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Gianmaria Bonari [1], Claudia Angiolini [1], Paolo Castagnini [1], Ilaria Bonini [1]

THE NON-MEDICINAL PLANTS OF A HISTORICAL TUSCAN HERBARIUM: THE "ERBARIO DEI CAPPUCCINI DI SAN QUIRICO D'ORCIA"

Abstract - *The non-medicinal plants of a historical tuscan herbarium: the "Erbario dei Cappuccini di San Quirico d'Orcia".* A historical *herbarium* compiled by the Capuchin friars of San Quirico d'Orcia (Siena), dating to the second half of the 18th century, was accurately investigated for the first time. The whole collection is composed of 579 sheets with 348 plants enclosed in 5 boxes. The collection is divided into two main sections: "medicinal plants" and "non-medicinal plants". In this study, we focused on the latter section. The goals were to evaluate the conservation status of each specimen, analyse them as historical-documental source, get information on past investigative methods and compile a list of the specimens. In total, 168 specimens belonging to 44 families, 134 genera and 157 species were revised. The richest families in terms of species were Fabaceae (14.4%), Lamiaceae (13.1%) and Asteraceae (9.0%). About 50% of the specimens are in good conservation status. Since the results of this study show species from various areas, the purpose of this *herbarium* was probably not solely for the study of the local flora, but also for other purposes (e.g. economic, alimentary and documentary). Moreover, given the variety of the collection it can be assumed that plants were not only collected but that exchanges also occurred with other people from other localities, also abroad. The study of the specimens increases the collection life span, by anticipating the period of the supposed establishment of the collection to 1569, due to a date reported in a label, and extending its conclusion to at least until 1772. This study highlights that much information can be obtained from historical *herbaria* and it confirms the crucial role of botany in Tuscany in the past. Furthermore, it shows that botany extended beyond Universities, as it does today.

Key words - Flora, *exsiccata*, Italy, specimen, Tuscany, vascular plant

Riassunto - *Le piante non medicinali di un erbario storico toscano: l'"Erbario dei Cappuccini di San Quirico d'Orcia".* È stata accuratamente studiata per la prima volta una raccolta di *exsiccata* datata alla seconda metà del 1700 nel convento dei Cappuccini di S. Quirico d'Orcia (Siena). In totale sono presenti 579 fogli con 348 campioni vegetali racchiusi in 5 volumi. La raccolta è suddivisa in due sezioni principali: "Piante officinali" e "Piante non officinali". Quest'ultima è l'oggetto del presente studio che ha avuto lo scopo di valutare lo stato di conservazione di ogni campione, analizzare i campioni d'erbario come fonte storico/documentale, avere informazioni sulle metodologie d'indagine utilizzate nei secoli passati e redigere un elenco delle specie. I campioni vegetali rivisti sono 168, suddivisi in 44 famiglie, 134 generi e 157 specie. Le famiglie con il maggior numero di specie sono Fabaceae (14,4%), Lamiaceae (13,1%) e Asteraceae (9,0%). Il 50% circa dei campioni sono in buono stato di conservazione. I risultati mostrano inoltre la presenza di specie provenienti da luoghi diversi, evidenziando che la tipologia dell'erbario indagato non era sicuramente rivolta all'analisi di una flora locale, ma frutto di vari interessi (economico, alimentare e documentale) e probabilmente risultato di raccolte personali, ma anche di scambi di materiale avvenuti con persone di altre località, anche estere. Lo studio dei campioni vegetali ha rivelato che la collezione è stata creata in un arco temporale più ampio rispetto a quanto ritenuto sino ad ora. Infatti, la data di creazione dell'erbario è probabilmente da anticipare rispetto a quanto indicato da autori precedenti, grazie alla data riportata su un campione (1569), così come la data di presunta fine è da posticipare perlomeno fino al 1772. Questo studio sottolinea la diversità di informazioni che si possono ottenere da un erbario storico e conferma il ruolo centrale che la botanica Toscana ha avuto in passato quando essa era molto diffusa anche al di fuori delle accademie, proprio come avviene oggi.

Parole chiave - Flora, campioni d'erbario, *exsiccata*, Italia, piante vascolari, Toscana

Introduction

The *Herbarium Universitatis Senensis*, acronym SIENA (acronym according to Thiers, 2014), owned by the Botanical Museum of the University of Siena, holds ancient *herbaria* and other old plant and fungi collections, which have been the object of numerous contributions (Nannizzi, 1928a; 1928b; 1928c; Chiarucci & Loppi, 1990; Bonini, 1993; Mariotti & Chiarucci, 1993; Chiarucci & Mariotti, 1994; Perini, 1994; Barluzzi *et al.*, 1998; Bonini, 2006; Bonini *et al.*, 2008; 2010). Moreover, data kept in SIENA has been used as the basis for floristic and general biodiversity studies (Bonini *et al.*, 2013; Geri *et al.*, 2013; Amici *et al.*, 2014; Bonari *et al.*, 2016; Roma-Marzio *et al.,* 2016). The *herbarium* of Siena was founded by Giovanni Campani in 1856 (Bonini, 2006). He prepared a collection of specimens called "*Erbario di Piante Senesi*", later increased with other specimens from Tuscany. Afterwards, it was reordered, integrated, and organized into two sections: the "general collection" and the "historical collection". The latter consists of *Mycotheca Universalis* and four old *herbaria* which were donated or purchased by the University of Siena. Two of them belonged to two botanists, Vincenzo Felici (labelled "*Erbario/Bottani/co di Siena/ 1803/ Vinc./ Felici*") and Lorenzo Panducci (this herbarium dates back to about 1770, although it probably continued until 1785-1790; Mariotti & Chiarucci, 1993). The other two herbaria

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are anonymous: the "*Erbario anonimo senese*" and the "*Erbario dei Cappuccini di San Quirico d'Orcia*", both dated to 18th century (Mariotti & Chiarucci, 1993; Bonini *et al.*, 2015). Given the importance of historical *herbaria* for the study of biodiversity, this research focused on the contents of the "*Erbario dei Cappuccini di San Quirico d'Orcia*" recently restorated. The goals were: i) to evaluate the conservation status of each specimens; ii) to analyse specimens through a detailed study, as a historical-documental source, interpreting and transcribing all label information; iii) to provide information on the investigative methods, botanical knowledge and common practices of previous centuries; iv) to compile a list of the preserved plants.

Materials and methods

The studied herbarium

The anonymous "*Erbario dei Cappuccini di San Quirico d'Orcia*" was probably set up in the cloister of the monastery of the Cappuchin monks. During the Italian unification (1815-1871) the cloister was confiscated and sold to the Filugelli family, one of the most important landowner family in the area of Val d'Orcia. Then, it passed by inheritance to Paolo Simonelli, a member of the aforementioned Filugelli family, who kindly donated the collection in 1987 to the Department of Life Sciences of the University of Siena (Mariotti & Chiarucci, 1993; Bonini, 2006; Bonini *et al.*, 2015). The whole collection is composed of 579 sheets with 348 plants, given that some sheets were devoid of specimens. This herbarium is composed of five volumes, four of which are boxes (without binding) and one is arranged in a hardcover. Each box contains a packet of *exsiccata*, in which plant specimens are glued, on a single face or occasionally on both. The boxes report a label written on the spine of the book reading "medicinal plants" on two boxes and "non-medicinal plants" the other two boxes. The fifth box (i.e. a cardboard bound marked '*n° 3*'), has a completly different structure and layout. Considering that this box looks more like a diary full of notes rather than a formal collection, and it is also the worst preserved, it was not considered for this research, although it deserves further study.

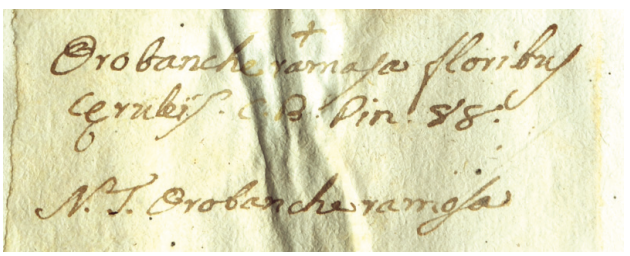

Figure 1. Example of label reporting the statement: *Orobanche ramosa floribus ceruleis C. B. Pin. 88 N. T. Orobanche ramosa* (to date *Phelipanche ramosa* (L.) Pomel).

In the four boxes, all the specimens have a label (Fig. 1), usually at the base of the *exsiccatum* with a short diagnostic phrase name or polynomial (*Nomen Specificum Legitimum*, *N. S. L.*), where the citation of botanical text known at the time is condensed. In most cases, the abbreviation *N. T.* (*Nomen Triviale*) is also reported. This epithet usually referred to descriptive characters, although it may also refer to other types of information, like habitat, geography, collector, etc. (Jarvis, 2007). In this study, we consider only the folders without the "plant properties label", an extra label with alleged plant properties, applied by friars in those folders containing plants considered medicinal.

Data analysis

To compile the list of specimens, vascular plants were studied by means of main European (Tutin *et al.*, 1964-80, 1993; Aeschimann *et al.*, 2004; Castroviejo *et al.*, 1984-2005) and Italian Flora (Pignatti, 1982) and, when possible, by means of systematic revision and through monographs. The list is primarily arranged by consecutive order of boxes (n° 1, 2, 4 and 5), then by the folder number (i.e. how the specimens are stored in the boxes). If present in the label, *N. T.* and pre-Linnean names *N. S. L.* were also reported. The list arose from handwriting interpretation and by means of a rigorous transcription. In case of illegible label or missing information, the specific symbols, [...] or [m] respectively, were reported. Updated scientific names of the species (Conti *et al.,* 2005; 2007 or more recent works) and relative family (Peruzzi, 2010) were reported based on our identification. The number of plant individuals and present parts (roots, leaves, flowers and fruits), as well as life forms and chorological types (Pignatti, 1982), were indicated for each specimen. For each specimen we also assessed its conservation status – the degree of the sample's physical integrity – using three classes: good (i.e. all specimen parts are well-preserved), medium (i.e. most specimen parts are well-preserved) and poor (i.e. few specimen parts are well-preserved).

To facilitate the consultation, a general index, reporting all the scientific names in alphabetical order, was provided, with references to the box (Appendix A).

List structure

The informations about the specimens are reported in the results by following the template below:

Updated scientific name (family) – life form – chorological type
N. T. – *N. S. L.* – reference/s

(box number) (folder number) – specimen parts* – conservation status

*This information should be interpreted as follow:
a) "*1 individual, leaves and fruit*". It is meant that the sample is composed of three separated elements: a complete individual, leaves and fruits.
b) "*1 individual with leaves and fruit*". It is meant that the sample is made up of an individual with leaves and fruits.

[m] = missing information.
[…] = illegible.

Results and Discussion

Species list

Silene dioica (L.) Clairv. (Caryophyllaceae) – H scap – Paleotemp.
Lychnis dioica – Lychnis sylvestris alba simplex. – C. B. Pin. 240
(1) (-) – 1 individual, leaves and flowers – Medium

Achillea ptarmica L. (Asteraceae) – H scap – Eurosib.
Ptarnica stenutamentaris – Ptarnica vulgaris folis longo, flore albo. – I. B. 3. 147 – Dracunculus pratensis serrato folio – [m]
(1) (-) – 1 individual with leaves and flowers – Good

Moluccella spinosa L. (Lamiaceae) – T scap – Stenomedit.
melissa costantinopolitana – Molucca fruticosa Sicula Molucella Melissa fruticosa, sicula calyce angolo patulo. – Rais: […] 368
(1) (-) – 1 individual with leaves and flowers – Medium

Hesperis matronalis L. (Brassicaceae) – H scap – Pontic
Hesperis – Hesperis hortensis flore purpureo. – C. B. Pin. 202 – viola hÿemalis purpurea Tabern. – Iecon. 308
(1) (-) – 2 individuals with leaves and flowers – Poor

Thalictrum lucidum L. (Ranunculaceae) – H scap – SE Europ.
Thalictrum flavum – Thalictrum majus Siliqua Seminis Striata foliis rugosis [...] – Oxon: 70
(1) (-) – 1 individual with leaves and flowers – Medium

Phillyrea cfr. ***latifolia*** L. (Oleaceae) – H scap – SE Europ.
[m] – Soraglia Trifolia – [m]
(1) (-) – 1 individual with leaves and fruits – Medium

Medicago scutellata (L.) Mill. (Fabaceae) – T scap – Eurimedit.
Medicago Orbicularis. – Medica orbiculata – I. B. 2.384
(1) (-) – 2 individuals; 1 with leaves and fruits and 1 with leaves – Good

Emerus major Mill. (Fabaceae) – NP – Central Europ.
Coronilla Emerus. – Emerus Cesalpinus […] Coronilla fruticosa, pedunculis subtrifloris – [m]
(1) (-) – 1 individual with leaves and flowers – Medium

Stachys sp. (Lamiaceae)
[m] – Salvia montana major calice florum purpurescente – C. B. Pin 237.
(1) (-) – 2 individuals with leaves and flowers – Poor

Geranium robertianum L. (Geraniaceae) – T Scap/H bien – Subcosmop.
Geranium Cicutarius – Geranium cicute folis minus, et supinus. – C. B. Pin. 319
(1) (-) – 2 individuals with leaves and fruits – Medium

Stachys alpina L. (Lamiaceae) – H scap – Oroph. S Europ.
Stachÿs alpina – Galeopsis alpina Betonice folio flore variegato – I. R. H. 185
(1) (-) – 2 individuals with leaves and flowers – Good

Stachys palustris L. (Lamiaceae) – H scap – Circumbor.
Stachÿs palustris – Galeopsis palustris Betonicae folio, flore variegato – I. R. H. 185
(1) (-) – 1 individual with leaves – Poor

Lilium sp. (Liliaceae)
Lilius bulbiferus – Lilius purpur […] croceum minus – C. B. Pin. […]
(1) (-) – 1 individual with leaves and flower – Poor

Heracleum sphondylium L. (Apiaceae) – H scap – Paleotemp.
Heracleum alpinum – Sphondÿlium alpinum glabrum – C. B. Pin: 157
(1) (-) – 1 individual with leaves and flowers – Medium

Laburnum anagyroides Medik. (Fabaceae) – P caesp – S Europ.
Cytisus laburnus – Cytisus alpinus latifolius, flore racemoso pendulo. – I. R. H: 648.
(1) (-) – 1 individual with leaves and flowers – Medium

Teucrium campanulatum L. (Lamiaceae) – H scap – W Stenomedit.
[m] – [m] – [m]
(1) (-) – 1 individual with leaves – Poor

Scandix pecten-veneris L. (Apiaceae) – T scap – Subcosmop.

Scandix Pecten Veneris – Scandix semine rostrato vulgaris – C. B. Pin: 151
(1) (-) – 3 individuals with leaves – Poor

Vicia hirsuta (L.) Gray (Fabaceae) – T scap – Subcosmop.
Vicia peregrina – Vicia angustifolia purpureo violacea, siliqua lata glabra. – Bot. Monsp.
(1) (-) – 5 individuals with leaves and flowers – Good

Astragalus hamosus L. (Fabaceae) – T scap – Medit. Turan.
[m] – Hedysarum Triticus, folis singulari acuminato Onobrychis […] monophylios filiculis singualaribus […] falcatum […] intermedia […] – [m]
(1) (-) – 1 individual with leaves, flowers and fruits – Medium

Echinops ritro L. (Asteraceae) – H scap – Stenomedit.
[m] – Echinopus major flore candido staminibus in medio ceruleis – I. R. H. 463.
(1) (-) – 1 individual with leaves and flowers – Good

Colutea arborescens L. (Fabaceae) – P caesp – Eurimedit.
[m] – Colutea vesicaria – C. B. Pin: 396.
(1) (-) – 1 individual with leaves, flowers and fruit – Good

Geranium columbinum L. (Geraniaceae) – T scap – Cosmop.
Geranium Columbinum – Geranium Columbinum dissectis folis pediculis florum longissumus. – Raÿ: HiH. 1059
(1) (-) – 1 individual with leaves and flowers – Medium

Erodium moschatum (L.) L'Hér. (Geraniaceae) – T scap/H bienn – Eurimedit.
Geranium moscatum – Geranium cicute folio moscatum – C. B. Pin: 319.
(1) (-) – 1 individual with leaves, flowers and fruits – Good

Eupatorium cannabinum L. (Asteraceae) – H scap – Paleotemp.
Saponaria – Lÿchnis silvestris, fine aquatica, purpurea, simplex. – C. B. Pin: 204
(1) (-) – 1 individual with leaves, flowers and fruits – Good

Teucrium flavum L. (Lamiaceae) – Ch suffr – Stenomedit.
[m] – Teucrium Supinum annuum, Lusitanicum, foliis lancinatis – [m]
(1) (-) – 3 individuals with leaves and flowers – Good

Astragalus monspessulanus L. (Fabaceae) – H ros – Eurimedit.
Hedÿsarum Onobrÿchis. – Onobrychis foliis vice fructu echinato major floribus elegant […] – C. B. Pin: 39 – […] rubentibus
(1) (-) – 2 individuals with leaves and flowers – Good

Teucrium hircanicum L. (Lamiaceae) – H caesp – W Asiat.
[m] – Teucrum foliis crenatis petiolatis specis oblongis densissimis ex Hircania […] – Com. 1752
(1) (-) – 1 individual with leaves and flowers – Good

Potentilla rupestris L. (Rosaceae) – H scap – Circumbor.
Potentilla Anserina – Agrimonia odorata Eupatorium odoratum. – C. B. Pin 321.
(1) (-) – 1 individual with leaves and fruits – Medium

Geranium dissectum L. (Geraniaceae) – T scap – Cosmop.
Geranim disectum – Geranium columbinus maximus folis disectis […] – Hist. Nat. Oxon. – Geranium columbinus majus folis […] ad pediculatum […] – Hist. Oxon. Part. Secon. 511.
(1) (-) – 1 individual with leaves, flowers and fruits – Good

Pelargonium sp. (Geraniaceae)
[m] – Geranium Officinarum arborescens malva folio plano et lucido flore elegantissimo – […]: 262
(1) (-) – 1 individual with leaves, flowers and fruits – Good

Euphorbia amygdaloides L. (Euphorbiaceae) – Ch suffr – Europ. Caucas.
Euphorbia major acuta – Tithymalis […] major foliis ottusis. – C. B. Pin. 291
(1) (-) – 1 individual with leaves and flowers – Poor

Euphorbia cyparissias L. (Euphorbiaceae) – H scap – Europ.
Euphorbia officinalis – Tithymalis Cÿparissias – C. B. Pin 295. – Tithymalis cupressinus sive […] Off. – [m]
(1) (-) – 1 individual with leaves – Poor

Euphorbia helioscopia L. (Euphorbiaceae) – T scap – Cosmop.
Euphorbia alepica – Tithÿmalis […] Ciparisias – C. B. Pin 295
(1) (-) – 1 individual with leaves, flowers and fruits – Good

Vicia narbonensis L. (Fabaceae) – T scap – Eurimedit.
Aphaca – Faba silvestris flore ex purpura nigrescente – C. B. Pin. 338
(1) (-) – 1 individual with leaves and fruits – Good

Lysimachia arvensis (L.) U.Manns & Anderb. (Primulaceae) – T rept – Cosmopol.
Anagallis Arvensis – Anagallis cerulleo flore – C. B. Pin. 252.
(1) (-) – 2 individuals with leaves, flowers and fruits – Good

Vaccaria hispanica (Mill.) Rauschert (Caryophyllaceae) – T scap – W Asiat.
Saponaria Pentagona – Lÿchnis Segetum rubra foliis Perfoliate – C. B. Pin. 204. – Vaccaria – [m]
(1) (-) – 1 individual with leaves and flowers – Good

Oenothera biennis L. (Onagraceae) – H bien – Subcosmop.
[m] – Penotera biennis – Lin:
(1) (-) – 1 individual with leaves and flowers – Medium

Stenotaphrum sp. (Poaceae)
[m] – Gramen arundinaceum articulatum – [m]
(1) (-) – 1 individual with leaf, flowers and fruits – Good

Antirrhinum majus L. (Plantaginaceae) – Ch suffr – W Stenomedit.
Of. Leonis – Antirrhinum angusti folium majus peregrinum ruberrimo flore – I. R. Part:
(1) (-) – 1 individual with leaves and flowers – Poor

Iris graminea L. (Iridaceae) – G rhiz – SE Europ.
[m] – Iris angustifolia versicolor. – C. B. Pin. 33.
(1) (-) – 3 individuals with leaves and flowers – Good

Lathyrus vernus (L.) Bernh. (Fabaceae) – G rhiz – Euroasiat.
Orobus vernus – Orobus Sylvaticus, purpureus vernus. – C. B. Pin. 351 – Orobus foliis pinnatis ovatis stipulis semi-sagittatis integerrimus caule simplici. – lin. Spec. Plant. 1028.
(1) (-) – 1 individual with leaves, flowers and fruits – Good

Euphorbia lathyris L. (Euphorbiaceae) – H bien – Medit. Turan.
Cataputia. – Tithymalus latifolius Cataputia dictus. – H: L: B […] t: – Latiris major – B. Pin: 293
(1) (-) – 1 individual with leaves – Good

Silene italica (L.) Pers. (Caryophyllaceae) – H ros – Eurimedit.
Silenes Conica – Lychnis silvestris angusti folia calÿcibus turgitis striates – C. B. Pin: 205
(1) (-) – 1 individual with leaves and flowers – Good

Bituminaria bituminosa (L.) C.H. Stirt. (Fabaceae) – H scap – Eurimedit.
[m] – Psoralia bituminosa – [m]
(1) (-) – 1 individual with leaves and flowers – Medium

Ferula communis L. (Apiaceae) – H scap – Eurimedit.
Ferula Ferulago – Ferula femina Plini. – C. B. Pin: 148. – Ferula folisfeniculi femine latiori et rotundioris – I. B. 3 […] 2.43
(1) (-) – 1 individual with leaves and flowers – Poor

Lychnis coronaria (L.) Desr. (Caryophyllaceae) – H scap – Medit. Turan.
Lÿchnis Coronaria – Lÿchnis hirsuta flore incarnato major – C. B. Pin: 203. – Flos costantinopolitanus – [m]
(1) (-) – 1 individual with leaves and flowers – Medium

Lysimachia vulgaris L. (Primulaceae) – H scap – Euroasiat.
Lysimachia vulgaris – Lysimachia lutea major, que Dioscoridis foliis ternis, et quaternis – C. B. Pin: 245
(1) (-) – 2 individuals; 1 with leaves and flowers and 1 with leaves – Poor

Lythrum salicaria L. (Lythraceae) – H scap – Subcosmop.
[m] – [...] bononiense – [m]
(1) (-) – 2 individuals with leaves and flowers – Medium

Reseda luteola L. (Resedaceae) – H scap – Circumbor.
Reseda luteola – Luteola Herba Salicis foglio – C. B. Pin 100
(1) (-) – 2 individuals with leaves and flowers – Medium

Lycium cfr. ***intricatum*** Boiss. (Solanaceae) – NP – S Stenomedit.
[m] – Jasminum Jorides – [m]
(1) (-) – 2 individuals with leaves and flowers – Poor

Anthyllis barba-jovis L. (Fabaceae) – P caesp – W Stenomedit.
Barba Jovis. – Barba jovis pulchre lucens – I. B. 1.385.
(1) (-) – 1 individual with leaves and flowers – Good

Styrax officinalis L. (Styracaceae) – P caesp – NW Meditit.
Styrax – Styrax folio mali cotonei – C. B. Pin: 451 – Stirax arbor […] – 1.3.34
(1) (-) – 1 individual with leaves, flowers and fruit – Good

Lysimachia arvensis (L.) U.Manns & Anderb. (Primulaceae) – T rept – Cosmopol.
Anagallis Arvensis – Anagallis phericeo flora – C. B. Pin. 252.
(1) (-) – 1 individual with leaves and flowers – Good

Cerinthe major L. (Boraginaceae) – T scap – Stenomedit.
Cerinthe minor – Cerinthe quorundam minor flavo flore – I. B. 3.603.
(1) (-) – 2 individuals with leaves, flowers and fruits – Good

Chaerophyllum cfr. ***temulum*** L. (Apiaceae) – T scap – Euroasiat.
[m] – Mÿrrhis perennis, alba, minor foliis hirsutis – [m]
(1) (-) – 1 individual with leaves and flower – Medium

Teucrium botrys L. (Lamiaceae) – T scap – Eurimedit.
[m] – Ternica – [m]
(1) (-) – 1 individual with leaves and flower – Medium

Teucrium botrys L. (Lamiaceae) – T scap – Eurimedit.
[m] – Teucrium supinum annum, lusitanicum, foliis lancinatis – [m]
(1) (-) – 3 individuals with leaves – Good

Tordylium apulum L. (Apiaceae) – T scap – Stenomedit.
[m] – Apio con follia di Pimpinella – [m]
(1) (-) – 1 individual with leaves and flowers – Medium

Tordylium maximum L. (Apiaceae) – T scap – Stenomedit.
Pimpinella Saxifraga major – Tragoselinum majus umbella candida. – I. R. H. 309
(1) (-) – 1 individual with leaves and flowers – Poor

Torilis japonica (Houtt.) DC. (Apiaceae) – T scap – Subcosmop.
Tordÿlium. – Tordilium minus limbo granulato cum maxime semine. – [m]
(1) (-) – 1 individual with leaves and fruits – Poor

Oryza sativa L. (Poaceae) – T scap – Asiat.
[m] – Oryza, Riso – M […]
(2) (-) –2 individuals; 1 with leaves and flowers and 1 with leaf and flowers – Good

Delphinium ajacis L. (Ranunculaceae) – T scap – Eurimedit.
Delphinium consolida – Delphinium segetum flore ceruleo, et roseo – I. R. H. 426
(2) (-) – 1 individual with leaves and flowers – Good

Cruciata laevipes Opiz (Rubiaceae) – H scap – Euroasiat.
Vallantia Cruciata – Cruciata irsuta – C.B.Pin.335
(2) (-) –4 individuals with leaves and flowers – Good

Hedypnois rhagadioloides (L.) F.W. Schmidt (Asteraceae) – T scap – Stenomedit.
Crepis Setosus – Hieracius chondrille folia glabrus – C.B.Pin 127
(2) (-) – 1 individual with leaves and flowers – Medium

Urospermum dalechampii (L.) F.W. Schmidt (Asteraceae) – H scap – W Eurimedit.
Tragopogon Dalecampii – Hieracium magrum dalecampii lugl 1569 – [m]
(2) (-) – 1 individual with leaves and flowers – Poor

Senecio vulgaris L. (Asteraceae) – T scap – Cosmop.
Senecio vulgaris – Senecio minor vulgaris. Senecio corollis nudis foliis pinnato- sinuatis ampleti caulibus floribus sparsis – Lin: Spe. Plant, 1216
(2) (-) – 3 individuals, 2 with roots, leaves and fruits, 1with leaves and fruits – Medium

Sonchus oleraceus L. (Asteraceae) – H bien – Subcosmop.
[m] – 1.Sonchus lancinatus. 2.Sonchus non lancinatus. – [m]
(2) (-) – 2 individuals with leaves and fruits – Medium

Arabis sagittata (Bertol.) DC. (Brassicaceae) – H bien/H scap – SE Europ.
Turritis irsuta – Turritis minor – Bot monsp R.H. 223
(2) (-) – 2 individuals, 1 with roots, leaves and flowers, 1 with leaves – Medium

Lunaria annua L. (Brassicaceae) – H scap – SE Europ.
Lunaria – Lunaria Hesperis Hispanica foliis incisis Syliqua lunata – [m]
(2) (-) – 1 individual with leaves, flowers and fruits – Good

Alyssoides utriculata (L.) Medik. (Brassicaceae) – Ch suffr – Medit. Turan.
[m] – Lunaria – [m]
(2) (-) – 1 individual with leaves, flowers and fruits – Good

Fibigia clypeata (L.) Medik. (Brassicaceae) – H scap – NE Medit.
[m] – Vera Lunaria offic. – [m]
(2) (-) – 1 individual with leaves, flowers and fruits – Good

Tragopogon porrifolius L. (Asteraceae) – H bien – Eurimedit.
Tragopogon – Tragopogon porrifolio, flore nigro purpureo – C. B. P. 274
(2) (-) – 3 individuals with leaves, flowers and fruits – Medium

Anemone apennina L. (Ranunculaceae) – G rhiz – S Europ.
Anemone nemorosa – Ranunculus Phragmites albus et purpureus vernus – J. B. 3412
(2) (-) – 4 individuals with leaves and flowers – Good

Nerium oleander L. (Apocynaceae) – P caesp – Stenomedit.
Olleandrus flore rosea – Nerion floribus rubescentibus – C. B. Pin. 464 – Nerion fiore Rhododendron flore rubro – [m]
(2) (-) – 1 individual with leaves and flowers – Good

Capparis spinosa L. (Capparaceae) – NP – Subtrop.
Capparis Spinosa – Capparis non spinosa fructu majore – C. B. Pin. 480
(2) (-) – 1 individual with leaves and fruits – Good

Teucrium polium L. (Lamiaceae) – Ch suffr – Stenomedit.
Teucrium Polium – Polium montanus supinum album – C. B. Pin. 221
(2) (-) – 2 individuals with roots, leaves and flowers – Good

Carthamus tinctorius L. (Asteraceae) – T scap – unknown origin
Carthamus tinctorius – Carthamus off. flore croceo, carthamus, […] cnicus vulgaris – I. B. 319
(2) (-) – 1 individual with leaves and fruits – Poor

Bistorta officinalis Delarbre (Polygonaceae) – G rhiz – Circumbor.
Polÿgonum Bistorta – Bistorta Alpina maxima – C. B. Pin 192
(2) (-) – 3 individuals with leaves and flowers – Medium

Staphisagria macrosperma Spach (Ranunculaceae) – T scap – Stenomedit.
Delphinum Consolida – Delphinium platini folio, Sthaphyssagria pictum – I. R H 428
(2) (-) – 1 individual with leaves and flowers, leaf – Good

Adonis aestivalis L. (Ranunculaceae) – T scap – Eurasiat.
Adonis aestivalis – Ranunculus arvensis, foliis chamemeli, flore pheniceo – I. R. H: 291. – melanthico silvestre, […]: Nigella arvensis – C. B. Pin. 145.
(2) (-) – 3 individuals; 1with leaves and flowers, 1 with leaves, flowers and fruits, 1with leaves and fruits – Good

Cyperus longus L. (Cyperaceae) – G rhiz – Paleotemp.
Cyperus longus odoratior – Cyperus odoratus radice longa fine Cyperus offic – C: B: 14
(2) (-) – 2 individuals; 1 with roots, leaves and flowers, 1 with leaves and flowers– Good

Phelipanche ramosa (L.) Pomel (Orobanchaceae) – T par – Paleosubtrop.
Orobanche ramosa – Orobanche ramosa floribus ceruleis – C. B. Pin. 88
(2) (-) – 1 individual with leaves and flowers – Good

Equisetum telmateja Ehrh. (Equisetaceae) – G rhiz – Circumbor.
Equisetum arvense – Equisetum arvense longioribus setis – C. B. Pin 16
(2) (-) – 3 individuals; 1with leaves and 2 with leaves and fruits – Good

Fragaria vesca L. (Rosaceae) – H rept – Cosmop.
Fragaria silvestris – Fragaria Vulgaris – C. B. Pin 326
(2) (-) – 1 individual with leaves and flowers – Good

Vinca minor L. (Apocynaceae) – Ch rept – Europ. Caucas.
Vinca minor – Pervinca Vulgaris angustifollia flore cerulleo – I. R. h. 119
(2) (-) – 5 individuals; 3 with leaves and flowers amd 2 with leaves – Good

Polygonatum odoratum (Mill.) Druce (Asparagaceae) – G rhiz – Circumbor.
Convallaria Polygonatus sigilion Salomonis – Polygonatum latifolium vulgare – C. B. Pin. 303
(2) (-) – 2 individuals with root and leaves – Good

Bellis sylvestris Cirillo (Asteraceae) – H ros – Stenomedit.
Bellis Perrenis Leucanthemum – Bellis Silvestris minor – C. B. Pin 269
(2) (-) – 1 individual with roots, leaves and flowers – Good

Ornithogalum umbellatum L. (Asparagaceae) – G bulb – Eurimedit.
Ornithogalum Pyrenaicus – Ornithogalum angustifollius majus floribus ex alto Ceressentibus – C. B. Pin. 10
(2) (-) – 1 individual with leaves and flowers – Good

Lonicera caprifolium L. (Caprifoliaceae) – P lian – S Europ. S Siber.
Lonicera Caprifolius – Caprifolium Italicus – Bot. Pent. 411 – Periglimeneo matris selva vinci bosco – [m]
(2) (-) – 2 individuals with leaves and flowers – Good

Polystichum setiferum (Forssk.) T. Moore ex Woyn. (Dryopteridaceae) – G rhiz – Circumbor.
Polypodium Filix mas – Filix non ramosa dentata – C. B. Pin: 358.
(2) (-) – 3 individuals; 2 with frond and spores and 1 with rizome and frond – Good

Pteridium aquilinum (L.) Kuhn (Dennstaedtiaceae) – G rhiz – Cosmop.
Pteris Aquilina – Filix ramosa major […] non dentatis – C. B. Pin 351 – Filix femina – [m]
(2) (-) – 1 individual with frond – Good

Digitalis lutea L. (Plantaginaceae) – H scap – W Europ.
Digitalis lutea – Digitalis major lutea, […] pallida parvo flora – C. B. Pin. 244
(2) (-) – 1 individual with leaves and flowers – Good

Gnaphalium uliginosum L. (Asteraceae) – T scap – Eurosiber.
Senecio Saraciniceus – Virga aurea angusti folia minus serrata flore alto – C. B. Pin: 268
(2) (-) – 1 individual with leaves and flowers – Good

Solidago canadensis L. (Asteraceae) – H scap – N American
[m] – Virga aurea – [m]
(2) (-) – 2 individuals with leaves and flowers – Good

Achillea ageratum L. (Asteraceae) – H scap – W Stenomedit.
Achillea ageratum – Ptarmica lutea suaveolens – I. R. H: 497. – ageratum foliis serratis, Eupatorium […] Herba Julia Balsamina minor – [m]
(2) (-) – 2 individuals with leaves and flowers – Good

Sanicula europaea L. (Apiaceae) – H scap – Paleotemp.
Sanicula Heuropea – Sanicula Officinarum – C. B. Pin: 319
(2) (-) – 1 individual with roots leaves and flowers – Good

Clinopodium nepeta (L.) Kuntze (Lamiaceae) – H scap – Medit.
melissa Nepeta – Calamintha Vulgaris odora fine Nepeta. – C. B. Pin. 228
(2) (-) – 1 individual with leaves and flowers – Good

Atriplex sagittata Borkh. (Amaranthaceae) – T scap – Eurasiat.
[m] – Atriplex hortensis alta fine Palida virens. – C. B. Pin: 119
(2) (-) – 1 individual with leaves, flowers and fruits, and leaf – Good

Oxybasis rubra (L.) S. Fuentes, Uotila & Borsch (Amaranthaceae) – T scap – Circumbor.
[m] – Atriplex hortensis Rubra – C. B. Pin. 119
(2) (-) – 1 individual with leaves, flowers and fruits, and leaf – Medium

Filipendula vulgaris Moench (Rosaceae) – H scap – Eurasiat.
Spiraea Filipendula – Filipendula vulgaris an molon Plinii – C. B. Pin. 163
(2) (-) – 1 individual with leaves and flowers – Medium

Hepatica nobilis Schreb. (Ranunculaceae) – G rhiz – Circumbor.
Trinitas – Ranunculus tridentatus vernus, flore simplicis ceruleo. Trifolium Hepaticum flore simplici ceruleo. – C. B. Pin. 330. – Trifolium Hepaticus fine Trinitatis herba, flore ceruleo. – I. B. 2.389
(2) (-) – 1 individual with leaves, flowers and fruits – Good

Polygala vulgaris L. (Polygalaceae) – H scap – Eurasiat.
Polygala vulgaris – Polygala vulgaris lutea. – I. B. 388.
(2) (-) – 1 individual with leaves and flowers – Good

Lepidium campestre (L.) R. Br. (Brassicaceae) – T scap – Europ. Caucas.
Thlaspi campestre – Thlaspi Vulgaris – I. B. 2. 921
(2) (-) – 1 individual with leaves and fruits – Good

Thlaspi perfoliatum L. (Brassicaceae) – T scap – Paleotemp.
Thlaspi perfoliatus – Thlaspi perfoliatus minus – C. B. Pin. 106
(2) (-) – 1 individual with leaves and fruits – Good

Asplenium trichomanes L. (Aspleniaceae) – H ros – Cosmop.
Asplenius Trichomanes – Trichomanes, fine Politricum Off. – C. B. Pin. 356
(2) (-) – 1 individual with rhizomes, fronds and spores– Good

Asplenium adiantum-nigrum L. (Aspleniaceae) – H ros – Subtrop.
Asplenius Adiantus nigrus – Filicula que adiantum nigrus officinarum Pinnelis alba fioribus – I. R. H. 542. – Driopteri, o Felce di Quercia, – matthioli 1357.
(2) (-) – 1 individual with fronds – Good

Artemisia dracunculus L. (Asteraceae) – Ch suffr – Sarmatic Siber.
[m] – Abrotonum lini folia acriori, et odorata, Dracunculus hortensis – C. B. Pin: 98. – draco […] herta – [m]
(2) (-) – 2 individuals with leaves and flowers – Medium

Genista tinctoria L. (Fabaceae) – Ch suffr – Eurasiat.
Genista tinctoria – Genista tinctoria Germanica – C. B. Pin: 395
(4) (67) – 4 individuals with leaves and flowers – Good

Emerus major Mill. (Fabaceae) – NP – Central Europ.
[m] – Genista Emerus. – [m]
(4) (68) – 1 individual with leaves and flowers – Medium

Cytisophyllum sessilifolium (L.) O.Lang (Fabaceae) – P caesp – Stenomedit.
Genista Sagittalis – Genistella herbacea […] chamespartium – I. B. 1.397
(4) (69) – 1 individual with leaves and flowers – Good

Genista germanica L. (Fabaceae) – Ch suffr – Europ.
Genista Sagittalis – Genista Spartium minus Germanicum – I. R. H. 645. – Genista Spinis compositis foliis lanceolatis – Lin. […] 998.
(4) (70) – 2 individuals with leaves and flowers – Medium

Cytisus scoparius (L.) Link (Fabaceae) – P caesp – Europ.
Spartium Scoparium – Cytiso […] Scoparia vulgaris flore Luteo – I. R. H. 649 – Genista angulosa, et Scoparia – C. B. Pin. 395.
(4) (71) – 1 individual with leaves and flowers – Medium

Geranium robertianum L. (Geraniaceae) – T Scap/H bien – Subcosmop.
Geranius Robertianus – Geranium Robertianum et erba Roberti Officin: Geranius Robertianus murale. – I. B. 3.480. – Geranium pedunculis […] partitis Lobis pinnatis […] – Lin: H: […] 201.
(4) (72) – 1 individual with leaves and flowers – Medium

Glycyrrhiza echinata L. (Fabaceae) – G rhiz – S Europ. S Siber.
Glycyrrhiza vera Dioscoridis – Glycyrrhiza capite echinato – C. B. Pin. 352. – Glycyrrhiza Dioscoridis echinato non repens. – [m]
(4) (74) – 1 individual with leaves and fruits – Medium

Epipactis helleborine (L.) Crantz (Orchidaceae) – G bulb – Paleotemp.
[m] – Helleborus Aalbus, veratrus [...] – I. R. H. 273. – Helleborus albus flore sublividi – C. B. Pinax 186. – veratrus caule ramoso – Lin: Reg. Veget. […] 471.
(4) (87) – 2 individuals; 1 with leaves and flowers and 1 with leaves and fruits – Good

Cephalanthera longifolia (L.) Fritsch (Orchidaceae) – G rhiz – Eurasiat.
Serapias longifolia. – Helleborine flore albo, […] damasonium montanum latifolium. – C. B. Pin 181
(4) (88) – 2 individuals with leaves and flowers – Medium

Iris foetidissima L. (Iridaceae) – G rhiz – Eurimedit.
Iris fetidissima – Iris fetidissima […] xÿrÿs – I. R. H. 360
(4) (93) – 1 individual with roots and leaves – Poor

Buglossoides purpurocaerulea (L.) I.M. Johnst. (Boraginaceae) – H scap – S Europ.
Lithospermum purpureus ceruleum – Lithospermum minus repens latifolium – C. B. Pin 258
(4) (109) – 2 individuals with leaves and flowers – Medium

Cardamine hirsuta L. (Brassicaceae) – T scap – Cosmop.
Cardamina Hirsuta – Cardamine Luarta Dalechampii – […]: 659
(5) (-) – 1 individual with roots, leaves and fruits – Medium

Stachys germanica L. (Lamiaceae) – H scap – Eurimedit.
Stachÿs Germanica – Stachys major Germanica – C. B: Pin: 230
(5) (-) – 3 individuals with leaves and flowers – Good

Fritllaria persica L. (Liliaceae) – G bulb – W Asiat.
[m] – Fritillaria minima pluribus follis – [m]
(5) (-) – 1 individual with leaves and flowers – Medium

Asclepias syriaca L. (Apocynaceae) – G rhiz – Anfi Atlantic.
Asclepias Apocinus – Apocinum erectum incanus latifolium americanum floribus ex incarnato […] violaceis, apocineo erectum, flore concavo – Breyn Prod. […]
(5) (-) – 1 individual with leaves – Poor

Syringa vulgaris L. (Oleaceae) – P caesp – SE Europ.
Lilac matthioli – Syringa Cerulea – C. B. Pin. 398.
(5) (-) – 1 individual with leaves and flowers – Medium

Iris foetidissima L. (Iridaceae) – G rhiz – Eurimedit.
[m] – Xiphion Americanum, flore è luteo negricante. – Plum.
(5) (-) – 2 individuals with leaves and flowers – Medium

Onobrychis viciifolia Scop. (Fabaceae) – H scap – Medit. Mont.
Onobrÿchis Hedÿsarus – Onobrychis foliis vicie fructu echinato major floribus elegante rubentibus. – C. B. Pin. 356
(5) (-) – 2 individuals with leaves and flowers – Medium

Chrysojasminum fruticans (L.) Banfi (Oleaceae) – P caesp – E Mediterranea
Jasminus luteus – Jasminus […] Gelsominus luteum. – I. B. 2.10.
(5) (-) – 1 individual with leaves and flowers – Medium

Philadelphus cfr. ***coronarius*** L. (Hydrangeaceae) – NP – Subendem.
[m] – Jasminum laurifolio odoratissimo flore albo. – Plum.
(5) (-) – 1 individual with leaves and flowers – Good

Campanula medium L. (Campanulaceae) – H bien – NW Medit.
[m] – Campanula hortensis folio et flora oblongo ceruleo – C. B. Pin. […] 4.
(5) (-) – 2 individuals with leaves and flowers – Medium

Legousia speculum-veneris (L.) Chaix (Campanulaceae) – T scap – Eurimedit.
Campanula speculum veneris. – […] Campanula arvensis erecta – H. L. […]
(5) (-) – 2 individuals; 1with roots, leaves and flowers and 1 leaves and flowers – Medium

Amorpha fruticosa L. (Fabaceae) – P caesp – N American
Amorphea Fruticosa – Barba Jovis lagopoides cretica frutescens incana flore spicato purpureo amplo. e […] cretica. – [m]
(5) (-) – 1 individual with leaves – Poor

Arabis turrita L. (Brassicaceae) – H bienn/ H scap – Stenomedit.
[m] – Lepidium Bononiense – [m]
(5) (-) – 2 individuals; 1 with leaves and 1 with leaves and flowers – Medium

Isatis tinctoria L. (Brassicaceae) – H bienn – Asiatic
Isatis = Tinctoria – Isatis Sativa […] latifolia – C. B. Pin. 113 – Isatis Sine Florum Sativus. – [m]
(5) (-) – 1 individual with leaves and flowers – Good

Osyris alba L. (Santalaceae) – NP – Eurimedit.
Osyris alba. – Casia Poetica monspeliensium, an – Theophrasti, Lob: Icon: H33. – Osyris – Lin: Sp. Pl: 1450.
(5) (-) – 1 individual with leaves and flowers – Medium

Scutellaria columnae All. (Lamiaceae) – H scap – NE Medit.
Scutellaria peregrina – Cassida cretica – col: […] 1.187
(5) (-) – 1 individual with leaves and flowers – Good

Athamanta macedonica (L.) Spreng. (Apiaceae) – H scap – SE Europ.
Bubon Macedonicum – Apius Macedonicus – C. B. Pin. 154, – Apium […] Petroselinum macedonicum […] – I. B. […]
(5) (-) – 1 individual with leaves and flowers – Medium

Dianthus carthusianorum L. (Caryophyllaceae) – H scap – Centr. SE Europ.
Leucojum. – Leucojum angustifolium alpinus flore sulphureo. – I. R.: Pa […]
(5) (-) – 2 individuals with leaves and flowers – Medium

Stachys sylvatica L. (Lamiaceae) – H scap – Eurosiber.
Stachys = major – Phlomis fruticosa lusitanica flore purpureus […] follis acutioribus. […] folio flore rubro […] – [m]
(5) (-) – 1 individual with leaves and flowers – Poor

Cassia sp. (Fabaceae)
[m] – Cassia Americana, foliis subrotundis, Cassia, et […] Occidentalis. – [m]
(5) (-) – 1 individual with leaves and flowers – Medium

Dracunculus vulgaris Schott (Araceae) – G rhiz – Stenomedit.
[m] – Arisarum flore internum caudam […] et serpent […] – [m]
(5) (-) – 1 individual with flowers, leaf – Good

Nigella arvensis L. (Ranunculaceae) – T scap – Eurimedit.
[m] – Nigella Orientalis florescente alato plano – […] : 29
(5) (-) – 1 individual with leaves and flowers – Good

Nigella damascena L. (Ranunculaceae) – T scap – Eurimedit.
Melanthium – Nigella arvense cornuta flore pleno subceruleo, et flore albo – [m]
(5) (-) – 1 individual with leaves and flowers – Good

Celosia cfr. ***argentea*** L. (Amaranthaceae) – T scap – Asia Tropic.
[m] – Amaranthus cristatus rubicundissimus flore, – H. R. Pa […]
(5) (-) – 1 individual with leaves and flowers – Good

Celosia cristata L. (Amaranthaceae) – T scap – Pantrop.
[m] – [m] – [m]
(5) (-) – 1 individual with leaves and flowers – Good

Amaranthus cruentus L. (Amaranthaceae) – T scap – Neotropic.
[m] – Amaranthus maximus panicula sparsa et longi […] – H. R. Pa […]
(5) (-) – 1 individual with roots, leaves and flowers – Good

Persicaria maculosa Gray (Polygonaceae) – T scap – Subcosmop.
Polygonum Persicaria – Persicaria mitis non maculosa – C. B. Pin 505
(5) (-) – 1 individual with leaves – Poor

Trifolium incarnatum L. (Fabaceae) – H bien – Eurimedit.
[m] – Trifolium montanum spica longissima rubente – C. B. Pin. 3 […]
(5) (-) – 4 individuals with leaves and flowers – Medium

Lallemantia peltata (L.) Fisch. & C.A.Mey. (Lamiaceae) – T scap – Asia Temp.
[m] – Dracocephalon Peltatum. – [m]
(5) (-) – 2 individuals with leaves and flowers – Medium

Limodorum abortivum (L.) Sw. (Orchidaceae) – G rhiz – Eurimedit.
Orchis abortiva – Limodorum austriacum – […] 241
(5) (-) – 3 individuals with leaves and flowers – Medium

Smyrnium olusatrum L. (Apiaceae) – H bien – Medit. Atl.
Smÿrinus – Smÿrinum matthioli 113 – I. R. H. 316
(5) (-) – 1 individual with leaves and fruits – Poor

Lathyrus sylvestris L. (Fabaceae) – H scand – Europ. Caucas.
Lathyrus Latifolius – Lathyrus Latifolius – C. B. Pin. 344.
(5) (-) – 2 individuals; 1 with leaves and flowers and 1 with leaves and fruits – Good

Micromeria juliana (L.) Benth. ex Rchb. (Lamiaceae) – Ch suffr – Stenomedit.
Saxifraga tridactÿlites. – Saxifraga verna annua, humilior. – I. R. H. 252
(5) (-) – 1 individual with roots, leaves and fruits – Good

Torilis nodosa L. (Apiaceae) – T scap – Eurimedit.
Tordÿlium nodosum – Daucus annuus ad nodos floribus – I. R. H. 908. – caucalis nodoso, echinato femine. – C. B. Pin: 153 – anthriscus. – [m]
(5) (-) – 2 individuals with leaves flowers and fruits – Medium

Torilis japonica (Houtt.) DC. (Apiaceae) – T scap – Subcosmop.
[m] – Dacus annus minor floribus albis Anthrisco hispido affinis femines aspero, hispido umbellis Albicantibus – I. B. 3 […] 3.83.
(5) (-) – 2 individuals; 1 with leaves flowers and fruits and 1 with roots, leaves flowers and fruits – Poor

Ballota nigra L. (Lamiaceae) – H scap – Eurimedit.
Lamium purpureus – Lamium purpureum fetitus folio subrutundo minus. – H. L. Bo […]
(5) (-) – 1 individual with leaves and flowers – Good

Lamium amplexicaule L. (Lamiaceae) – T scap – Paleotemp.
Lamius amplexicaulum – Lamium follio caulem […] – C. B. Pin. 231
(5) (-) – 3 individuals with roots, leaves and flowers – Good

Securigera securidaca (L.) Degen & Dörfl. (Fabaceae) – T scap – Eurimedit.
Trigonella Corniculata – Melilotus Corniculatus reflexis major – C: B: Pin: 331
(5) (-) – 1 individual with leaves flowers and fruits – Medium

Lotus tetragonolobus L. (Fabaceae) – T scap – Stenomedit.
[m] – Lotus fine mellilotus. – [m]
(5) (-) – 2 individuals with leaves and flowers – Good

Colchicum autumnale L. (Colchicaceae) – G bulb – Europ.
Colchicus autunale – Colchicum polyanthos multiplex. – C. B. Pin: 68. – Colchicum polyanthos flore multiplici autunale. colchicum commune – C. B. Pin. 67
(5) (-) – 1 individual with bulb, leaves and flowers – Good

Melittis melissophyllum L. (Lamiaceae) – H scap – Centr. Europ.
Mellitis melliso […] – Melisa humilis latifolia maximo flore purpurescente – I. R. H. 193
(5) (-) – 1 individual with leaves and flowers – Good

Salvia verticillata L. (Lamiaceae) – H scap – S Europ. Caucas.
Mentha verticillata – Mentha hortensis verticillata, ocimi odore – C: B: Pin: 227. – Mentha verticillata, minor, non crispa. – [m]
(5) (-) – 1 individual with leaves and flowers – Medium

Tanacetum balsamita L. (Asteraceae) – H scap – W Asiat.
[m] – Mentha Romano, Greca Herba Santa maria Salvia Romana […] – [m]
(5) (-) – 1 individual with leaves and flowers – Poor

Mentha aquatica L. (Lamiaceae) – H scap – Subcosmop.
Mentha aquatica – Mentha rotundifolia palustris […] aquatica major. – C. B. Pin: 227
(5) (-) – 1 individual with leaves and flowers – Medium

Dioscorea communis (L.) Caddick & Wilkin (Dioscoreaceae) – G rad – Eurimedit.
Tamus communis. – Tamus racemosa flore minore lu-

teo pallescente. – I. R. h. 103 – Brionia levis, sine nigra racemosa, vitis nigra – [m]
(5) (-) – 1 individual with leaves and flowers – Poor

Salvia sclarea L. (Lamiaceae) – H bien – Eurimedit.
[m] – Sclarea Lusitanica glutinosa amplissimo folio. – [m]
(5) (-) – 1 individual with leaves and flowers – Good

Gossypium sp. (Malvaceae)
[m] – Cotone Pianta – [m]
(5) (-) – 1 individual with leaves and flowers – Poor

Aesculus hippocastanum L. (Sapindaceae) – P scap – W Balkans
[m] – Castanea americana amplissimo folio fructu moliter echinato. – [m]
(5) (-) – 1 individual with leaves and flowers – Good

Proboscidea louisianica (Mill.) Thell. (Martyniaceae) – T scap – N American
[m] – martynia nomen apellata – [m]
(5) (-) – 1 individual with leaves, flowers and fruit – Medium

Ricinus communis L. (Euphorbiaceae) – T scap/P Scap – Paleotemp.
vulgo palma Christi – Ricinus vulgaris – C: B: Pin: 432
(5) (-) – 1 individual with leaves, flowers and fruits – Medium

The revised "non-medicinal" herbarium "*Erbario dei Cappuccini di San Quirico d'Orcia*" contains 168 specimens, divided into 44 families, 134 genera, and 157 species. Six specimens lacking of the diagnostic characters for identification at species level, thus, they are reported at genus level. Five specimens were classified as uncertain (species epithet preceded by cfr.), given the lack of the characters needed for identification. The species identification revealed that *N. T.* "*Nomen Triviale*" is mostly well assigned except in a few cases of clear misidentification (e.g. "*Saxifraga tridactylites*" instead of *Micromeria juliana*), or some cases where *N. T.* was lacking. The family with the highest number of specimens was Fabaceae (14.4%), followed by Lamiaceae (13.1%). Asteraceae, Fabaceae and Poaceae are usually predominant in floras of Central Italy (Selvi, 1996; Angiolini *et al.*, 2002; Pierini & Peruzzi, 2014; Bonari *et al.*, 2017), whereas our results showed only two specimens of Poaceae (*Oryza sativa* and *Stenotaphrum* sp.). This result should not surprise when studies based on historical Tuscan *herbaria* are considered (Amadei *et al.*, 1998), where the predominance of Lamiaceae and Fabaceae is not a novelty. In fact, in the past, species of some families were preferentially collected due to their practical use or their commonness, ease of collection and ease of identification. The studied *herbarium* most likely includes plants not collected in areas close to the cloister as well as plants resulting from exchanges with other collectors or institutions. For example, the friars probably had exchanges with collectors from southern Italy given that some specimens occur only in this part of Italy. These exchanges are likely given that other friars did so. For example Fra Fortunato da Rovigo (i.e. Antonio Mattaraia, 1639-1701) prepared a *herbarium* with plants mainly collected in the proximity of the Monte Baldo (Veneto, Italy), and particularly in the vicinity of his monastery. However, none of the studied labels revealed information about the locality and the herbarium probably also included plants obtained through exchanges with friars from abroad as described by Gaitier (1840). Furthermore, given that the Order of Friars Minor Capuchin is typically a preacher and beggar order, whose components frequently shifted from a monastery to another, it is possible that the friars themselves collected specimens in different places. Finally, it is also conceivable that a single enthusiastic botanist friar collected plants in different areas – even from distant territories – in which he preached and slowly set up the collection, possibly supplementing it with further finds.

Interestingly, in the "Erbario dei Cappuccini di San Quirico d'Orcia" plants typical of different habitats occur, like forest (e.g. *Polygonatum odoratum*), Mediterranean maquis (e.g. *Osyris alba*), wet environments (e.g. *Mentha aquatica*). Moreover, the collection hosts species that can be typically found at sea level (e.g. *Anthyllis barba-jovis*) and in the mountainous areas (e.g. *Bistorta officinalis*), and species from Tuscany to southern Italy (e.g. *Athamanta macedonica*, *Moluccella spinosa* and *Teucrium campanulatum*), highlighting the lack of a precise purpose of the collection. Interesting is the presence of several alien species (e.g. *Amorpha fruticosa*, *Asclepias syriaca*, *Cassia* sp., *Gossypium* sp., *Proboscidea louisianica*, *Solidago canadensis*, *Teucrium hircanicum*), including archeophytes (e.g. *Ricinus communis*, *Tanacetum balsamita*, *Vaccaria hispanica*), and cultivated species (e.g. *Celosia* cfr. *argentea* and probably *Pelargonium* sp.). Moreover, Tuscan rare species are also present, such as *Gnaphalium uliginosum* and *Stachys palustris* whose current rarity is linked to habitat fragmentation (Landi *et al.*, 2013–2014). Finally, species that have become threatened such as *Hesperis matronalis* and *Vaccaria hispanica* (see the Tuscan Regional Law 56/2000) were also present in the collection. The establishment of the *herbarium* was attributed by Mariotti & Chiarucci (1993) to the second half of 1700s. Following the study of these specimens, assigning a precise date seems to be difficult. In fact, the presence of several *N. T.* (sometimes added later;

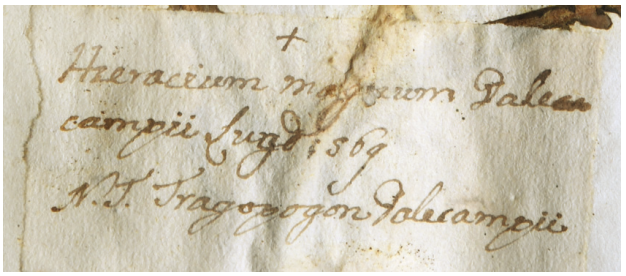

Figure 2. The label with the presumed collecting date of "lugl 1569".

Figure 3. Example of a specimen in a "good conservation status" (*Teucrium hircanicum* L.).

Mariotti & Chiarucci, 1993) and the reference of "*Spec. Plant.*" (*Species Plantarum*; Linneaus, 1753), seems to roughly confirm the attributed timing of the *herbarium* with respect to an upper limit. Nevertheless, evidence exists which helps in disentangling the dating issue. An analysis of the alien species and its period of introduction in Italy, revealed that one species, *Proboscidea louisianica,* was introduced to Italy in 1772 (Maniero, 2000). Thus, it is reasonable that the herbarium was continued at least until this date. Moreover, one specimen (*Urospermum dalechampii*), seemed to report "lugl 1569" (i.e. July 1569) in the label (Fig. 2) as a probable collection date. This implies that some specimens were collected much earlier, anticipating the origin of the *herbarium*. Unfortunately, there are no other dates for comparison. It is worth noting that these collections were often started and later improved on across a wide life span and possibly by different people, as evidenced by different calligraphies and inks. Thus, an exact dating is not easy to establish, although based on this new analysis the period of collection should be increased. Most of the references cited in the labels referred to "*C. B. Pin.*" (C. Bauhin, *Pinax Theatri Botanici*; Bauhin, 1623) and/or "*I. R. H.*" (*Institutiones Rei Herbariae*; Tournefort, 1700), although other texts and associated authors occurred (for other text and author abbreviations, see Amadei *et al.*, 1998). Considering that 94% of the specimens were identifiable, it must be emphasized the effectiveness of past techniques in drying samples for preserving *exsiccata*. The various owners of the *herbarium* paid attention to preserving this herbarium as highlighted by the occurrence of 84 specimens (50.3%) that were in "good conservation status" (Fig. 3), although badly preserved specimens also occur (16.2%). In general, the collection did not appear to have been affected by infestations.

Conclusions

The study of the *exsiccata* allowed us to interpret several aspects of the section "non-medicinal plants" of the collection "Erbario dei Cappuccini di San Quirico d'Orcia". The herbarium is composed of 157 specimens identified at species level, six at genus and four not clearly identified due to *exsiccatum* decay. This contribution provides useful information on methodological approaches used in the past, as well as highlighting that the friars' goal in the preparation of a *herbarium* was not to provide a scientific study of an area. Rather it was a collection without a precise reason, with purposes that ranged from the economic to the documentary or alimentary. A number of specimens probably came from other localities outside of the province of Siena, as suggested by the presence of species strictly linked to coastal areas or Southern Italy. This fact strengthens the hypothesis of exchanges as common practice in the past. The Capuchin friars were deeply linked to botanical sciences, allowing them to collect, preserve and exchange plant specimens from distant territories. The presence of some species of conservation interest, nowadays in decline, may suggest that

these species were potentially more frequent in the past. Moreover, one specimen with a marked date allows us to hypothesis an earlier creation date of the collection and an alien species with a known introduction date indicates that the collection saw continued activity until the late 18th century. Thus we expand the time period of this collection which to date had been limited to the middle-to-late half of the 18th century. In sum, this study demonstrates the pivotal role of Tuscan botany in both historic and contemporary Italian botany, as well as showing that botany was widely practiced not only in Universities but also in religious centres.

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Appendix A

List of the scientific names of the plants with reference to the box in brackets.

Achillea ageratum L. (2)
Achillea ptarmica L. (1)
Adonis aestivalis L. (2)
Aesculus hippocastanum L. (5)
Alyssoides utriculata (L.) Medik. (2)
Amaranthus cruentus L. (5)
Amorpha fruticosa L. (5)
Anemone apennina L. (2)
Anthyllis barba-jovis L. (1)
Antirrhinum majus L. (1)
Arabis sagittata (Bertol.) DC. (2)
Arabis turrita L. (5)
Artemisia dracunculus L. (2)
Asclepias syriaca L. (5)
Asplenium adiantum-nigrum L. (2)
Asplenium trichomanes L. (2)
Astragalus hamosus L. (1)
Astragalus monspessulanus L. (1)
Athamanta macedonica (L.) Spreng. (5)
Atriplex sagittata Borkh. (2)
Ballota nigra L. (5)
Bellis sylvestris Cirillo (2)
Bistorta officinalis Delarbre (2)
Bituminaria bituminosa (L.) C.H.Stirt. (1)
Buglossoides purpurocaerulea (L.) I.M.Johnst. (4)
Campanula medium L. (5)
Capparis spinosa L. (2)
Cardamine hirsuta L. (5)
Carthamus tinctorius L. (2)
Cassia sp. (5)
Celosia cfr. argentea L. (5)
Celosia cristata L. (5)
Cephalanthera longifolia (L.) Fritsch (4)
Cerinthe major L. (1)
Chaerophyllum cfr. temulum L. (1)
Chrysojasminum fruticans (L.) Banfi (5)
Clinopodium nepeta (L.) Kuntze (2)
Colchicum autumnale L. (5)
Colutea arborescens L. (1)
Cruciata laevipes Opiz (2)
Cyperus longus L. (2)
Cytisophyllum sessilifolium (L.) O.Lang (4)
Cytisus scoparius (L.) Link (4)
Delphinium ajacis L. (2)
Dianthus carthusianorum L. (5)
Digitalis lutea L. (2)
Dioscorea communis (L.) Caddick & Wilkin (5)
Dracunculus vulgaris Schott (5)
Echinops ritro L. (1)
Emerus major Mill. (1-4)
Epipactis helleborine (L.) Crantz (4)

Equisetum telmateja Ehrh. (2)
Erodium moschatum (L.) L'Hér. (1)
Eupatorium cannabinum L. (1)
Euphorbia amygdaloides L. (1)
Euphorbia cyparissias L. (1)
Euphorbia helioscopia L. (1)
Euphorbia lathyris L. (1)
Ferula communis L. (1)
Fibigia clypeata (L.) Medik. (2)
Filipendula vulgaris Moench (2)
Fragaria vesca L. (2)
Fritllaria persica L. (5)
Genista germanica L. (4)
Genista tinctoria L. (4)
Geranium columbinum L. (1)
Geranium dissectum L. (1)
Geranium robertianum L. (1-4)
Glycyrrhiza echinata L. (4)
Gnaphalium uliginosum L. (2)
Gossypium sp. (5)
Hedypnois rhagadioloides (L.) F.W.Schmidt (2)
Hepatica nobilis Schreb. Schreb. (2)
Heracleum sphondylium L. (1)
Hesperis matronalis L. (1)
Iris foetidissima L. (4-5)
Iris graminea L. (1)
Isatis tinctoria L. (5)
Laburnum anagyroides Medik. (1)
Lallemantia peltata (L.) Fisch. & C.A.Mey. (5)
Lamium amplexicaule L. (5)
Lathyrus sylvestris L. (5)
Lathyrus vernus (L.) Bernh. (1)
Legousia speculum-veneris (L.) Chaix (5)
Lepidium campestre (L.) R.Br. (2)
Lilium sp. (1)
Limodorum abortivum (L.) Sw. (5)
Lonicera caprifolium L. (2)
Lotus tetragonolobus L. (5)
Lunaria annua L. (2)
Lychnis coronaria (L.) Desr. (1)
Lycium cfr. intricatum Boiss. (1)
Lysimachia arvensis (L.) U.Manns & Anderb. (1-1)
Lysimachia vulgaris L. (1)
Lythrum salicaria L. (1)
Medicago scutellata (L.) Mill. (1)
Melittis melissophyllum L. (5)
Mentha aquatica L. (5)
Micromeria juliana (L.) Benth. ex Rchb. (5)
Moluccella spinosa L. (1)
Nerium oleander L. (2)
Nigella arvensis L. (5)
Nigella damascena L. (5)
Oenothera biennis L. (1)
Onobrychis viciifolia Scop. (5)
Ornithogalum umbellatum L. (2)
Oryza sativa L. (2)
Osyris alba L. (5)
Oxybasis rubra (L.) S.Fuentes, Uotila & Borsch (2)
Pelargonium sp. (1)
Persicaria maculosa Gray (5)
Phelipanche ramosa (L.) Pomel (2)
Philadelphus cfr. coronarius L. (5)
Phillyrea cfr. latifolia L. (1)
Polygala vulgaris L. (2)
Polygonatum odoratum (Mill.) Druce (2)
Polystichum setiferum (Forssk.) T.Moore ex Woyn. (2)
Potentilla rupestris L. (1)
Proboscidea louisianica (Mill.) Thell. (5)
Pteridium aquilinum (L.) Kuhn (2)
Reseda luteola L. (1)
Ricinus communis L. (5)
Salvia sclarea L. (5)
Salvia verticillata L. (5)
Sanicula europaea L. (2)
Scandix pecten-veneris L. (1)
Scutellaria columnae All. (5)
Securigera securidaca (L.) Degen & Dörfl. (5)
Senecio vulgaris L. (2)
Silene dioica (L.) Clairv. (1)
Silene italica (L.) Pers. (1)
Smyrnium olusatrum L. (5)
Solidago canadensis L. (2)
Sonchus oleraceus L. (2)
Stachys alpina L. (1)
Stachys germanica L. (5)
Stachys palustris L. (1)
Stachys sp. (1)
Stachys sylvatica L. (5).
Staphisagria macrosperma Spach (2)
Stenotaphrum sp. (1)
Styrax officinalis L. (1)
Syringa vulgaris L. (5)
Tanacetum balsamita L. (5)
Teucrium botrys L. (1-1)
Teucrium campanulatum L. (1)
Teucrium flavum L. (1)
Teucrium hircanicum L. (1)
Teucrium polium L. (2)
Thalictrum lucidum L. (1)
Thlaspi perfoliatum L. (2)
Tordylium apulum L. (1)
Tordylium maximum L. (1)
Torilis japonica (Houtt.) DC. (1-5)
Torilis nodosa L. (5)
Tragopogon porrifolius L. (2)
Trifolium incarnatum L. (5)
Urospermum dalechampii (L.) F.W.Schmidt (2)
Vaccaria hispanica (Mill.) Rauschert (1)
Vicia hirsuta (L.) Gray (1)
Vicia narbonensis L. (1)
Vinca minor L. (2)

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