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FORGOTTEN CARPOLOGICAL COLLECTION OF PROFESSOR IVO HORVAT DISCOVERED AND DIGITIZED

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The carpological collection of Professor Ivo Horvat, a famous Croatian botanist of 20th century, was saved from oblivion, after its unexpected discovery at the Faculty of Veterinary Medicine in Zagreb in 2019. As many as 515 diaspores (fruits and seeds) of 486 vascular plant taxa were systematised and digitised and the nomenclature was updated. A comprehensive comparison of Horvat's carpological and herbarium collection (ZAHO) revealed a large amount of overlap. A large photo-catalogue was created and will be publicly accessible through the Flora Croatica Database.

Key words: diaspores, fruits, herbarium, photo-catalogue, seeds, vascular plants

Essert, S., Šegota, V., God, I., Mas, N., Špoljarić, D. & Popović, M.: Pronađena i digitalizirana zaboravljena karpološka zbirka profesora Ive Horvata. Nat. Croat. Vol. 30, No. 1., 269–287, 2021, Zagreb.

Karpološka zbirka profesora Ive Horvata, velikog hrvatskog botaničara 20. stoljeća, sačuvana je od zaborava nakon neočekivanog pronalaska na Veterinarskom fakultetu u Zagrebu tijekom 2019. godine. Ukupno 515 dijaspora (plodova i sjemenki) koje pripadaju 486 svojti vaskularne flore je sistematizirano i digitalizirano, a nomenklatura je ažurirana. Sveobuhvatna usporedba Horvatove karpološke i herbarijske zbirke (ZAHO) rezultirala je velikom količinom preklapanja. Formiran je veliki fotokatalog koji će biti javno dostupan u bazi podataka Flora Croatica.

Ključne riječi: dijaspore, plodovi, herbarij, fotokatalog, sjemenke, vaskularna flora

INTRODUCTION

Professor Ivo Horvat (1897–1963) was one of the most prominent Croatian botanists and one of the most active explorers of the vegetation of the former Yugoslavia and the Balkan Peninsula (Bertović, 1963). During his 40 years of scientific work as a

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pioneer in vegetation studies based on the principles of the Braun-Blanquet phytosociological school, he became one of the leading phytocoenologists at that time in Europe. He started to work as a professor of botany at the former Institute of Botany at the Faculty of Science of the University of Zagreb, but the majority of his professional life was spent working at the former Department of Botany of the Faculty of Veterinary Medicine of the same university (Horvatić, 1963). He published more than 80 scientific and 90 professional papers (Bertović, 1963). During his numerous field trips, he collected a huge amount of plant material, systemized after his death in the Herbarium of Ivo and Marija Horvat (ZAHO) (Theirs, 2020), which was finally, after many relocations, housed in the Botanical Garden of the Faculty of Science in Zagreb in 1998. The collection contains 71,611 herbarium sheets collected mostly in Croatia and South-East Europe (Horvat & Plazibat, 2007).

Carpological collections, specialized herbarium collections containing only diaspores (fruits and seeds) of vascular plants, are mostly kept within botanical gardens and are regularly used in education as well as in scientific studies dealing with seed germination ecology. The best-known seed bank, the Svalbard Global Seed Vault on the Norwegian island of Spitsbergen, keeps as many as 860.000 seeds of various vascular plants (wild and cultivated crops, rare and endangered taxa etc.). Currently, there are around 1,400 seed banks in 100 countries, preserving global plant genetic diversity (Bolf, 2018). In addition, carpological collections are regularly used as comparative compendia in archaeobotanical studies of plant macrofossils (Cappers & Neef, 2012; Pearsall, 2000).

MATERIALS AND METHODS

The carpological collection of Professor Ivo Horvat was surveyed and analysed at the Division of Botany of the Faculty of Science during 2019. The nomenclature of the taxa was validated and updated based on the Flora Croatica Database (Nikolić, 2019) and The Plant List (2019). For each collected taxon, affiliation to plant family, endemic, threatened and strictly protected flora were inspected (Anonymous, 2016; Nikolić & Topić, 2005; Nikolić, 2019). An effort was made to compare the taxa from the studied carpological collection with the herbarium specimens from the Herbarium of Ivo and Marija Horvat (ZAHO). All herbarium sheets potentially connected to the carpological collection were digitised following the standard procedure (Šegota *et al.*, 2017). Finally, the whole carpological collection was photographed – each glass container with numerous diaspores with a Huawei p20 smartphone, and several isolated diaspores of each taxon by USB Dino-Lite Pro HR, AM7000/AD7000 series (5 megapixels) digital microscope, resulting in a catalogue of 486 seeds and fruits.

RESULTS AND DISCUSSION

This large carpological collection was found by mere chance in 2019 in the cellar of the Faculty of Veterinary Medicine. It was hypothesized that it belonged to Professor Ivo Horvat, a botanist who had worked there from 1947 to 1963. However, no written evidence of the existence of this collection was identified, either in his bibliography or in several posthumous biographies (e.g. Bertović, 1963; Horvatić, 1963). Moreover, not a single mention of this collection was found among the professor's scientific or private documents and handbooks, while his relatives have no information about his work with the carpological collection. We discovered that in the 1960s the collection

Fig. 1. Exemplars of the glass containers with metal cap (left) and on wooden stand (right) from Horvat's carpological collection.

was moved to the cellar of the Faculty of Veterinary Medicine where it was managed for some time by Dr Željko Horvat and subsequently faded into oblivion. However, it is highly probable that this collection was compiled by Professor Horvat while collecting numerous plants for his scientific herbarium, as well as for teaching material for botany lectures.

We summarized the collection of as many as 515 tube-like glass containers with metal caps and the labels with handwritten or typed Latin name of the taxon (Fig. 1). Five containers were different, with a wooden stand, used probably as exemplars during lectures. No other basic metadata such as locality, habitat, collecting date or collector were found on the labels, with the exception of just three labels on which localities were noted (*Prunus spinosa* L. – Krk & Zagreb, *Abies alba* Mill. – G. Kotar). Repetitions were found only in 12 taxa, one (*Medicago lupulina* L.) being collected in three, and 11 (*Biscutella laevigata* L., *Festuca pratensis* Huds., *Hypochaeris maculata* L., *Laurus nobilis* L., *Lycopus europaeus* L., *Medicago sativa* L., *Pinus halepensis* Mill., *Trifolium incarnatum* L., *Trifolium pratense* L, *Prunus spinosa* L., *Vicia sativa* L.) in two containers. After the analysis, the collection was returned and deposited within the Department of Veterinary Biology of the Faculty of Veterinary medicine in Zagreb (Fig. 2).

The comprehensive inventory and nomenclature update revealed as many as 486 vascular plant taxa (Appendix 1). A nomenclature validation was necessary for 19.75 % of inspected taxa names. As many as 95.28 % of the taxa are members of the Croatian flora (Nikolić, 2019) indicating that the majority of the collection was most likely collected in Croatia or neighbouring countries, as was also the case with Horvat's herbarium collection (Horvat & Plazibat, 2007). The collected specimens belong to 102 plant families, with *Asteraceae* and *Fabaceae* (10.88 % each) and *Poaceae* (7.59 %) being the most abundant (Tab. 1).

Fig. 2. The current location of Horvat's carpological collection at the Department of Veterinary Biology of the Faculty of Veterinary Medicine in Zagreb.

Tab. 1. Families with the highest number of taxa within Horvat's carpological collection.

Family	No. of taxa	% of total flora
Asteraceae	53	10.88
Fabaceae	53	10.88
Poaceae	37	7.59
Brassicaceae	23	4.70
Apiaceae	22	4.52
Lamiaceae	22	4.52
Cichoriaceae	21	4.31
Rosaceae	19	3.90
Caryophyllaceae	10	2.04
Ranunculaceae	10	2.04
Scrophulariaceae	10	2.04
Solanaceae	9	1.85
Asparagaceae	8	1.64
Euphorbiaceae	7	1.43
Malvaceae	7	1.43
Polygonaceae	7	1.43
Rutaceae	7	1.43
Caprifoliaceae	6	1.23
Pinaceae	6	1.23
other families (91)	150	30,91

Six endemic taxa (*Tanacetum cinerariifolium*, *Edraianthus tenuifolius*, *Iris illyrica*, *Leucanthemum atratum* ssp. *platylepis*, *Peltaria alliacea* and *Chouardia litardierei*) and 28 Red-listed, three of which critically endangered (*Digitalis lanata*, *Ligularia sibirica* and *Plantago indica*) were found. According to the latest legislation, 19 taxa from the collection

are currently strictly protected in Croatia (*Achillea ptarmica*, *Alopecurus rendlei*, *Arnica montana*, *Tanacetum cinerariifolium*, *Digitalis lanata*, *Edraianthus tenuifolius*, *Glaucium flavum*, *Hibiscus trionum*, *Iris pseudacorus*, *Iris sibirica*, *Ligularia sibirica*, *Lilium martagon*, *Paeonia mascula*, *Peltaria alliacea*, *Plantago subulata*, *Plantago indica*, *Taxus baccata* and *Trapa natans*).

Comparison between Horvat's carpological and herbarium (ZAHO) collections revealed overlapping in 334 (68.58 %) taxa (Fig. 3, Fig. 4). As many as 78.44 % of those taxa have herbarium specimens with mature fruits and seeds. Among them, only 20.10 % of taxa from carpological collection could be related to herbarium specimens collected at solely one locality.

Fig. 3. Specimens of *Ferulago campestris* (Besser) Grecescu from Horvat's herbarium (ZAHO) and its fruits from the carpological collection.

Fig. 4. Specimens of *Clematis vitalba* L. from Horvat's herbarium (ZAHO) and its fruits from carpological collection.

Fig. 5. Illustration of one species (*Atriplex hortensis* L.) within the photo-catalogue of the Horvat carpological collection.

The remaining 21.56 % of inspected taxa herbarium specimens lacked diaspores, or fruits and seeds were collected immature. Based on this data, we could only assume that Horvat collected simultaneously plants for herbarium and their diaspores for carpological collection. However, about half of the taxa (51.20 %) specimens with mature fruits were collected from two or more localities. It is possible that the collection was also partially created by material exchange with other local and foreign botanists, that the material was collected simultaneously by several collectors that cooperated with Professor Horvat, or that part of the collection was obtained from other foreign collections for lecture purposes. We have no evidence for any of these scenarios. Since there are no written documents indicating that this collection was actually used in lecture processes at the Faculty of Veterinary Medicine in Zagreb, further study should include interviews with Horvat's students who possibly have memories of this collection. Unfortunately, since this collection was probably not used after the 1960s, locating witnesses would be rather challenging.

The photo-catalogue of the collection contains as many as 1186 pictures and represents the first comprehensive digitised photo-catalogue of diaspores in Croatia (Fig. 5). Pictures are currently stored in the Archaeobotanical Laboratory (Division of Botany, Faculty of Science) and will soon be published and made publicly available in the Flora Croatica Database. Since this database contains mostly pictures of plant habitus, leaves and flowers, the addition of pictures of fruits and seeds will certainly be a valuable contribution and helpful tool for all users during plant identifications. Finally, several diaspores of each taxon were extracted from Horvat's collection and included in the carpological collection of the Archaeobotanical Laboratory (Division of Botany, Faculty of Science).

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APPENDIX 1.

List of taxa found in the carpological collection of Professor Ivo Horvat (HR – present in Croatian flora, ZAHO – present in Herbarium of Ivo and Marija Horvat)

No.	original name on label	valid name	family	HR	ZAHO
1	*Abies alba* Mill.	*Abies alba* Mill.	*Pinaceae*	x	
2	*Abutilon theophrasti*	*Abutilon theophrasti* Medik.	*Malvaceae*	x	
3	*Acer monspessulanum* L.	*Acer monspessulanum* L.	*Aceraceae*	x	x
4	*Acer negundo*	*Acer negundo* L.	*Aceraceae*	x	x
5	*Acer pseudoplatanus* L.	*Acer pseudoplatanus* L.	*Aceraceae*	x	x
6	*Achillea millefolium* L.	*Achillea millefolium* L.	*Asteraceae*	x	x
7	*Achillea ptarmica* L.	*Achillea ptarmica* L.	*Asteraceae*	x	
8	*Adenostyles alpina* Bl. et Fingr.	*Adenostyles alpina* (L.) Bluff et Fingerh	*Asteraceae*	x	
9	*Agrimonia pilosa* Ledeb.	*Agrimonia pilosa* Ledeb.	*Rosaceae*		
10	*Agrostemma githago* L.	*Agrostemma githago* L.	*Caryophyllaceae*	x	
11	*Agrostis alba* L.	*Agrostis gigantea* Roth	*Poaceae*	x	x
12	*Ailanthus glandulosa*	*Ailanthus altissima* (Mill.) Swingle	*Simaroubaceae*	x	x
13	*Alisma plantago aquatica* L.	*Alisma plantago-aquatica* L.	*Alismataceae*	x	x

No.	original name on label	valid name	family	HR	ZAHO
14	*Alliaria officinalis* Andr.	*Alliaria petiolata* (M. Bieb.) Cavara et Grande	*Brassicaceae*	x	x
15	*Allium porrum* L.	*Allium porrum* L.	*Amaryllidaceae*	x	
16	*Alopecurus pratense* L.	*Alopecurus pratensis* L.	*Poaceae*	x	
17	*Alopecurus utriculatus* Pens.	*Alopecurus rendlei* Eig	*Poaceae*	x	x
18	*Altheae officinalis* L.	*Althaea officinalis* L.	*Malvaceae*	x	x
19	*Alyssoides utriculatum* (L.) Med.J.	*Alyssoides utriculata* (L.) Medik.	*Brassicaceae*	x	x
20	*Amaranthus silvestris* Desf.	*Amaranthus graecizans* ssp. *silvestris* (Vill.) Brenan	*Amaranthaceae*	x	
21	*Amarantus caudatus* L.	*Amaranthus caudatus* L.	*Amaranthaceae*	x	
22	*Amorpha fruticosa* L.	*Amorpha fruticosa* L.	*Fabaceae*	x	x
23	*Anagallis arvensis* L.	*Anagallis arvensis* L.	*Primulaceae*	x	x
24	*Anemone nemorosa* L.	*Anemone nemorosa* L.	*Ranunculaceae*	x	x
25	*Anethum graveolens* L.	*Anethum graveolens* L.	*Apiaceae*	x	x
26	*Angelica archangelica* L.	*Angelica archangelica* L.	*Apiaceae*	x	
27	*Angelica silvestris* L.	*Angelica sylvestris* L.	*Apiaceae*	x	x
28	*Anoda hastata* Cav.	*Anoda cristata* (L.) Schltdl.	*Malvaceae*		
29	*Antennaria dioica* L.	*Antennaria dioica* L.	*Asteraceae*	x	x
30	*Anthericum ramosum* L.	*Anthericum ramosum* L.	*Asparagaceae*	x	x
31	*Anthoxanthum odoratum*	*Anthoxanthum odoratum* L.	*Poaceae*	x	x
32	*Anthyllis jacquini* Kern.	*Anthyllis montana* ssp. *jacquinii* (A. Kern.) Hayek	*Fabaceae*	x	x
33	*Anthyllis vulneraria* L.	*Anthyllis vulneraria* L.	*Fabaceae*	x	x
34	*Aposeris foetida* L.	*Aposeris foetida* (L.) Cass. ex Less.	*Cichoriaceae*	x	x
35	*Arabis hirsuta*	*Arabis hirsuta* (L.) Scop.	*Brassicaceae*	x	
36	*Arabis turrita* L.	*Arabis turrita* L.	*Brassicaceae*	x	x
37	*Arachis hypogaea*	*Arachis hypogaea* L.	*Fabaceae*		
38	*Arenaria serphyllifolia* L.	*Arenaria serpyllifolia* L.	*Caryophyllaceae*	x	x
39	*Aristolochia clematitis* L.	*Aristolochia clematitis* L.	*Aristolochiaceae*	x	x
40	*Armeria canescens* Host.	*Armeria canescens* (Host) Boiss.	*Plumbaginaceae*	x	x
41	*Arnica montana* L.	*Arnica montana* L.	*Asteraceae*	x	
42	*Arum maculatum* L.	*Arum maculatum* L.	*Araceae*	x	x
43	*Aruncus silvester* Kostel	*Aruncus dioicus* (Walter) Fernald	*Rosaceae*	x	
44	*Asarum europaeum* L.	*Asarum europaeum* L.	*Aristolochiaceae*	x	x
45	*Asclepias syriaca* L.	*Asclepias syriaca* L.	*Asclepiadaceae*	x	x
46	*Asparagus acutifolius* L.	*Asparagus acutifolius* L.	*Asparagaceae*	x	
47	*Asparagus tenuifolius* Lam.	*Asparagus tenuifolius* Lam.	*Asparagaceae*	x	x
48	*Asperula tinctoria* L.	*Asperula tinctoria* L.	*Rubiaceae*	x	x
49	*Asphodelus albus* Mill.	*Asphodelus albus* Mill.	*Xanthorrhoeaceae*	x	x
50	*Asphoideline lutea* Rchb.	*Asphodeline lutea* (L.) Rchb.	*Xanthorrhoeaceae*	x	x
51	*Aster alpinum*	*Aster alpinus* L.	*Asteraceae*	x	x
52	*Astragalus glycyphyllos* L.	*Astragalus glycyphyllos* L.	*Fabaceae*	x	x
53	*Astrantia major* L.	*Astrantia major* L.	*Apiaceae*	x	x
54	*Atriplex hortense* L.	*Atriplex hortensis* L.	*Chenopodiaceae*	x	

No.	original name on label	valid name	family	HR	ZAHO
55	*Atropa belladonna* L.	*Atropa belladonna* L.	*Solanaceae*	x	x
56	*Avena barbata* Brot.	*Avena barbata* Pott ex Link	*Poaceae*	x	
57	*Avena elatior*	*Arrhenatherum elatius* (L.) P.Beauv. ex J.Presl & C.Presl.	*Poaceae*	x	x
58	*Ballota*	*Ballota* sp.	*Lamiaceae*	x	x
59	*Berberis vulgaris* L.	*Berberis vulgaris* L.	*Berberidaceae*	x	x
60	*Berteroa incana* (L.) DC.	*Berteroa incana* (L.) DC.	*Brassicaceae*	x	x
61	*Beta vulgaris* L.	*Beta vulgaris* L.	*Amaranthaceae*	x	
62	*Bidens tripartitus* L.	*Bidens tripartita* L.	*Asteraceae*	x	x
63	*Biscutella laevigata* L.	*Biscutella laevigata* L.	*Brassicaceae*	x	x
64	*Brassica oleracea* L.	*Brassica oleracea* L.	*Brassicaceae*	x	
65	*Briza maxima* L.	*Briza maxima* L.	*Poaceae*	x	x
66	*Bromus erectus* Huds.	*Bromus erectus* Huds.	*Poaceae*	x	x
67	*Bromus mollis*	*Bromus hordeaceus* L.	*Poaceae*	x	x
68	*Bromus sterilis* L.	*Bromus sterilis* L.	*Poaceae*	x	x
69	*Brunella vulgaris* L.	*Prunella vulgaris* L.	*Lamiaceae*	x	x
70	*Bunias orientalis* L.	*Bunias orientalis* L.	*Brassicaceae*	x	x
71	*Buphthalmum salicifolium* L.	*Buphthalmum salicifolium* L.	*Asteraceae*	x	x
72	*Calendula officinalis* L.J.	*Calendula officinalis* L.J.	*Asteraceae*	x	
73	*Campanula formanekiana*	*Campanula formanekiana* Degen & Dörfl.	*Campanulaceae*		x
74	*Campanula persicifolia* L.J.	*Campanula persicifolia* L.J.	*Campanulaceae*	x	x
75	*Campanula rapunculoides* L.	*Campanula rapunculoides* L.	*Campanulaceae*	x	x
76	*Cannabis sativa* L.	*Cannabis sativa* L.	*Cannabaceae*	x	
77	*Capsela bursa-pastoris* L.	*Capsella bursa-pastoris* (L.) Medik.	*Brassicaceae*	x	
78	*Carduus acanthoides* L.	*Carduus acanthoides* L.	*Asteraceae*	x	
79	*Carlina aggregata* W.K.	*Carlina acaulis* subsp. *caulescens* (Lam.) Schübl. & G.Martens	*Asteraceae*	x	x
80	*Carpinus betulus* L.	*Carpinus betulus* L.	*Corylaceae*	x	x
81	*Carum carvi* L.	*Carum carvi* L.	*Apiaceae*	x	x
82	*Catalpa bignonioides* Walt.	*Catalpa bignonioides* Walter	*Bignoniaceae*	x	x
83	*Cedrus Libani* Barr.	*Cedrus libani* A.Rich.	*Pinaceae*	x	
84	*Celtis australis* L.	*Celtis australis* L.	*Ulmaceae*	x	x
85	*Centaurea Fritschii Hay.*	*Centaurea scabiosa* ssp. *fritschii* (Hayek) Hayek	*Asteraceae*	x	x
86	*Centaurea leucolepis* DC.	*Centaurea deusta* Ten. ssp. *concolor* (DC.) Hayek	*Asteraceae*	x	x
87	*Centaurea rhenana* Bor.	*Centaurea rhenana* Boreau	*Asteraceae*	x	
88	*Centaurea rupestris* L.	*Centaurea rupestris* L.	*Asteraceae*	x	x
89	*Centaurea scabiosa* L.	*Centaurea scabiosa* L.	*Asteraceae*	x	x
90	*Cephalaria leucantha* Schrad.	*Cephalaria leucantha* (L.) Roem. et Schult.	*Dipsacaceae*	x	x
91	*Ceratonia siliqua* L.	*Ceratonia siliqua* L.	*Fabaceae*	x	x
92	*Cercis siliquastrum* L.	*Cercis siliquastrum* L.	*Fabaceae*	x	x
93	*Chaenorrhinum minus* L.	*Chaenorhinum minus* (L.) Lange	*Scrophulariaceae*	x	x

No.	original name on label	valid name	family	HR	ZAHO
94	*Chaerophyllum aromaticum* L.	*Chaerophyllum aromaticum* L.	*Apiaceae*	x	x
95	*Chelidonium majus* L.	*Chelidonium majus* L.	*Papaveraceae*	x	x
96	*Chenopodium album* L.	*Chenopodium album* L.	*Chenopodiaceae*	x	x
97	*Chenopodium polyspermum* L.	*Chenopodium polyspermum* L.	*Chenopodiaceae*	x	x
98	*Chondrilla juncea* L.	*Chondrilla juncea* L.	*Cichoriaceae*	x	x
99	*Chrysanth. vulgare* L. *Tanacetum vulgare*	*Tanacetum vulgare* L.	*Asteraceae*	x	x
100	*Chrysanthemum cinerariifolium*	*Tanacetum cinerariifolium* (Trevir.) Sch.Bip.	*Asteraceae*	x	x
101	*Chrysanthemum corymbosum* L.	*Tanacetum corymbosum* (L.) Sch.Bip.	*Asteraceae*	x	x
102	*Cicer arietinum* L.	*Cicer arietinum* L.	*Fabaceae*	x	x
103	*Cichorium intybus* L.	*Cichorium intybus* L.	*Cichoriaceae*	x	x
104	*Cinnamomum camphora* N.	*Cinnamomum camphora* (L.) J.Presl	*Lauraceae*		
105	*Cirsium acaule* Web.	*Cirsium acaulon* (L.) Scop.	*Asteraceae*	x	x
106	*Cirsium eriophorum* Scop.	*Cirsium eriophorum* Scop.	*Asteraceae*	x	x
107	*Cirsium lanceolatum* L.	*Cirsium vulgare* (Savi) Ten.	*Asteraceae*	x	
108	*Citrus aurantium* L.	*Citrus aurantium* L.	*Rutaceae*	x	
109	*Citrus medica* L.	*Citrus medica* L.	*Rutaceae*	x	
110	*Citrus nobilis*	*Citrus nobilis* Lour.	*Rutaceae*	x	
111	*Citrus paradisi* "Grapefruit" T.	*Citrus paradisi* Macfad.	*Rutaceae*		
112	*Clematis flammula* L.	*Clematis flammula* L.	*Ranunculaceae*	x	x
113	*Clematis tangutica*	*Clematis tangutica* (Maxim.) Korsh.	*Ranunculaceae*		
114	*Clematis vitalba* L.	*Clematis vitalba* L.	*Ranunculaceae*	x	x
115	*Cnicus benedictus* L.	*Centaurea benedicta* (L.) L.	*Asteraceae*		
116	*Colchicum autumnale* L.	*Colchicum autumnale* L.	*Colchicaceae*	x	x
117	*Colocynthis citrullus* (L.) Fritsch	*Citrullus lanatus* (Thunb.) Matsum. & Nakai	*Cucurbitaceae*	x	
118	*Colutea arborescens* L.	*Colutea arborescens* L.	*Fabaceae*	x	x
119	*Conium maculatum* L.	*Conium maculatum* L.	*Apiaceae*	x	
120	*Convolvulus arvensis* L.	*Convolvulus arvensis* L.	*Convolvulaceae*	x	x
121	*Convolvus cantabrica* L.	*Convolvulus cantabrica* L.	*Convolvulaceae*	x	x
122	*Coriandrum sativum* L.	*Coriandrum sativum* L.	*Apiaceae*	x	
123	*Cornus mas* L.	*Cornus mas* L.	*Cornaceae*	x	x
124	*Coronilla emerus ssp. emeroide*s L.	*Coronilla emerus* L. ssp. *emeroides* Boiss. et Spruner	*Fabaceae*	x	x
125	*Coronilla varia* L.	*Securigera varia* (L.) Lassen	*Fabaceae*	x	x
126	*Corydalis cava* (L.) Schw. et K.	*Corydalis cava* (L.) Schw. et K.	*Fumariaceae*	x	x
127	*Corylus avellana* L.	*Corylus avellana* L.	*Corylaceae*	x	x
128	*Cotoneaster tomentosa* Lindl.	*Cotoneaster nebrodensis* (Guss.) K. Koch	*Rosaceae*	x	x
129	*Crataegus coccinea* L.	*Crataegus coccinea* L.	*Rosaceae*		
130	*Crataeugs monogyna* Jacq., *Crataegus transalpina* L.	*Crataeugs monogyna* Jacq.	*Rosaceae*	x	x

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131	*Crepis biennis* L.	*Crepis biennis* Lapeyr.	*Cichoriaceae*	x	x
132	*Crepis chondrilloides* L.	*Crepis chondrilloides* Jacq.	*Cichoriaceae*	x	x
133	*Crithmum maritimum* L.	*Crithmum maritimum* L.	*Apiaceae*	x	x
134	*Cucumis melo* L.	*Cucumis melo* L.	*Cucurbitaceae*	x	
135	*Cucumis sativus* L.	*Cucumis sativus* L.	*Cucurbitaceae*	x	
136	*Cucurbita pepo* L.	*Cucurbita pepo* L.	*Cucurbitaceae*	x	x
137	*Cupressus sempervirens v. stricta* L., *Cupressus sempervirens* L.	*Cupressus sempervirens* L.	*Cupressaceae*	x	
138	*Cuscuta* sp.	*Cuscuta* sp.	*Cuscutaceae*	x	x
139	*Cycas revoluta* L.	*Cycas revoluta* Thunb.	*Cycadaceae*		
140	*Cydonia japonica* Pers.	*Chaenomeles japonica* (Thunb.) Lindl. ex Spach	*Rosaceae*	x	x
141	*Cynanchum vincetoxicum* L.	*Vincetoxicum hirundinaria* Medik.	*Asclepiadaceae*	x	x
142	*Cynara cardunculus* L.	*Cynara cardunculus* L.	*Asteraceae*	x	
143	*Cynodon dactylon* (L.) Fers.	*Cynodon dactylon* (L.) Pers.	*Poaceae*	x	x
144	*Cynoglossum officinale*	*Cynoglossum officinale* L.	*Boraginaceae*	x	
145	*Cynosurus cristatus* L.	*Cynosurus cristatus* L.	*Poaceae*	x	x
146	*Cytisus hirsutus* L.	*Cytisus hirsutus* L.	*Fabaceae*	x	x
147	*Cytisus laburnum* L.	*Laburnum anagyroides* Medik.	*Fabaceae*	x	
148	*Cytisus nigricans* L.	*Lembotropis nigricans* (L.) Griseb.	*Fabaceae*	x	x
149	*Cytisus supinus* L.	*Cytisus hirsutus* L.	*Fabaceae*	x	x
150	*Dactylis glomerata* L.	*Dactylis glomerata* L.	*Poaceae*	x	x
151	*Daphne laureola* L.	*Daphne laureola* L.	*Thymelaeaceae*	x	x
152	*Daphne mezereum* L.	*Daphne mezereum* L.	*Thymelaeaceae*	x	x
153	*Datura stramonium* L.	*Datura stramonium* L.	*Solanaceae*	x	
154	*Daucus carota* L.	*Daucus carota* L.	*Apiaceae*	x	
155	*Delphinium consolida* L.	*Consolida regalis* Gray	*Ranunculaceae*	x	x
156	*Dianthus deltoides* L.	*Dianthus deltoides* L.	*Caryophyllaceae*	x	x
157	*Dianthus plumarius* L.	*Dianthus plumarius* L.	*Caryophyllaceae*	x	x
158	*Dictamnus albus* L.	*Dictamnus albus* L.	*Rutaceae*	x	x
159	*Digitalis laevigata* L.	*Digitalis laevigata* Waldst. et Kit.	*Scrophulariaceae*	x	x
160	*Digitalis lanata* Ehrh.	*Digitalis lanata* Ehrh.	*Scrophulariaceae*	x	
161	*Digitalis lutea* L.	*Digitalis lutea* L.	*Scrophulariaceae*	x	
162	*Digitalis purpurea* L.	*Digitalis purpurea* L.	*Scrophulariaceae*	x	
163	*Dioscorea caucasica*	*Dioscorea caucasica* Lipsky	*Dioscoreaceae*		
164	*Diplotaxis tenuifolia* (L.) DC.	*Diplotaxis tenuifolia* (L.) DC.	*Brassicaceae*	x	x
165	*Dorycnium herbaceum* Vill.	*Dorycnium herbaceum* Vill.	*Fabaceae*	x	x
166	*Draba verna*	*Erophila verna* (L.) DC.	*Brassicaceae*	x	x
167	*Dryas octopetala* L.	*Dryas octopetala* L.	*Rosaceae*	x	x
168	*Ecballium elaterium* (L.) Rich.	*Ecballium elaterium* (L.) A. Rich.	*Cucurbitaceae*	x	
169	*Echinochloa crus galli* (L.) R. et. Sch.	*Echinochloa crus-galli* (L.) P. Beauv.	*Poaceae*	x	x

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170	*Echium vulgare* L.	*Echium vulgare* L.	*Boraginaceae*	x	x
171	*Edraianthus tenuifolius* (W.K.)	*Edraianthus tenuifolius* (A.DC.) A.DC.	*Campanulaceae*	x	x
172	*Elaeagnus angustifolia* L.J.	*Elaeagnus angustifolia* L.J.	*Elaeagnaceae*	x	
173	*Epilobium angustifolium* Scop., *Epilobium spicatum* L.	*Epilobium angustifolium* L.	*Onagraceae*	x	
174	*Epilobium rosmarinifolium* Haenke R.	*Epilobium dodonaei* Vill.	*Onagraceae*	x	
175	*Epilobium sp.* L.	*Epilobium* sp.	*Onagraceae*	x	x
176	*Erigeron canadensis* L.	*Erigeron canadensis* L.	*Asteraceae*	x	x
177	*Erodium cicutarium* L.	*Erodium cicutarium* (L.) L'Hér.	*Geraniaceae*	x	x
178	*Eruca sativa* L.	*Eruca vesicaria* (L.) Cav. ssp. *sativa* (Mill.) Thell.	*Brassicaceae*	x	
179	*Erythronium dens-canis* L.	*Erythronium dens-canis* L.	*Liliaceae*	x	
180	*Euonymus europaea* L.	*Euonymus europaeus* L.	*Celastraceae*	x	x
181	*Euonymus japonica* Thbg.	*Euonymus japonicus* Thunb.	*Celastraceae*	x	x
182	*Eupatorium cannabinum* L.	*Eupatorium cannabinum* L.	*Asteraceae*	x	x
183	*Euphorbia amygdaloides* L.	*Euphorbia amygdaloides* L.	*Euphorbiaceae*	x	x
184	*Euphorbia cyparissias* L.	*Euphorbia cyparissias* L.	*Euphorbiaceae*	x	x
185	*Euphorbia falcata*	*Euphorbia falcata* L.	*Euphorbiaceae*	x	
186	*Euphorbia helioscopia* L.	*Euphorbia helioscopia* L.	*Euphorbiaceae*	x	x
187	*Euphorbia polychroma* Kern.	*Euphorbia epithymoides* L.	*Euphorbiaceae*	x	x
188	*Euphorbia verrucosa* L.	*Euphorbia verrucosa* L.	*Euphorbiaceae*	x	x
189	*Fagopyrum vulgare* Hill. *sagittatum* Gill.	*Fagopyrum esculentum* Moench	*Polygonaceae*	x	
190	*Fagus silvatica* L.	*Fagus sylvatica* L.	*Fagaceae*	x	x
191	*Ferulago galbanifera* Koch.	*Ferulago campestris* (Besser) Grecescu	*Apiaceae*	x	x
192	*Festuca gigantea* L.	*Festuca gigantea* (L.) Vill	*Poaceae*	x	x
193	*Festuca ovina* L.	*Festuca ovina* L.	*Poaceae*	x	x
194	*Festuca pratensis* Huds.	*Festuca pratensis* Huds.	*Poaceae*	x	x
195	*Filago arvensis* L.	*Filago arvensis* L.	*Asteraceae*	x	x
196	*Filipendula hexapetala* Gilib.	*Filipendula vulgaris* Moench	*Rosaceae*	x	x
197	*Filipendula ulmaria* Maxim.	*Filipendula ulmaria* (L.) Maxim.	*Rosaceae*	x	x
198	*Foeniculum vulgare* Mill.	*Foeniculum vulgare* Mill.	*Apiaceae*	x	
199	*Fraxinus ornus* L.	*Fraxinus ornus* L.	*Oleaceae*	x	x
200	*Fumana procumbens*	*Fumana procumbens* (Dunal) Gren. & Godr.	*Cistaceae*	x	
201	*Galega officinalis* L.	*Galega officinalis* L.	*Fabaceae*	x	x
202	*Galeopsis speciosa* Mill.	*Galeopsis speciosa* Mill.	*Lamiaceae*	x	x
203	*Galinsoga parviflora* Carvan.	*Galinsoga parviflora* Cav.	*Asteraceae*	x	
204	*Galium vernum* L.	*Cruciata glabra* (L.) Opiz	*Rubiaceae*	x	x
205	*Galtonia candicans* Decaisne J.	*Ornithogalum candicans* (Baker) J.C.Manning & Goldblatt	*Asparagaceae*		
206	*Gentiana anisodonta* Borb.	*Gentianella anisodonta* (Borbás) Á. Löve et D. Löve	*Gentianaceae*	x	x
207	*Gentiana asclepiadea* L.	*Gentiana asclepiadea* L.	*Gentianaceae*	x	x

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208	*Geranium robertianum* L.	*Geranium robertianum* L.	*Geraniaceae*	x	x
209	*Geum urbanum* L.	*Geum urbanum* L.	*Rosaceae*	x	x
210	*Gladiolus illyricus* Koch.	*Gladiolus illyricus* W. D. J. Koch.	*Iridaceae*	x	x
211	*Glaucium luteum*	*Glaucium flavum* Crantz	*Papaveraceae*	x	x
212	*Gleditschia triacanthos* L.	*Gleditsia triacanthos* L.	*Fabaceae*	x	
213	*Globularia bellidifolia* Ten.	*Globularia cordifolia* L. ssp. *bellidifolia* (Ten.) Wettst.	*Globulariaceae*	x	x
214	*Globularia Willkommii* Nym.	*Globularia punctata* Lapeyr.	*Globulariaceae*	x	x
215	*Gomphocarpus fruticosus* L.	*Gomphocarpus fruticosus* (L.) W.T.Aiton	*Asclepiadaceae*	x	
216	*Gossypium herbaceus* L.	*Gossypium herbaceum* L.	*Malvaceae*	x	
217	*Hedera helix* L.	*Hedera helix* L.	*Araliaceae*	x	x
218	*Helianthemum obscurum*	*Helianthemum nummularium* (L.) Mill. ssp. *obscurum* (Čelak.) Holub	*Cistaceae*	x	x
219	*Helianthus annua* L.	*Helianthus annuus* L.	*Asteraceae*	x	
220	*Helichrysum italicum* Guss.	*Helichrysum italicum* (Roth) G.Don	*Asteraceae*	x	x
221	*Heracleum sphondylium* L.	*Heracleum sphondylium* L.	*Apiaceae*	x	x
222	*Hibiscus syriacus* L.	*Hibiscus syriacus* L.	*Malvaceae*	x	
223	*Hibiscus trionum* L.	*Hibiscus trionum* L.	*Malvaceae*	x	x
224	*Hieracium pillosella* L.	*Hieracium pilosella* L.	*Cichoriaceae*	x	x
225	*Holcus lanataum*	*Holcus lanatus* L.	*Poaceae*	x	x
226	*Homogyne silvestris* (Scop.) Cass.	*Homogyne sylvestris* (Jacq.) Cass.	*Asteraceae*	x	x
227	*Hordeum sativum* L.	*Hordeum vulgare* L.	*Poaceae*	x	
228	*Humulus lupulus* L.	*Humulus lupulus* L.	*Cannabaceae*	x	x
229	*Hyoscyamus niger*	*Hyoscyamus niger* L.	*Solanaceae*	x	x
230	*Hypericum montanum* L.	*Hypericum montanum* L.	*Clusiaceae*	x	x
231	*Hypericum perforatum* L.	*Hypericum perforatum* L.	*Hypericaceae*	x	x
232	*Hypochoeris maculata* L.	*Hypochaeris maculata* L.	*Cichoriaceae*	x	x
233	*Hypochoeris radicata* L.	*Hypochaeris radicata* L.	*Cichoriaceae*	x	x
234	*Hyssopus officinalis* L.	*Hyssopus officinalis* L.	*Lamiaceae*	x	x
235	*Impatiens noli-tangere* L.	*Impatiens noli-tangere* L.	*Balsaminaceae*	x	x
236	*Inula britannica* L.	*Inula britannica* L.	*Asteraceae*	x	x
237	*Inula conyza* DC.	*Inula conyza* (Griess.) DC.	*Asteraceae*	x	x
238	*Inula helenium* L.	*Inula helenium* L.	*Asteraceae*	x	
239	*Inula hirta* L.	*Inula hirta* L.	*Asteraceae*	x	x
240	*Iris illyrica* Tomm.	*Iris illyrica* Tomm.	*Iridaceae*	x	x
241	*Iris pseudacorus* L.	*Iris pseudacorus* L.	*Iridaceae*	x	x
242	*Iris sibirica* L.	*Iris sibirica* L.	*Iridaceae*	x	x
243	*Isatis tinctoria* L.	*Isatis tinctoria* L.	*Brassicaceae*	x	
244	*Jurinea mollis* L.	*Jurinea mollis* (L.) Rchb.	*Asteraceae*	x	x
245	*Kickxia spurea* (L.) Dum.	*Kickxia spuria* (L.) Dumort.	*Scrophulariaceae*	x	x
246	*Knautia arvensis* L.	*Knautia arvensis* (L.) Coult.	*Dipsacaceae*	x	x

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247	*Kniphofia uvaria* Hook.	*Kniphofia uvaria* (L.) Oken	*Asphodelaceae*		
248	*Kochia scoparia* (L.) Schrad.J.	*Bassia scoparia* (L.) A. J. Scott	*Chenopodiaceae*	x	
249	*Koelreuteria paniculata* Laxm.A.	*Koelreuteria paniculata* Laxm.	*Sapindaceae*	x	
250	*Lactuca muralis* Gartn.	*Lactuca muralis* (L.) Fresen.	*Cichoriaceae*	x	
251	*Lactuca serriola* L.	*Lactuca serriola* L.	*Cichoriaceae*	x	
252	*Lamium purpureum* L.	*Lamium purpureum* L.	*Lamiaceae*	x	x
253	*Lapsana communis* L.	*Lapsana communis* L.	*Cichoriaceae*	x	x
254	*Laserpitium siler* L.	*Laserpitium siler* L.	*Apiaceae*	x	x
255	*Lathyrus aphaca* L.	*Lathyrus aphaca* L.	*Fabaceae*	x	x
256	*Lathyrus niger* L.	*Lathyrus niger* L. (Bernh)	*Fabaceae*	x	x
257	*Lathyrus sativus* L.	*Lathyrus sativus* L.	*Fabaceae*	x	x
258	*Lathyrus silvestris*	*Lathyrus sylvestris* L.	*Fabaceae*	x	x
259	*Lathyrus* sp.	*Lathyrus* sp.	*Fabaceae*	x	x
260	*Lathyrus vernus* Bernh.	*Lathyrus vernus* (L.) Bernh.	*Fabaceae*	x	x
261	*Laurus nobilis* L.	*Laurus nobilis* L.	*Lauraceae*	x	x
262	*Lavandula vera* DC.	*Lavandula angustifolia* subsp. *pyrenaica* (DC.) Guinea	*Lamiaceae*		
263	*Leontodon autumnalis* L.	*Leontodon autumnalis* L.	*Cichoriaceae*	x	x
264	*Leontodon danubialis* Jacqu.	*Leontodon hispidus* L. ssp. *danubialis* (Jacq) Simonk.	*Cichoriaceae*	x	x
265	*Lepidium campestre* (L.) R. Br.	*Lepidium campestre* (L.) R. Br.	*Brassicaceae*	x	
266	*Lepidium sativum* L.	*Lepidium sativum* L.	*Brassicaceae*	x	
267	*Leucanthemum Liburnicum* L.	*Leucanthemum atratum* (Jacq.) DC. ssp. *platylepis* (Borbás) Heywood	*Asteraceae*	x	x
268	*Leucoium aestivum* L.	*Leucojum aestivum* L.	*Amaryllidaceae*	x	x
269	*Levisticum officinale* Koch.	*Levisticum officinale* W. D. J. Koch	*Apiaceae*	x	
270	*Libanotis montana* Cr.	*Seseli libanotis* (L.) W. D. J. Koch	*Apiaceae*	x	x
271	*Ligularia vulgaris*	*Ligularia sibirica* (L.) Cass.	*Asteraceae*	x	
272	*Ligustrum vulgare* L.	*Ligustrum vulgare* L.	*Oleaceae*	x	x
273	*Lilium martagon* L.	*Lilium martagon* L.	*Liliaceae*	x	x
274	*Linum catharticum* L.	*Linum catharticum* L.	*Linaceae*	x	x
275	*Linum usitatissimum* L.	*Linum usitatissimum* L.	*Linaceae*	x	x
276	*Lithospermum arvense* L.	*Lithospermum arvense* L.	*Boraginaceae*	x	x
277	*Lolium italicum* (č.sel.), *Lolium westwoldicum*	*Lolium multiflorum* Lam.	*Poaceae*	x	
278	*Lolium perenne* L.	*Lolium perenne* L.	*Poaceae*	x	x
279	*Lonicera alpigena* L.	*Lonicera alpigena* L.	*Caprifoliaceae*	x	x
280	*Lotus corniculatus* L.	*Lotus corniculatus* L.	*Fabaceae*	x	x
281	*Lunaria rediviva* L.	*Lunaria rediviva* L.	*Brassicaceae*	x	x
282	*Lupinus albus* L.	*Lupinus albus* L.	*Fabaceae*	x	
283	*Lycopus europaeus* L.	*Lycopus europaeus* L.	*Lamiaceae*	x	x
284	*Majorana hortensis* Mnch.	*Origanum majorana* L.	*Lamiaceae*	x	

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285	*Malus pumila* Mill. (*"budimka"; "citronka"; "delicious";"pogačnica"; "reneta";"srčika";"tafetica"*)	*Malus pumila* Mill.	*Rosaceae*	x	
286	*Malva silvestris* L., *Malva mauritiana* L.	*Malva sylvestris* L.	*Malvaceae*	x	x
287	*Marrubium vulgare* L.	*Marrubium vulgare* L.	*Lamiaceae*	x	
288	*Matricaria discoidea* DC.	*Matricaria discoidea* DC.	*Asteraceae*	x	
289	*Matricaria inodora* L.	*Matricaria perforata* Mérat	*Asteraceae*	x	x
290	*Medicago lupulina* L.	*Medicago lupulina* L.	*Fabaceae*	x	x
291	*Medicago orbicularis* All.	*Medicago orbicularis* (L.) Bartal.	*Fabaceae*	x	x
292	*Medicago sativa* L.	*Medicago sativa* L.	*Fabaceae*	x	x
293	*Medicago tuberculata* Willd.	*Medicago tuberculata* (Retz.) Willd.	*Fabaceae*	x	x
294	*Melandryum album* (Mill.) Garcke.	*Silene latifolia* Poir. ssp. *alba* (Mill.) Greuter et Bourdet	*Caryophyllaceae*	x	
295	*Melandryum silvestre* Rohl.	*Silene dioica* (L.) Clairv.	*Caryophyllaceae*	x	x
296	*Melia azedarach* L.	*Melia azedarach* L.	*Meliaceae*	x	
297	*Melica ciliata* L.	*Melica ciliata* L.	*Poaceae*	x	x
298	*Melilotus alba* L.	*Melilotus albus* Medik.	*Fabaceae*	x	x
299	*Melissa officinalis* L.	*Melissa officinalis* L.	*Lamiaceae*	x	x
300	*Mirabilis jalapa* L.	*Mirabilis jalapa* L.	*Nyctaginaceae*	x	
301	*Muscari comosum* L.	*Muscari comosum* (L.) Mill.	*Asparagaceae*	x	x
302	*Myrtus communis* Mill.	*Myrtus communis* L.	*Myrtaceae*	x	x
303	*Nerium oleander* L.	*Nerium oleander* L.	*Apocynaceae*	x	x
304	*Nicandra physaloides* Gartn.	*Nicandra physalodes* (L.) Gaertn.	*Solanaceae*	x	
305	*Nicotiana tabacum* L.	*Nicotiana tabacum* L.	*Solanaceae*	x	
306	*Nigella arvensis* L.	*Nigella arvensis* L.	*Ranunculaceae*	x	x
307	*Nigella damascena* L.	*Nigella damascena* L.	*Ranunculaceae*	x	x
308	*Ocimum basilicum* L.	*Ocimum basilicum* L.	*Lamiaceae*	x	
309	*Oenothera biennis* L.	*Oenothera biennis* L.	*Onagraceae*	x	
310	*Olea europaea*	*Olea europaea* L.	*Oleaceae*	x	x
311	*Ononis spinosa* L.	*Ononis spinosa* L.	*Fabaceae*	x	x
312	*Orlaya grandiflora* Hoffm.	*Orlaya grandiflora* (L.) Hoffm.	*Apiaceae*	x	x
313	*Ornithogalum umbellatum* L.	*Ornithogalum umbellatum* L.	*Asparagaceae*	x	x
314	*Oryza sativa* L.	*Oryza sativa* L.	*Poaceae*	x	
315	*Ostrya carpinifolia* Scop.	*Ostrya carpinifolia* Scop.	*Corylaceae*	x	x
316	*Osyris alba* L.	*Osyris alba* L.	*Santalaceae*	x	x
317	*Oxalis stricta* L.	*Oxalis stricta* L.	*Oxalidaceae*	x	x
318	*Paeonia corallina* Retz.	*Paeonia mascula* (L.) Mill.	*Paeoniaceae*	x	x
319	*Paliurus spina Christi* Mill.	*Paliurus spina-christi* Mill.	*Rhamnaceae*	x	x
320	*Panicum capillare* L.	*Panicum capillare* L.	*Poaceae*	x	x
321	*Panicum miliaceum* L.	*Panicum miliaceum* L.	*Poaceae*	x	x
322	*Papaver orientale* L.	*Papaver orientale* L.	*Papaveraceae*	x	
323	*Papaver rhoeas* L.	*Papaver rhoeas* L.	*Papaveraceae*	x	x

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324	*Papaver somniferum* L.	*Papaver somniferum* L.	*Papaveraceae*	x	
325	*Paris quadrifolia* L.	*Paris quadrifolia* L.	*Melanthiaceae*	x	x
326	*Parnassia palustris* L.	*Parnassia palustris* L.	*Parnassiaceae*	x	x
327	*Pastinaca sativa* L.	*Pastinaca sativa* L.	*Apiaceae*	x	x
328	*Peltaria alliacea* Jacq.	*Peltaria alliacea* Jacq.	*Brassicaceae*	x	
329	*Petasites albus* (L.) Gartn.	*Petasites albus* (L.) Gaertn.	*Asteraceae*	x	x
330	*Petroselinum hortense* Hoffm.	*Petroselinum crispum* (Mill.) Fuss	*Apiaceae*	x	
331	*Peucedanum oreoselinum* (L.) Mnch.	*Peucedanum oreoselinum* (L.) Moench.	*Apiaceae*	x	x
332	*Phacelia tanacetifolia* Benth.	*Phacelia tanacetifolia* Benth.	*Hydrophyllaceae*	x	
333	*Phleum pratense* L.	*Phleum pratense* L.	*Poaceae*	x	x
334	*Phoenix canariensis* L.	*Phoenix canariensis* Chabaud	*Arecaceae*	x	
335	*Physalis alkekengi* L.	*Physalis alkekengi* L.	*Solanaceae*	x	x
336	*Phytolacca americana* L.	*Phytolacca americana* L.	*Phytolaccaceae*	x	x
337	*Picea excelsa* Lk.	*Picea abies* (L.) H. Karst.	*Pinaceae*	x	
338	*Picris hieracioides*	*Picris hieracioides* Sibth. & Sm.	*Cichoriaceae*	x	
339	*Pinus communis* L. "citronka"	*Pyrus communis* L.	*Rosaceae*	x	
340	*Pinus halepensis* Mill.	*Pinus halepensis* Mill.	*Pinaceae*	x	
341	*Pinus peuce* (Perister)	*Pinus peuce* Griseb.	*Pinaceae*		x
342	*Pinus pinea* L.	*Pinus pinea* L.	*Pinaceae*	x	
343	*Pistacia lentiscus* L.	*Pistacia lentiscus* L.	*Anacardiaceae*	x	x
344	*Pisum arvensis* L., *Pisum sativum* L.	*Pisum sativum* L	*Fabaceae*	x	
345	*Pittosporum tobira* (Thbg.) Ait.	*Pittosporum tobira* (Thunb.) W.T.Aiton	*Pittosporaceae*	x	x
346	*Plantago carinata* Schrad.	*Plantago subulata* L.	*Plantaginaceae*	x	x
347	*Plantago indica* L.	*Plantago indica* L.	*Plantaginaceae*	x	x
348	*Plantago intermedia*	*Plantago major* ssp. *intermedia* (Gilib.) Lange	*Plantaginaceae*	x	
349	*Plantago lanceolata* L.	*Plantago lanceolata* L.	*Plantaginaceae*	x	x
350	*Plantago major* L.	*Plantago major* L.	*Plantaginaceae*	x	x
351	*Platanus orientalis* L.	*Platanus orientalis* L.	*Platanaceae*	x	
352	*Poa nemoralis* L.	*Poa nemoralis* L.	*Poaceae*	x	x
353	*Poa palustris* L. *serotina* Ehr.	*Poa palustris* L.	*Poaceae*	x	x
354	*Poa pratensis* L.	*Poa pratensis* L.	*Poaceae*	x	x
355	*Poa trivialis*	*Poa trivialis* L.	*Poaceae*	x	x
356	*Polygonum lapathifoliu*m L.	*Polygonum lapathifolium* L.	*Polygonaceae*	x	x
357	*Portulaca oleracea* L.	*Portulaca oleracea* L.	*Portulacaceae*	x	
358	*Prenanthes purpurea*	*Prenanthes purpurea* L.	*Cichoriaceae*	x	x
359	*Primula columnae* Ten.	*Primula veris* L. ssp. *columnae* (Ten.) Lüdi	*Primulaceae*	x	x
360	*Prunella laciniata* L.	*Prunella laciniata* (L.) L.	*Lamiaceae*	x	x
361	*Prunus armeniaca* L.J.	*Prunus armeniaca* L.	*Rosaceae*	x	
362	*Prunus communis* J. (L.)	*Prunus dulcis* (Mill.) D. A. Webb	*Rosaceae*	x	

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363	*Prunus spinosa* L.	*Prunus spinosa* L.	*Rosaceae*	x	x
364	*Ptelea trifoliata* L.	*Ptelea trifoliata* L.	*Rutaceae*		
365	*Punica granatum* L.	*Punica granatum* L.	*Punicaceae*	x	x
366	*Pyracantha coccinea* Rom.j.	*Pyracantha coccinea* M.Roem	*Rosaceae*	x	
367	*Quercus cerris* L.	*Quercus cerris* L.	*Fagaceae*	x	x
368	*Quercus conferta* Kit.	*Quercus frainetto* Ten.	*Fagaceae*	x	x
369	*Quercus ilex* L.	*Quercus ilex* L.	*Fagaceae*	x	x
370	*Quercus palustris*	*Quercus palustris* Münchh.	*Fagaceae*	x	x
371	*Ranunculus acer* L.	*Ranunculus acris* L.	*Ranunculaceae*	x	x
372	*Ranunculus sardous* Cr.	*Ranunculus sardous* Crantz	*Ranunculaceae*	x	x
373	*Reseda lutea* L.	*Reseda lutea* L.	*Resedaceae*	x	x
374	*Rheum palmatum* L.	*Rheum palmatum* L.	*Polygonaceae*		
375	*Ricinus communis* L.	*Ricinus communis* L.	*Euphorbiaceae*	x	
376	*Robinia pseudoacacia* L.	*Robinia pseudoacacia* L.	*Fabaceae*	x	x
377	*Roripa silvestris* Bess.	*Rorippa sylvestris* (L.) Besser	*Brassicaceae*	x	x
378	*Rubia peregrina* L.	*Rubia peregrina* L.	*Rubiaceae*	x	x
379	*Rumex acetosella* L.	*Rumex acetosella* L.	*Polygonaceae*	x	x
380	*Rumex obtusifolius* L.	*Rumex obtusifolius* L.	*Polygonaceae*	x	x
381	*Rumex patientia* L.	*Rumex patientia* L.	*Polygonaceae*	x	
382	*Rumex scutatus* L.	*Rumex scutatus* L.	*Polygonaceae*	x	x
383	*Ruscus hypoglossum*	*Ruscus hypoglossum* L.	*Asparagaceae*	x	x
384	*Ruta graveolens* L., *Ruta divaricata* Ten.	*Ruta graveolens* L.	*Rutaceae*	x	x
385	*Salvia officinalis* L.	*Salvia officinalis* L.	*Lamiaceae*	x	x
386	*Salvia pratensis* L.	*Salvia pratensis* L.	*Lamiaceae*	x	x
387	*Salvia sclarea* L.	*Salvia sclarea* L.	*Lamiaceae*	x	x
388	*Salvia verticillata* L.	*Salvia verticillata* L.	*Lamiaceae*	x	x
389	*Sambucus nigra* L.	*Sambucus nigra* L.	*Caprifoliaceae*	x	x
390	*Sambucus racemosa* L.	*Sambucus racemosa* L.	*Caprifoliaceae*	x	x
391	*Sanguisorba muricata* (Spach.)	*Sanguisorba minor* Scop. ssp. *muricata* Briq.	*Rosaceae*	x	x
392	*Saponaria officinalis*	*Saponaria officinalis* L.	*Caryophyllaceae*	x	x
393	*Satureja vulgaris* Fritsch.	*Clinopodium vulgare* L.	*Lamiaceae*	x	x
394	*Scabiosa graminifolia* L.	*Scabiosa graminifolia* L.	*Dipsacaceae*	x	x
395	*Scilla pratensis* Waldst.	*Chouardia litardierei* (Breistr.) Speta	*Asparagaceae*	x	x
396	*Scopolia carniolica* Jacq.	*Scopolia carniolica* Jacq.	*Solanaceae*	x	x
397	*Scorzonera villosa* Scop.	*Scorzonera villosa* Scop.	*Cichoriaceae*	x	x
398	*Scrophularia canina* L.	*Scrophularia canina* L.	*Scrophulariaceae*	x	x
399	*Secale cereale* L.	*Secale cereale* L.	*Poaceae*	x	
400	*Senecio jacobaea* L.	*Senecio jacobaea* L.	*Asteraceae*	x	x
401	*Senecio nemorensis* L.	*Senecio nemorensis* L.	*Asteraceae*	x	x
402	*Senecio umbrosus* W.K.B.	*Senecio umbrosus* Waldst. & Kit.	*Asteraceae*	x	x
403	*Senecio vulgaris* L.	*Senecio vulgaris* L.	*Asteraceae*	x	
404	*Sesanum indicum* L.J.	*Sesamum indicum* L.	*Pedaliaceae*		

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405	*Setaria glauca* (L.) R. et. Sch.	*Pennisetum glaucum* (L.) R. Br.	*Poaceae*	x	x
406	*Setaria italica*	*Setaria italica* (L.) P. Beauv.	*Poaceae*	x	
407	*Silene* sp.	*Silene* sp.	*Caryophyllaceae*	x	x
408	*Sinapis alba* L.	*Sinapis alba* L.	*Brassicaceae*	x	
409	*Sinapis arvensis* L.	*Sinapis arvensis* L.	*Brassicaceae*	x	
410	*Sinapis* sp.	*Sinapis* sp.	*Brassicaceae*	x	
411	*Sisymbrium officinale* (L.) Scop.	*Sisymbrium officinale* (L.) Scop.	*Brassicaceae*	x	x
412	*Sisymbrium strictissimum* L.	*Sisymbrium strictissimum* L.	*Brassicaceae*	x	x
413	*Smillax aspera* L.	*Smilax aspera* L.	*Smilacaceae*	x	x
414	*Solanum citrullifolium* A. Bn.	*Solanum citrullifolium* A. Bn.	*Solanaceae*		
415	*Solanum lycopersicum L.*	*Solanum lycopersicum* L.	*Solanaceae*	x	x
416	*Solidago canadensis* L.	*Solidago canadensis* L.	*Asteraceae*	x	
417	*Sonchus arvensis* L.	*Sonchus arvensis* L.	*Cichoriaceae*	x	
418	*Sonchus asper* (L.) Hill.	*Sonchus asper* (L.) Hill.	*Cichoriaceae*	x	x
419	*Sonchus oleraceus* L.	*Sonchus oleraceus* L.	*Cichoriaceae*	x	
420	*Sophora Japonica* L.	*Sophora japonica* L.	*Fabaceae*	x	
421	*Sorbus aria* (L.) H.	*Sorbus aria* (L.) Crantz	*Rosaceae*	x	x
422	*Sorghum halepense* (L.) Pers.	*Sorghum halepense* (L.) Pers.	*Poaceae*	x	x
423	*Sorghum saccharatum* (L.) Pers., *Sorghum vulgare* L.	*Sorghum bicolor* (L.) Moench	*Poaceae*	x	
424	*Spartium junceum* L.	*Spartium junceum* L.	*Fabaceae*	x	x
425	*Spireae opulifolia* L.	*Physocarpus opulifolius* (L.) Maxim.	*Rosaceae*	x	
426	*Stachys annua* L.	*Stachys annua* (L.) L.	*Lamiaceae*	x	x
427	*Stachys arvensis* L.	*Stachys arvensis* (L.) L.	*Lamiaceae*	x	
428	*Stachys officinalis* (L.) Trevisan	*Stachys officinalis* (L.) Trevis.	*Lamiaceae*	x	x
429	*Stachys salviaefolia* Ten.	*Stachys cretica* L. ssp. *salviifolia* (Ten.) Rech. f.	*Lamiaceae*	x	x
430	*Stachys silvatica*	*Stachys sylvatica* L.	*Lamiaceae*	x	x
431	*Staphylea pinnata*	*Staphylea pinnata* L.	*Staphyleaceae*	x	x
432	*Stellaria holostea* L.	*Stellaria holostea* L.	*Caryophyllaceae*	x	x
433	*Stellaria media* L.	*Stellaria media* (L.) Vill.	*Caryophyllaceae*	x	x
434	*Stipa pennata* L.	*Stipa pennata* L.	*Poaceae*	x	x
435	*Symphytum officinale*	*Symphytum officinale* L.	*Boraginaceae*	x	x
436	*Syringa vulgaris* L.	*Syringa vulgaris* L.	*Oleaceae*	x	
437	*Tagetes erecta* L.	*Tagetes erecta* L.	*Asteraceae*	x	
438	*Tamus communis* L.	*Tamus communis* L.	*Dioscoreaceae*	x	x
439	*Taraxacum Kok-saghyzi*	*Taraxacum kok-saghyz* L.E.Rodin	*Asteraceae*		
440	*Taraxacum officinal*e L.	*Taraxacum officinale* L.	*Cichoriaceae*	x	
441	*Taxodium distichum* L.	*Taxodium distichum* (L.) Rich.	*Taxodiaceae*	x	
442	*Taxus baccata* L.	*Taxus baccata* L.	*Taxaceae*	x	x
443	*Telekia speciosa* Schreb.	*Telekia speciosa* (Schreb.) Baumg.	*Asteraceae*	x	x
444	*Thuja orientalis* L.	*Thuja orientalis* L.	*Cupressaceae*	x	

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445	*Tilia argentea* Desf.	*Tilia tomentosa* Moench	*Tiliaceae*	x	
446	*Tordylium apulum* L.	*Tordylium apulum* L.	*Apiaceae*	x	x
447	*Torilis arvensis* (Huds.) Lk	*Torilis arvensis* (Huds.) Lk	*Apiaceae*	x	
448	*Trachycarpus excelsa* Wendl.	*Rhapis excelsa* (Thunb.) Henry	*Arecaceae*		
449	*Tragopogon pratensis* L.	*Tragopogon pratensis* L.	*Cichoriaceae*	x	x
450	*Trapa natans* L. J.	*Trapa natans* L.	*Trapaceae*	x	
451	*Trifolium arvense* L.	*Trifolium arvense* L.	*Fabaceae*	x	x
452	*Trifolium aureum, Trifolium strepens* Cr.	*Trifolium aureum* Pollich	*Fabaceae*	x	x
453	*Trifolium campestre* Schre.	*Trifolium campestre* Schre.	*Fabaceae*	x	x
454	*Trifolium fragiferum* L.	*Trifolium fragiferum* L.	*Fabaceae*	x	
455	*Trifolium hybridum*	*Trifolium hybridum* L.	*Fabaceae*	x	x
456	*Trifolium incarnatum*	*Trifolium incarnatum* L.	*Fabaceae*	x	x
457	*Trifolium montanum* L.	*Trifolium montanum* L.	*Fabaceae*	x	x
458	*Trifolium pratense* L.	*Trifolium pratense* L.	*Fabaceae*	x	x
459	*Trifolium rubens* L.	*Trifolium rubens* L.	*Fabaceae*	x	x
460	*Trifolium stellatum* L.	*Trifolium stellatum* L.	*Fabaceae*	x	x
461	*Trifolium subterraneum* L.	*Trifolium subterraneum* L.	*Fabaceae*	x	
462	*Trollius europaeus* L.	*Trollius europaeus* L.	*Ranunculaceae*	x	x
463	*Tussilago farfara* L.	*Tussilago farfara* L.	*Asteraceae*	x	x
464	*Typha latifolia* L.	*Typha latifolia* L.	*Typhaceae*	x	x
465	*Onopordum acanthium* L.	*Onopordum acanthium* L.	*Asteraceae*	x	
466	*Urtica dioica* L.	*Urtica dioica* L.	*Urticaceae*	x	x
467	*Valeriana officinalis* L.	*Valeriana officinalis* L.	*Valerianaceae*	x	x
468	*Veratrum album* L.	*Veratrum album* L.	*Melanthiaceae*	x	x
469	*Verbascum floccosum* W.K.	*Verbascum pulverulentum* Vill.	*Scrophulariaceae*	x	
470	*Verbascum phlomoides* L.	*Verbascum phlomoides* L.	*Scrophulariaceae*	x	
471	*Verbena officinalis* L.	*Verbena officinalis* L.	*Verbanaceae*	x	x
472	*Veronica officinalis* L.	*Veronica officinalis* L.	*Scrophulariaceae*	x	x
473	*Viburnum lantana* L.	*Viburnum lantana* L.	*Caprifoliaceae*	x	x
474	*Viburnum opulus* L.	*Viburnum opulus* L.	*Caprifoliaceae*	x	x
475	*Viburnum tinus* L.	*Viburnum tinus* L.	*Caprifoliaceae*	x	x
476	*Vicia calcarata*	*Vicia monantha* Retz.	*Fabaceae*		
477	*Vicia ervilia* (L.) Willd.	*Vicia ervilia* (L.) Willd.	*Fabaceae*	x	x
478	*Vicia faba* L.	*Vicia faba* L.	*Fabaceae*	x	
479	*Vicia lutea* L.	*Vicia lutea* L.	*Fabaceae*	x	x
480	*Vicia sativa* L. *Vicia sativa* ssp. *obovata* H.	*Vicia sativa* L.	*Fabaceae*	x	x
481	*Viola odorata* L.	*Viola odorata* L.	*Violaceae*	x	x
482	*Vitex agnus-castus* L.	*Vitex agnus-castus* L.	*Verbanaceae*	x	x
483	*Xanthium italicum* Moretti.	*Xanthium orientale* subsp. *italicum* (Moretti) Greuter	*Asteraceae*	x	
484	*Xanthium strumarium* L.	*Xanthium strumarium* L.	*Asteraceae*	x	x
485	*Zea mays* L.	*Zea mays* L.	*Poaceae*	x	
486	*Ziziphus sativus* Gaert.	*Ziziphus jujuba* Mill.	*Rhamnaceae*	x	