadensis</i>	Asteraceae	Perennial	H	AmN	d	neo	i	S
142.	<i>Solidago gigantea</i>	Asteraceae	Perennial	H	AmN	d	neo	i	S
143.	<i>Sorghum halepense</i>	Poaceae	Perennial	H	AfrN,As SW	a	neo	i	C
144.	<i>Symphotrichum lanceolatum</i>	Asteraceae	Perennial	H	AmN	a	neo	i	L
145.	<i>Symphotrichum novi-belgii</i>	Asteraceae	Perennial	H	AmN	d	neo	c	R
146.	<i>Tanacetum parthenium</i>	Asteraceae	Perennial	H	MeditE	d	neo	c	R
147.	<i>Taxodium distichum</i>	Taxodiaceae	Perennial	PhM	AmN	d	arh	c	R
148.	<i>Trifolium hybridum</i>	Fabaceae	Perennial	H	AtlEur	a	neo	n	S
149.	<i>Trifolium incarnatum</i>	Fabaceae	Perennial	H	AtlMedit	a	neo	n	S
150.	<i>Trigonella caerulea</i>	Fabaceae	Annual	T	Medit	d	neo	c	R
151.	<i>Vallisneria spiralis</i>	Hydrocharitaceae	Perennial	Hd	Trop	a	neo	i	L
152.	<i>Veronica acinifolia</i>	Scrophulariaceae	Annual	T	AtlMedit	a	neo	n	S
153.	<i>Veronica peregrina</i>	Scrophulariaceae	Annual	T	AmS	a	neo	n	R
154.	<i>Veronica persica</i>	Scrophulariaceae	Annual	T	AsSW	a	neo	i	C
155.	<i>Vicia lutea</i>	Fabaceae	Annual	T	AtlMedit	a	neo	n	S
156.	<i>Vicia sativa</i>	Fabaceae	Annual	T	Medit	a	neo	n	R
157.	<i>Xanthium orientale</i>	Asteraceae	Annual	T	AmN	a	neo	i	S
158.	<i>Xanthium orientale</i> subsp. <i>italicum</i>	Asteraceae	Annual	T	Am	a	neo	i	C
159.	<i>Xanthium spinosum</i>	Asteraceae	Annual	T	AmS	a	neo	i	S
160.	<i>Zingeria pisdica</i>	Poaceae	Annual	T	RoAnatC auc	a	neo	n	L