

THE ILLYRIAN SPECIES IN THE FLORA OF HUNGARY AND ITALY

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Illyria situated on the Adriatic side of the Balkan peninsula and inhabited by the ancient Illyrian people is a district, which in classical times bordered to the North with Pannonia, to the South with Macedonia, to the West with the coast of Dalmatia between the river Drylon and Istria and eastwards with Moesia.

It includes therefore a portion of Albania and some portions of Jugoslavia like Herzegovina, Montenegro, almost the whole of Bosnia and Croatia and Western Istria and Serbia. The floristic Province called "Illyria" by many Authors or "West-Balkanian" by others, coincides in the main part with the historical-geographical area. The Illyrian Province is assigned by some Authors (like WALTER, PIGNATTI, etc.) to the Submediterranean zone as an intermediary area between Central-Europe and the Mediterranean, while other Authors (like ENGLER, SOÓ, etc.) assign it to the Central-European area.

The "Illyricum" consists of 3 floristic sub-divisions (according to SOÓ and others):

1. Croatiaium (with the Dinarics)
2. Slavonium (with hilly and semi-montaneous areas between the Drava and Sava)
3. Praeillyricum (including the South-Transdanubia in Hungary).

This kind of subdivision is not agreed on by many: for example MEUSEL uses the terms Westillyrische, Südostillyrische and Nordostillyrische Unterprovinz excluding the Transdanubian region and creating from it the Praenorisch-Slowenische Unterprovinz. MAYER (1978) asserts that Slovenia rich in Illyrian elements represents the border between the Illyrian Province and the Central European one. The lowlands of Sava are usually included in the Pannonicum.

The area of the Illyrian species is made up of the superposition of influences from a mediterranean oceanic climate and a continental submediterranean climate thus giving it a more humid nature than that of the Apennine Peninsula.

The Illyrian species extend across an area characterized by a more or less uniform orography: low mountains which do not reach 800 meters in Hungary.

The soil is prevalently derived from calcareous rocks and limestones with karst phenomena in many parts. Consequently the soils deriving from the degradation of limestone could be classified as rendzina, brown forestal soils or clay soils. It is thus mainly an alkaline environment and therefore one can assume the presence of calcifilous and hardy species.

In the history of the distribution of the Illyrian species the cold period of Würm had a great influence over some zones of the present area: for example in the Karst which were remarkably depopulated and which later were repopulated by Balkanian-Illyrian species spreading from the Balkanic inland. These species behave like post-glacial endemisms (for example in the coastal Karst *Euphorbia tommasiniana* Bertol., *Linum tommasinii* Rehb.).

The Ice Age had terribly destructive effects on the Central-European flora: southern areas relatively unaffected could only contribute species to Central-Europe in post-glacial times across areas where there were no barriers to northward extension as the Sarmatic sea and lakes dried up.

TURRILL (1929) asserted that there is good evidence that many plants, with their existing centre of dominance or maximum development in the north-western parts of the Balkan Peninsula, spread into Italian and Hungarian territories and there survived the Ice Age in the more protected localities. The Italian Karst and the Bükk in Hungary assured a shelter for Illyrian species which could be considered to be Tertiary pre-glacial relicts, for example *Micromeria thymifolia* (Scop.) Fritsch in the Bükk and also in Trieste. (Fig. 1.a,b)

There are Illyrian species common to Italy and the Balkan Peninsula, and apparently limited to these areas (for example *Ornithogalum kochii* Parl., *Dianthus ciliatus* Guss., *Mandragora officinarum* L., *Adenostyles australis* (Ten.) Nyman, *Genista sylvestris* Scop., *Genista sericea* Wulf. so called amphyadriatic species). We find Illyrian species spread northwards into the Hungarian territories for example *Helleborus dumetorum* W. et K., *Dentaria trifolia* W. et K., *Centaurea mollis* W. et K. ex Bess. according to Soó.

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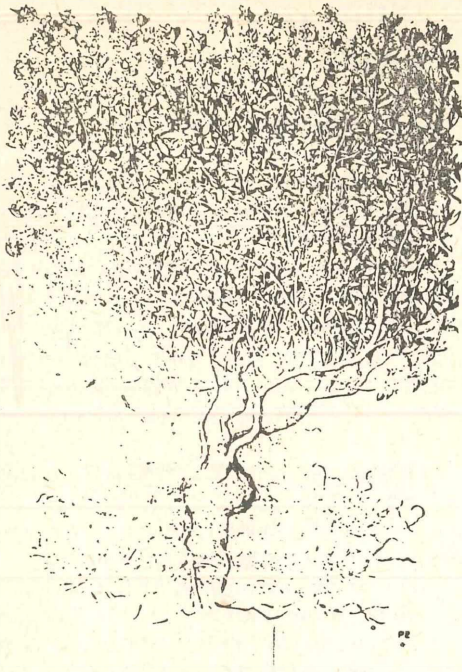


Fig. 1/a *Satureia dioscorialis* [= *Micromeria thymifolia* (Scop.)
Fritsch] from the "Commentarii in sex libros Pedacii



Fig. 1/b *Micromeria thymifolia* (Scop.) Fritsch illustrated in "Flora
carniolica" (Viennae, 1772) 2 vols by G. A. Scopoli.

In the area of the Illyrian Province the central zones were less influenced by human impact with the exception of the coastal parts (like for ex. in the Karst where the forest was very much exploited from the Neolithic age through Classical times up to the last century which contributed to the well-known karst phenomena).

In fact the Illyrian species, almost exclusively herbaceous ones, are susceptible to treatments like fertilization and impact of grazing; a low presence is found in the ruderal flora, and they are more frequent in conditions far from the climax on not evolved soil. The habitats of the Illyrian species in Italy and in Hungary consist of stony and dry places especially dry hill-slopes, dry rocks and walls, dry pastures and meadows or woodlands always on calcareous soils.

The boundaries of many Illyrian Species were given by MEUSEL, among them *Sesleria tenuifolia* Schrader, *Genista sylvestris* Scop. and *Medicago carstiensis* Jacq., are given also for Italy. These indicate that the Karst and the south-eastern Pre-Alps and the opposite shore of the Adriatic belong to this Province and represent the transition from the illyrian-dinarian subsystem to the illyrian-pre-alpin one which is rich in Illyrian species and endemisms (like *Frangula rupestris* (Scop.) Schur).

In comparison with MEUSEL, PIGNATTI gives a larger and continuous distribution to Italy of these 3 species with their presence also on the opposite shore of the Adriatic. In fact Pignatti's data bank of the Flora of Italy indicates a very high presence of the Illyrian species in the Karst near Trieste and in the Friuli Region, which decreases gradually more westwards than southwards where it keeps a relative high level on the Gargano and in Basilicata (Fig. 3.).



Fig.2. *Sassifraga* (= *Silene bayeliana* Handl-Makk. et Janchen) from the "Herbaria Nuova" (Romae, 1585) by C. Durante.



Fig.3. The number and distribution in the 20 Regions of Italy of the 80 Illyrian species and subspecies of the Italian Flora.

It is of interest to note the floristic relationship between the Gargano massif and the Illyrian karst flora (for ex. *Inula verbascifolia*, (Willd.) Hausskn, *Phagnalon graecum* Boiss et Heldr. *spp. illyricum* (Lidb.) Ginzberg). Whether these elements in a recent geological time immigrated from Dalmatia to the Gargano via emergent lands which later disappeared between Dalmatia to the Gargano or whether wind, birds and other dispersal agents account for their presence across the sea is not established.

Tab. 1. The Illyrian species and subspecies in Italy according to Pignatti (1982)

PINUS nigra Arnold	Illyr.
MOEHRINGIA ciliata (Scop.) D. Torre	Alpin-Illyr.
MINUARTIA graminifolia (Ardomo) Jav.	Apenn.-Illyr.
SILENE hayekiana Hand.-Mazz. & Janchen	Illyr.
DRYPIS spinosa L.	Illyr.-Apenn.(amphiadria.)
DRYPIS jacquimiana Murb. & Wettst.	Illyr.-Dalmat.
DIANTHIUS ciliatus Guss.	Italian-Illyr.
CARDAMINE kitaibelii Becherer	W-Alpin-Illyr.
ALYSSOIDES sinuata (L.) Medicus	Illyr.-(amphiadria.)
ALYSSUM ovirens Kerner	Endem.-illyr.
SPRAEA cana W. & K.	Illyr.
POTENTILLA australis Krasan	Illyr.
CYTISUS pseudo-procumbens Markgraf	Illyr.
CHAMAECYTISUS purpureus (Scop.) Link	E-Alpin-Illyr.
GENISTA sericea Wulf.	Edem.-Illyr.
GENISTA sylvestris Scop.	Illyr.-Amphiadria.
GENISTA holopetala (Fleischm.) Bald.	N-Illyr.
ASTRAGALUS muelleri Steudel & Hochst.	Central-Italian-Illyr
ASTRAGALUS monspessulanus L. ssp. illyricus (Bernh.) Chater	Illyr.
VICIA oroboides Wulf.	Sub-Illyr.
MEDICAGO carstiensis Jacq.	Illyr.-S-Alpin
LINUM tommasinii Rehb.	SE-Europ. (Illyr.)
EUPHORBIA fragifera Jan	Endem.-Illyr.
EUPHORBIA tommasiniana Bertol.	Illyr. (?)
EUPHORBIA wulfenii Hoppe	Illyr.
HAPLOPHYLLUM patavinum (L.) Don fil.	Illyr
POLYGALA nicaeensis Risso var. adriatica Chodat	Illyr
FRANGULA rupestris (Scop.) Schur	Illyr.
VIOLA adriatica Freyn	Endem.-Illyr.
ASTRANTIA carmolica Jacq.	Endem.-Illyr
SESELI gouanii Koch	Illyr.
ATHAMANTA turbith (L.) Brot.	Illyr.
GRATA golaka (Jacq.) Rehb.	Illyr.-Central-Ital.(Amphiadria)
TRINIA glauca (L.) Dumort. ssp. carmolica (Kerner) Wolff	Endem.-Illyr.
PEUCEDANUM coriaceum Rehb.	Illyr.
PEUCEDANUM schottii Besser	SE-Europ.(Sub-Illyr.)
HERACLEUM pyrenaicum Lam. ssp. pollinatum (Bertol.) Pedrotti & Pignatti	E-Alpin-Illyr.
GENTIANA symphyandra Murb.	Illyr.
GENTIANA tergestina Beck	Illyr.
LAMIUM orvala L.	E-Alpin-Dinar.-(Sub-Illyr)
BALLOTA nigra L. ssp. velutina (Pospichal) Patzak	Illyr.
SATUREJA subspicata Bart.	Illyr.
MICROMERIA thymifolia (Scop.) Fritsch	Endem.-Illyr
MANDRAGORA officinarum L.	Illyr.
DIGITALIS laevigata W. & K.	Illyr
WULFENIA carinthiaca Jacq.	Illyr.
MELAMPYRUM fimbriatum Vandas	Illyr
MELAMPYRUM vetebiticum Borbás	Illyr.
EUPHRASIA illyrica Wettst	Illyr.-Amphiadria.
GLOBULARIA meridionalis (Podp.) O. Schwarz	Illyr.-Ital.
LONICERA alpigena L.	S.Europ. (Sub-Illyr.)
KNAUTHIA illyrica Beck	Endem.-Illyr.
SCABIOSA hladnikiana Host	Illyr.
CAMPANULA ramosissima S. & S.	Illyr.
CAMPANULA pyramidalis L.	Illyr.
CAMPANULA witasekiana Vierh.	Illyr
ADENOSTYLES australis (Ten.) Nymao	Illyr.-Apenn. (Amphiadria.)
ERIGERON epiroticus (Vierh.) Halácsy	Endem. - Illyr. Apenn. (Amphiadria.)
PIAGNALON graecum Boiss. & Heldr. ssp. illyricum (Lindb.) Gmz.	Illyr.-Austroital. (Amphiadr.)

INULA spiracifolia L.	S.Europ. (Sub-Illyr.)
INULA verbascifolia (Willd.) Hausskn.	Illyr. (Amphiadria.)
ACHILLEA virescens (Fenzl) Heimerl	Illyr.
LEUCANTHEMUM liburnicum Horvatic var. liburnicum	Illyr.
SENECIO scopoli (Hoppe & Hornsch.)	Endem. Illyr.
CARDUUS carduelis (L.) Gren.	Endem. SE-Alpin-Dinar. (Sub-Illyr.)
CENTAUREA haynaldii Borhás ssp. julica (Hayek) Mayer	Illyr.
CENTAUREA weldeniana Rehb.	Illyr.
TRAGOPOGON tommasinii Schultz-Bip.	Endem.-Illyr.
SCORZONERA villosa Scop.	Illyr.-Apenn. (Amphiadria.)
PICRIS hispidissima (Bartl.) W. Koch	Illyr.
CREPIS chondrilloides Jacq.	Illyr.
COLCHICUM kochii Parl.	Illyr.
ORNITHOGALUM kochii Parl.	Illyr.
MUSCARI kernerii Marchesetti	Illyr.
ALLIUM ericetorum Thore	Illyr.-Apenn.
CROCUS weldeni Baker	Illyr.
FESTUCA spectabilis Jan ssp. carniolica (Hackel) Hayek	Illyr.
FESTUCA laxa Host	Illyr.
SESLERIA tenuifolia Schrader	Illyr.-Apenn.
SESLERIA kalnikensis Jávorka	Illyr.
Hybrids:	
ANTHYLLIS vulneraria L. ssp. maura x adriatica Beck	Illyr.
ANTHYLLIS vulneraria L. ssp. weldeniana x tricolor Vucot.	Illyr.
ANTHYLLIS vulneraria L. x versicolor Sag.	Illyr.
Cultivated plants:	
PINUS dalmatica Vis.	Illyr.
TANACETUM cinerariifolium Vis.	Illyr.

The Illyrian chorological group in the Karst consists of two subgroups:

1. the South-Illyrian with balkanic species limited to Jugoslavia which arrives to the Karst and Pre-Alpine zone, and 2. the North-Illyrian one with species irradiating from Jugoslavia reaching up to the South-East Alpine zones. According to POLDINI, in the Karst the Illyrian species represent 21 % of the chorological spectrum and they are the most important among the biogeographical elements which form the landscape. The highest percentage (34,1) of the chorological groups in the plant associations on the Karst belongs to the South-Illyrian geographical element.

Taking into examination the Illyrian species present in Italy on the Flobank program of Pignatti's data bank, the biological spectra can be elaborated and compared with the biological spectra of the Illyrian species in Hungary (Fig. 4.).

If we make a comparison between the biological spectra of the Balcanic Peninsula, the biological spectra of the South-west Transdanubia and that one of the Italian Regions where they are present, and the biological spectra of the whole Hungarian and Italian flora we have the following table (Tab. 2.).

Tab.2. Biological spectrum of the Flora

	II	CH	G	N	P	T
Balkan Peninsula (acc. to Turrill)	44.4	15.2	9.1	3.7	4	21
Flora of S-W Transdanubia (Soó)	46.3	2	9.6	0.9	7	25.5
Flora of Hungary	46.6	2.1	10.9	1.25	7.3	21.8
Illyrian sp. in Hungary	43	14	36	7		
Flora of N-E Italy (Poldini)	41.6	5.2	18.6		11.2	21.5
Flora of Italy	29	6	11		12	42
Illyrian sp. in Italy	57	22.5	10	2.5	2.5	5.5

From this table we can see that in Hungary there is a higher percentage of chamaephyta among Illyrian species due to the less favorable conditions for the vegetation. The lower value of hemicyptophyta indicates the discrimination from the Central European flora (in fact this value is higher considering the general Hungarian flora clearly of central-european type). The percentage of the geophyta is higher than

in all the other cases and due to the presence of monocotyledonous species. The lack of Illyrian therophyta in Hungary indicates a clear distinction from the mediterranean type of flora.

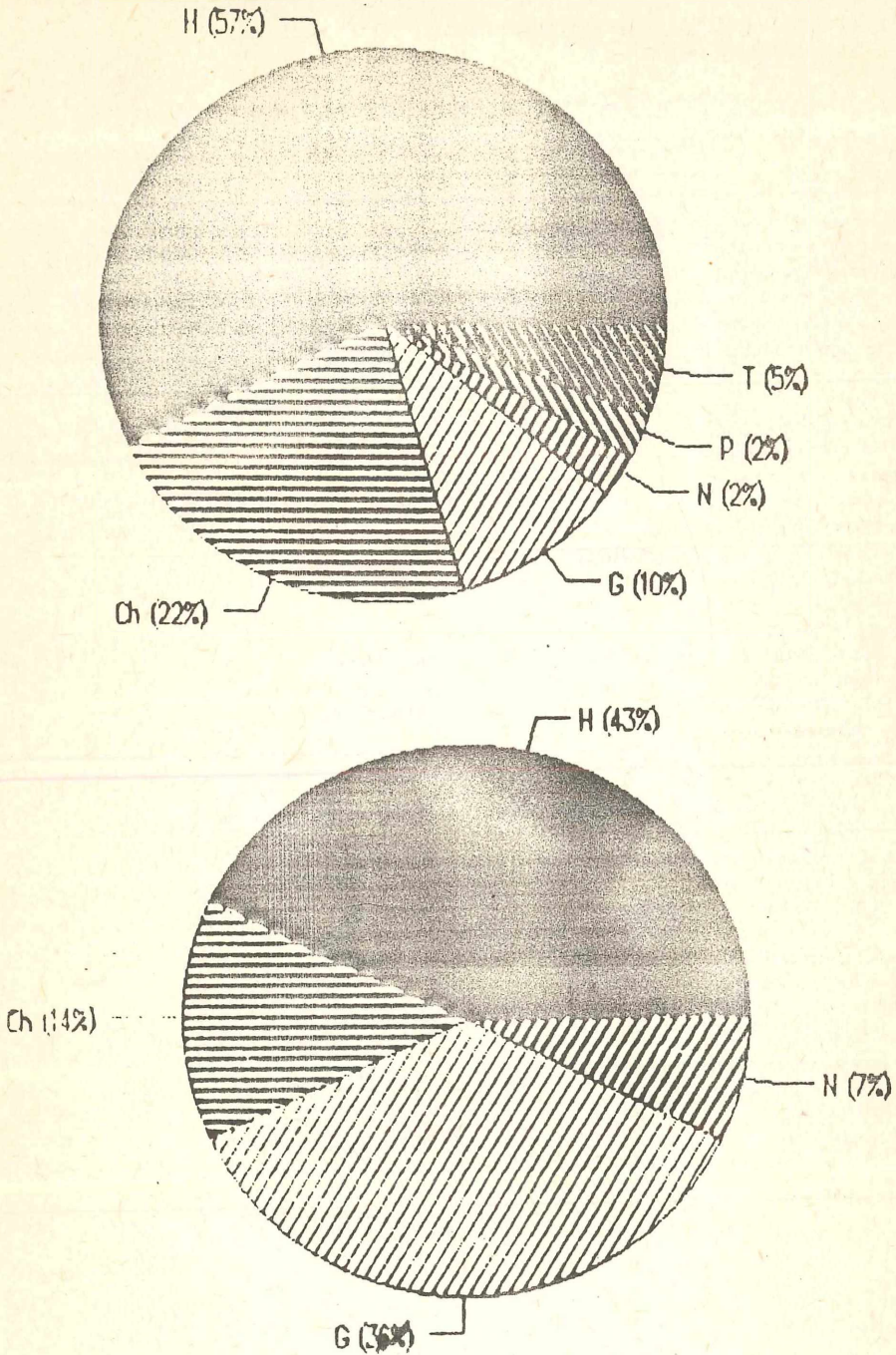


Fig.4. The biological spectrum of the Illyrian elements in Italy (up) and Hungary (down).

Taking into consideration the distribution of the Illyrian species in Italy according to the altitude we have their higher presence between 100 and 800 meters (Fig. 5.).

Finally if we make a comparison between the list of the Illyrian species and subspecies in Hungary (following SOÓ Tab. 3.), (Fig. 6.) whose percentage is 0,63 in respect to the whole flora, and the list of the Illyrian elements in Italy (whose percentage is 1,45 in respect to the whole flora) we see that we have 3 species living in both of countries and considered by both of the Authors Illyrian elements: *Vicia oroboides* L. (Fig. 7), *Lamium orvala* L. (Fig. 8) and *Micromeria thymifolia* (Scop.) Rechb.

Tab.3 Illyrian species s.l.of the Pracillyricum (South-West Transdanubia) acc. to Soó (1968-1982) with the critical revision of Horvát A.O.(verb.com.).

SOÓ	PIGNATTI	MEUSEL
HELLEBORUS dumetorum W. & K. Pannon.-(Sub-)Illyr.	Balcan.-Carpati.	Illyr.-Westpannon.
GENISTA ovata W.&K. ssp.nervata (Kit.in DC.) Jáv. Illyr.(E-Alpin.-W-Balcan.)		Balcan.-Illyr - Transylv.
CYTISUS procumbens (W. & K.in Willd.) Sprengel E-Alp.--(W-Balc.)-Illyr.-Pannon.-	S - Europ	Illyr. - Pannon S - Carp.
LAMIUM orvala L. Illyr.	E-Alp.-Dinar. -Sub.-Illyr.	
CALAMINTHA thymifolia (Scop.) Rechb. Illyr.-(Alpin.-Balcan)	Endem.-Illyr.	
DENTARIA trifolia W. & K. Illyr.	Illyr.	Illyr.
CENTAUREA mollis W.&K. ex Bess. Carpat.-Illyr. (no Illyr. acc. to Horvát)		
CENTAUREA fritschii Hay. Illyr.		
CYCLAMEN purpurascens Mill. Alpin.-Carpat.-Illyr.(no Illyr. acc.to Horvát)	N-E-Medit	
COLCHICUM hungaricum Janka Illyr.-(W-Balcan)	Steno.Medit.	
CROCUS tommasinianus Herbert Sub-Alpin.-(W-Balcan.)-Illyr.		
GLADIOLUS palustris Gaud. Centr.-Europ.-Alp.-Illyr. (no Illyr. acc. to Horvát)	Centr.-Europ.	
BROMUS pannonicus Kummer & Sendtnel Pannon.-Illyr. (no Illyr. acc.to Horvát)	SE-Europ.	
VICIA oroboides L. Alpin.-Balcan.(Illyr acc. to Horvát)	Sub - Illyr.	Sub-Illyr.
With Illyr. behaviour in Hungary:		
KNAUTIA drymeia Heuff.ssp.drymeia C-Europ.-W-Balcan.	SE - Europ	
DENTARIA enneaphyllos L. Alpin.-Carpat.-Balcan	Alpin.-Carpat	Medit.-W-Alpin. -N-Carpat.
HYPERICUM barbatum Jacq. E-Alpin.-Balcan.	SE-Europ.	

* Present in Italy but the chorotype is not considered.

There are species living in both countries but considered Illyrian species only by one of the Authors: *Helleborus dumetorum* W. et K., *Cytisus (Genista) procumbens* (W. et K.) in Willd., *Centaurea fritschii* Hay, *Cyclamen purpurascens* Mill., *Colchicum hungaricum* Janka, *Gladiolus palustris* Gaud., *Bromus pannonicus* Kummer et Sendteal, *Pinus nigra* Arnold (Fig. 9), *Euphorbia tommasiniana* Bertol. (= *E. virgata*), *Inula spiraeifolia* L., *Muscari kernerii* Marchesetti, considering the clear synonyms only.

Acknowledgements. I thank Prof. Dr. HORVÁT Adolf Oliver and Dr. KEVÉLY Balázs for help regarding the Hungarian flora. I am also indebted to Prof. Sandro PIGNATTI for the critical revision of the manuscript.

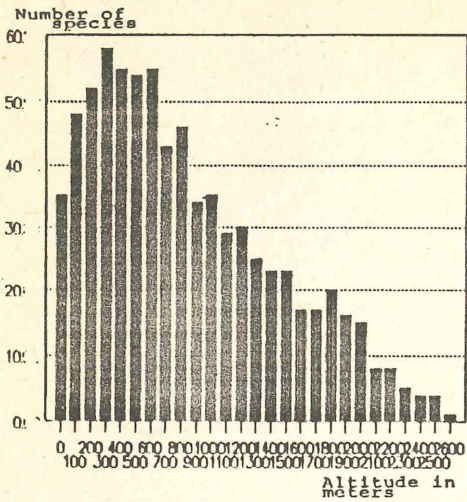


Fig.5. The distribution of the 80 Illyrian elements in Italy according to the altitude.



Fig.6. *Cyclaminus odorato-purpureo flore* (*Cyclamen purpurascens* Mill.) from "Rariorum Plantarum Historia" (Antwerpiac, 1601) by Clusius



Fig.7. *Orobus pannonicus* III. (= *Vicia oroboides* L.) from the "Rariorum Plantarum Historia" (Antwerpiac, 1601) by Carolus Clusius

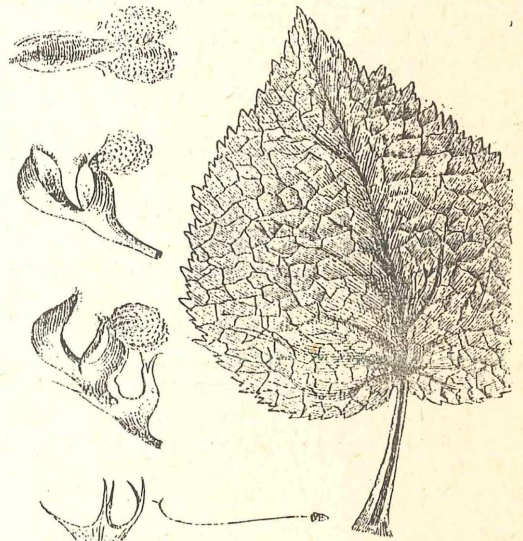


Fig.8. *Lamium pannonicum* (= *Lamium orvala* L.) from the *Flora carniolica* (Viennae, 1772) by G. A. Scopoli.

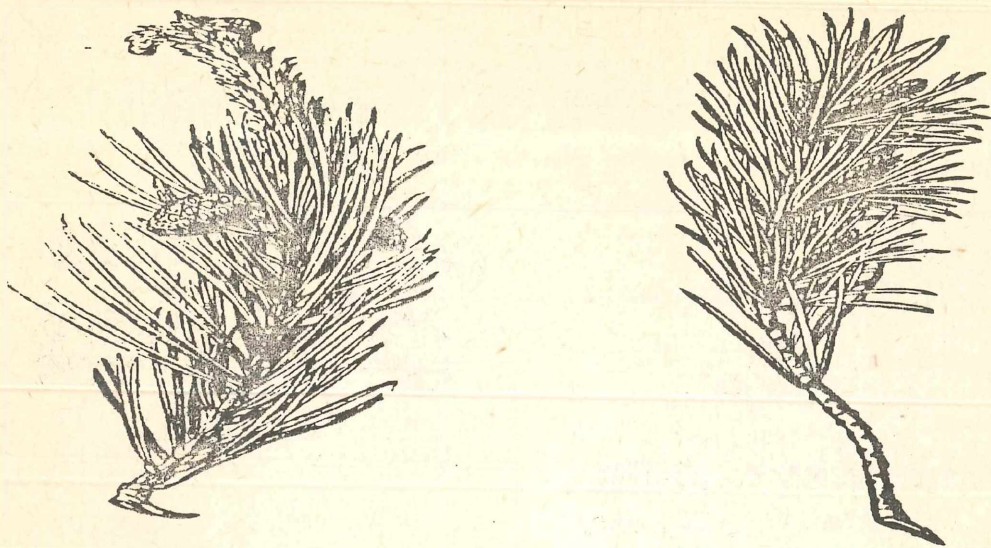


Fig. 9. *Pinaster II. austriacus* (= *Pinus nigra* Arnold) from "Rariorum Plantarum Historia" (Antwerpiae, 1601) by Carolus Clusius

References

- Adamovic L.: Die Pflanzenwelt der Adrialänder. Jena, 1929.
- Carolus Clusius: Rariorum Historia Plantarum. Antwerpiae, 1601.
- Gortani L. & M.: Flora Friulana con speciale riguardo alla Carnia. Udine, 1905.
- Horváth A.O.: A Mecseki tájak erdei növénytársulásai. Janus Pannonius Múzeum Évkönyve 1963: 33-51, 1963.
- Horváth A.O.: A Mecsek hegység növényföldrajza I. Janus Pannonius Múzeum Évkönyve 1965:29-47, 1965. II. Ibid. 1966: 25-39, 1966.
- Kevey B.: A Dentaria trifolia W. et K. előfordulása Magyarországon. Bot. Közlem. 72(1-2): 151-153, 1985.
- Marchesetti C.: Flora di Trieste e dei suoi dintorni. Trieste. 1896-97.
- Mayer E.: Zur Pflanzengeographischen Kennzeichnung Sloweniens. Comun. Soc. stud. veget. Alp. orient. dinar. 14: 65-67, 1978.
- Meusel H.: Vergleichende Arealkunde I-II. Berlin-Zehlendorf. 1943.
- Pignatti S.: Flora d'Italia. Bologna, 1982. 3 vols.
- Poldini L.: La vegetazione del Carso Isontino e Triestino. Trieste. 1989.
- Rikli M.: Das Pflanzenkleid der Mittelmeerländer. Bern. 1946. 3 vols.
- Scopoli G.A.: Flora Carniolica, Viennae, 1772. 2 vols.
- Soó R.: A magyar flóra és vegetáció rendszertani-növényföldrajzi kézikönyve. Budapest, 1964-1980. 6 vols.
- Turrill W. B.: The Plant-life of Balkan Peninsula. 1929.
- Tutin T.G. & at.: Flora Europaea. 1964. Cambridge.

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Jahr/Year: 1990

Band/Volume: [1990_SB](#)

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Artikel/Article: [The illyrian species in the flora of Hungary and Italy 95-104](#)