©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

Further chapter from the study on *Hesperis sylvestris*

By

František Dvořák

Department of Botany, University Brno, Czechoslovakia

With 2 Figures

Received August 19, 1966

1. Introduction 6
2. Material and method 7
3. *Hesperis sylvestris* Crantz 1762: 34 7
3.1. 1. Variability 9
3.1.1. α f. *sylvestris* 10
3.1.2. β f. *runcinata* (Waldst. & Kit.) Dvořák comb. nova . . 10
3.1.3. γ f. *trichogyna* (Borb.) Nyár. 1955: 193 11
3.1.4. δ f. *schurii* Nyár. 1955: 193 12
3.2. Geographical distribution 13
3.3. Area 20
3.4. Biological and ecological characterization 21
4. Hybrids 21
5. *Hesperis inodora* Linné 1763: 927 24
6. Summary 28
7. References 28

I. Introduction

The present study is a preliminary monograph on the species *H. sylvestris* Crantz 1762: 34.

The author is indebted to the managers of the institutions given below for supplying the herbarium specimens, especially to prof. Dr. K. H. Rechinger for particulars on the type of the species *H. sylvestris;* to acad. E. I. Nyárády for particulars on the Schur's herbarium and for further advice; to manager of the Brno Botanical Garden Mr. Láník for enabling me ton experimental taxonomic investigations.

Author's acknowledgment is due to prof. Dr. F. J. Widder from Graz for his valuable observations referring to this work.

Like every other study, so the present work does not claim to be

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

complete. It will require further supplementation and specification, especially in the part referring to the geographical distribution of *H. sylvestris* in Hungary, Austria and Rumania, I shall be grateful to all institutions, especially to those from Rumania, that would enable me to continue the investigation of particular sections of the study by supplying me with the herbarium specimens. Nevertheless I hope that the present study can be a guidance in work for other botanists.

2. Material and method

I have studied the species *H. sylvestris* from the herbariums of the following institutions: PR, PRC, BRNM, BRNU, BRNS, OP, OL, BRA, SLO; LW; B, JE; P; W, WU, GZU; BP, BPU; SARA, LJU; ATH (= Athenai); Če (= ČERNOCH's herbarium); Ny (= herbarium of acad. NYÁRÁDY). With regard to abbreviations compare Index Herbariorum and WIDDER 1964: 81. In the field I have investigated a species on the Pálava Hills, on the hill Réna near Ivančice, on the slopes above the Cornštejn castle. From 1963 I have observed the constancy of the characters in plants grown from seeds sown on the experimental plot of the Botanical Gardens in Brno. There I have also carried out the hybridization with other species, above all with *H. matronalis*.

Method of the investigation of the chromosome number: For the investigation I have used the root tips. Fixation: 3 portions of C_2H_5OH (96%): 1 portion of icy acetic acid; time of fixation: 10 min. Maceration: 1 portion of hydrochloric acid (37%): 1 portion C_2H_5OH (96%); time of maceration: 10 min. Washing in water: 10 min. Dyed by acetocarmine.

3. *Hesperis sylvestris* CRANTZ 1762: 34

HAYEK 1927: 415 p. p. BUŠ 1939: 245 p. p. DOSTÁL 1950: 314. SOÓ & JÁVORKA 1951: 622. JANCHEN 1953: 81 ac 1957: 214. SZAFER, KULCZYŃSKI & PAWŁOWSKI 1953: 214. HERMANN 1956: 508 p. p. TZVELEV 1959: 122. BALL 1964: 276.

Synonyms: [*Hesperis pannonica inodora* J. BAUH. & CHERLERUS 1651: 878. — *Hesperis sylvestris inodora* C. BAUH. 1620: 202.] — *H. inodora* L. 1763: 927 non BALL 1964: 277. — *Hesperis bituminosa* SAVI 1808 (cit. sec. BORBÁS 1902: 376); WILLD. 1800: 531. — *Hesperis matronalis* L. β *sylvestris* DC. 1821: 451. — *Hesperis matronalis* L. β) *glandulosa* SPACH 1838: 390. — *Hesperis matronalis* L. β. *runcinata* (WALDST. & KIT.) NEILR. 1846: 484 ac 1859: 721; ČELAK. 1875: 462; BOISS. 1867: 233 p. min. p. — *Hesperis* odora KANITZ 1863: 82 absqu. diagn. — *Deilosma runcinatum* FUSS 1866: 56. — *H. silvestris* [CLUS.] FOURN. var. δ. *silvestris* (DC.) FOURN. 1866: 346 p. p. — *Deilosma sylvestris* BECK 1892: 474 pro syn. — *H. matronalis* L. var. *runcinata* (WALDST. & KIT.) PRODAN 1915: 227. — *H. matronalis* L. subsp.

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

silvestris (CRANTZ) THELL. in HEGI 1919: 467. — *H. matronalis* L. subsp. *eu-matronalis* BORB. (sic!) var. *silvestris* (CRANTZ) STOJ. & STEF. forma *typica* 1933: 488.

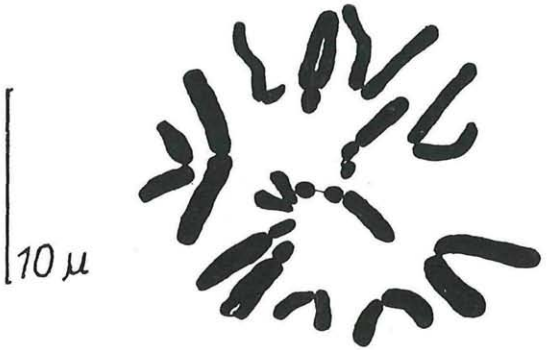
Notes: (1) I have not seen the type of the taxon *H. bituminosa* SAVI. BORBÁS 1902: 276 wrote about the specimen by WILLDENOW: "... secundum exemplaria Berolinensia in herb. SCHOTT." I have revised the following specimens identified as *H. bituminosa* or *H. bituminosa runcinata:* 206665 W and 310392 W: 1823 ? leg. — W and PR (ex herb. ROSSI) sub *H. runcinata* β. — (*H. bituminosa* DC.). W: 1820 ? Fatria (sub *H. bituminosa* WILLD.).

(2) *Hesperis odora* KANITZ: it is probably a printer's error.

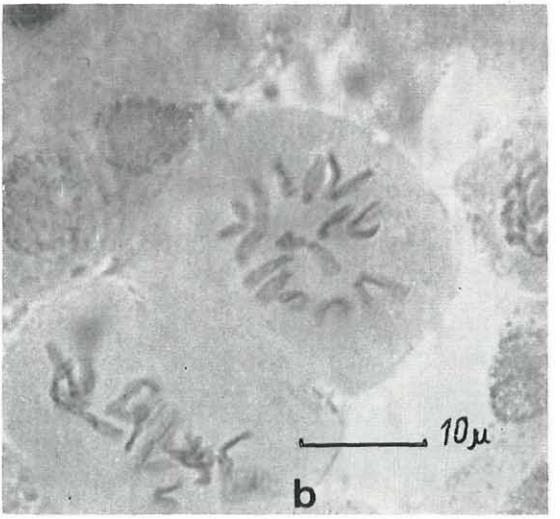
(3) *H. inodora* L. 1763: 927: see the chapter No 5.

Planta biennis, rarissime perennis, dense pilis praecipue glanduliferis phragmiferis articulatis tecta, (72)—96—(140) cm alta. Radix palari-ramosa. Caulis erectus, teres, superne ramosus, dense pilis glanduliferis phragmiferis articulatis ac pilis eglanduliferis simplicibus intermixtis tectus; in caule vestimento interdum etiam pili eglanduliferi bifurci rarissimi. Folia radicalia tempore florendi iam decidua, lyrata; folia caulia inferiora lyrata seu ovato-oblonga, ± longe petiolata, basi angustata, apice acuminata, basi grosse dentata, parte superiore solum remote denticulata; folia caulina media superioraque ovata usque anguste ovata, basi saepissime obtusa usque subcordata vel subamplexicaulia, rarissime basi contracta sessilia — rarissime folia media basi rotundata ± petiolata, apice acuminata usque longe acuminata, margine grosse dentata. Folia omnia dense vestita: pili glanduliferi articulati copiosi; pili eglanduliferi simplices copiose intermixti; foliorum basis etiam pilis eglanduliferis bifurcis sparissime intermixtis tecta. Racemi simplices seu basi sparse ramosi. Pedicelli erecti seu patentes, graciles, tenues, dense pilis eglanduliferis phragmiferis articulatis pilisque eglanduliferis simplicibus intermixtis, rarissime etiam pilis eglanduliferis bifurcis tecti, (1,0)—2,8—(3,7) cm longi. Sepala viridia seu subviolacea, anguste oblonga, apice obtusa, basi pilis sparsis glanduliferis phragmiferis articulatis, interdum etiam pilis eglanduliferis simplicibus ± intermictis tecta, apice pilis eglanduliferis paulo intermixtis barbata, (7)—9—(12) mm longa. Petala oblonga usque obovata, integerrima, rarius apice emarginata, roseo-violacea; petalorum unguis (8)—10—(11) mm longus, petalorum lamina (8)—13—)15) mm longa et (6)—7,0—(9) mm lata. Siliquae erectae, tenerae interdum tortae, subtetragonae usque cylindricae, glabrae, rarius tenerae glanduloso-pubescentes, (1,2)—6,3—(9,7) mm longae et 1—2 mm, rarius usque 3 mm latae. Semina cylindrica, laevia, fusca, (1,5)—2,0—(2,2) mm longa. Flores: VI—VII.

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at



a



b

Fig. 1. *Hesperis sylvestris* CRANTZ. Chromosomes. a: Drawing DVOŘÁK, b: Microphoto AMBROŽ.

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

Type: BP (non vidi).

BUŠ 1939: 246 wrote: "Tip v Veně". It is probably a mistake. BORBÁS 1902: 375 wrote: "*Hesperis silvestris* CRANTZ, Stirp. Austr. I, 1762, p. 34! II p. 32! etc. et herb.! nunc in instituto botanico universitatis Budapestiensis bene asservato, ..."

Number of chromosomes: 2n = 14 (DVOŘÁK 1964 a).

Table 1

No	The length of the branches (in μ)	Altogether	Index	Type
1	4,7 + 1,4	6,1	0,29	III
	4,6 + 1,5	6,1	0,28	III
2	4,3 + 1,4	5,7	0,33	II
	4,2 + 1,3	5,5	0,31	II
3	3,6 + 1,0 ... 1,0	5,6	0,55	II
	3,6 + 1,0 ... 1,0	5,6	0,55	II
4	5,7 + 4,1	9,8	0,72	II
	5,6 + 4,1	9,7	0,73	II
5	3,0 + 2,6	5,6	0,87	II
	3,0 + 2,7	5,7	0,90	II
7	5,4 + 5,0	10,4	0,94	II
	5,4 + 5,1	10,5	0,91	II
6	2,2 + 2,2	4,4	1,00	I
	2,3 + 2,3	4,6	1,00	I

Fig. 1, a, b. I distinguish in the caryotype *H. sylvestris:*

1. 1 pair chromosomes with a centrally constriction: an isobrachial type; 2. 5 pairs of chromosomes with a primary subterminal constriction: a heterobrachial type; 3. 1 pair of chromosomes with a primary subterminal constriction: a hyper-heterobrachial type.

Exsiccata: Flora Bohemiae et Moraviae exsiccata No. 228. — Flora exsiccata Reipublicae Bohemicae Slovenicae No. 216, No. 1039 (sub. *H. runcinata* WALDST. & KIT.). — DOMIN & KRAJINA: Flora čechoslovenica exsiccata No. 59 (sub *H. runcinata* WALDST. & KIT.). — Flora hungarica exsiccata No. 961 I, II (sub *H. runcinata* WALDST. & KIT.). — SCHULZ, herbarium normale, nov. ser. No. 712 (sub *H. runcinata* WALDST. & KIT.). — Flora Romaniae exsiccata No. 2533. — REICHENBACH: Flora germanica exsiccata No. 2467 (sub *H. runcinata* WALDST. & KIT.). — BAENITZ: Herbarium Europaeum No. 9163 (sub *H. runcinata* WALDST. & KIT.).

3.1. Variability

It is relatively little variable species what can be taken as another proof of its age (besides the number of the chromosomes and of the

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

area). The varieties (var. *albiflora* SCHUR; var. *subruncinata* BORB.) described in references correspond to the type. Var. *pachycarpa* is an hybrid. Var. *runcinata* is at utmost a form of the species *H. sylvestris*. NYÁRÁDY 1955: 193 described the variety: var. *suaveolens* (ANDRZ. in BESS.) NYÁR. I suppose that it is ± stable species of a hybrid origin, to which, according to the International Code of Botanical Nomenclature, belongs the name *H. relenovskyi* FRITSCH 1865: 5. In the classification of this taxon in the category of a species I agree with TZVELEV 1959.

3.1.1. α f. *sylvestris*

Synonyms: *Hesperis silvestris* CRANTZ (var.) β) *subruncinata* BORB. 1902: 376. — *H. sylvestris* CRANTZ var. *albiflora* SCHUR 1853: 7, 66 ac BORB. 1902: 376. — *H. silvestris* CRANTZ f. *albiflora* (SCHUR) NYÁR. 1955: 193.

Typo respondet. Folia caulina media basi obtusa seu subcordata subamplexicaulique sessilia. Siliquae glabrae, etiam inferiores erectae.

Notes

(1) *H. sylvestris* CRANTZ var. β) *subruncinata* BORB.

From the original locality the specimen "Flora hungarica exsiccata No. 961 II" was issued. The label runs as follows: "Specimina foliis minus dentatis f. *subruncinatae* BORB. respondent." BORBÁS 1902 gave differentiating diagnostic character: "... foliis inferioribus haud runcinatis, solum grosse dentatis." Investigating the plants on the Pálava Hills and on Réna near Ivančice in 1962 and 1963 I observed that the lower cauline leaves are lyrate in sunny situations. In shade, especially under patulous trees, the lower cauline leaves are only roughly dentate. I identify, therefore, BORBÁS's variety only as a ecomorphose.

(2) *H. sylvestris* CRANTZ var. *albiflora* SCHUR 1853: 7, 66 ac BORB. 1902: 376.

Holotype: LW; label: „*H. runcinata* W. K. — var. *albiflora* — Hinter Hammersdorf gegen Bungart. August."

The plant is in the early stage of inflorescence: the flowers are not yet expanded. SCHUR's determination of the variety is, therefore, rather questionable. Even if we take into consideration the change of colour during the inflorescence time and the change of the colour of flowers, caused by drying, we must identify SCHUR's variety with the type *H. sylvestris*. This conclusion is backed by the fact that in SCHUR's herbarium there is another specimen, probably from the same locality (label: "Hermannstadt — Hammersdorf an den Gürgeln nach Bungart 1948") identified as *H. runcinata* W. K.

3.1.2. β f. *runcinata* (WALDST. & KIT.) DVOŘÁK comb. nova

Basionym: *H. runcinata* WALDST. & KIT. 1805: 220 p. p.

Synonyms: *Hesperis runcinata* WALDST. & KIT. α. — *Hesperis runcinata* (WALDST. & KIT.) DC. 1821: 449. — *Hesperis runcinata* WALDST. &

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

KIT. β. *Hesperis bituminosa* (SAVI) DC. 1821: 449. — *H. silvestris* CRANTZ var. *runcinata* (WALDST. & KIT.) BORB. 1902: 377.

Folia caulina media basi obtusa seu subcordata subamplexicaulique sessilia. Siliquae glabrae, inferiores gravitate recurvae.

Holotype: 190590 PR; label: "798 *H. runcinata* N. sp."

There is a specimen kept at PRC with the label: "*H. runcinata* W. et KIT. *Deilosma suaveolens* ANDRZ. In comit. Baranyensis Hung. KITAIBEL. Aus d. herb. ZAHLBRUCKNER." The locality is mentioned by WALDSTEIN & KITAIBEL 1805: "habitat in fruticetis com. Baranyensis."

Note: WALDSTEIN & KITAIBEL 1805 wrote in their description: "... siliquae superiores breviores erectiusculae, inferiores gravitate recurvae, torulosae, nudae, glabrae ...". BORBÁS 1902 reduced the value of the taxon to a variety of the species *H. sylvestris*. He used the mentioned character as a differentiating character for a new variety. NYÁRÁDY 1955 retained BORBÁS's classification in the category of a variety. Plants with this character can be found not only on the locality given by BORBÁS but also in further places of the area of the variety *sylvestris*. I give specimens:

(1) "Nagy Nyárád"; 19440 W (from the two plants one has lower pods curved downward). — (2) "Ad Thermas Herculis"; W herb. HEUFFEL 4 ×. — (3) "Prope Arad"; W herb. SCHOTT. — (4) "Pécs"; 144265 BP (revised by BORBÁS as *H. runcinata* WALDST. & KIT.); from 11 pods only some are falcately curved downward. — (5) "Morava, vallis fluvii Dyje: 1910 OBORNY"; 00197/29 (BRNM) identified by OBORNY as: "*H. sylvestris* CRANTZ var. *runcinata* (WALDST. & KIT.) BORB." — (6) "Nográd megye, Salgo-Tarján"; 144233 BP; from six pods one is curved downward. — (7) NYÁRÁDY 1955 reports this form also from the locality Aiud. —

As was shown by a revision there grow in the localities mentioned by BORBÁS, besides plants with lower pods curved downward, also plants with erect lower pods (for. inst. the locality "Ad Thermas Herculis"; 75710 BP). It is evidently a polytopic origin of plants with lower pods curved downwards. I use, therefore, the category of a form.

3.1.3. γ f. *trichogyna* (BORB.) NYÁR. 1955: 193

Basionym: *Hesperis sylvestris* CRANTZ (var.) ζ *trichogyna* BORB. 1902: 377.

Folia caulina media basi obtusa seu subcordata et subamplexicaulia sessilia. Siliquae tenerae basi glanduloso-pilosae; etiam siliquae inferiores erectae.

Lectotype: 144242 BP; label: "Flora comitatus Békés Hungariae. *H. runcinata* WALDST. et KIT. In marg. silv. Kotonás ad Vésztö planitiei Alföld. Legi 16.5. et 21.8 V. BORBÁS."

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

Note: From the specimens quoted by BORBÁS as the variety *trichogyna*, the following have pods quite glabrous:

(1) 75704 BP; label: "*H. silvestris* CRANTZ. "Fás" territorii Körös-Ladány. BORBÁS". — (2) 2177 W; label: "Flora comitatus Békés Hungariae. *H. runcinata* WALDST. & KIT. In apertis umbrosis silvae "Fás" territorii Körös-Ladány. 25. 5. 1886 BORBÁS." — (3) 75706 BP; label: "*H. runcinata* WALDST. & KIT. In silvis "Fás" ad Sarkad, com. Bihar. Leg. 29. 5. 1923 L. de THAISZ."

Only the lectotype has glandular hairs with an addition of eglandular hairs on the base of the pods. Plants with young pods covered on the base are, according to the results of the revision, evidently of an polytopic origin. I consider, therefore, the reduction of the category from the variety to the form, as was done by NYÁRÁDY 1955, to be correct.

3.1.4. δ f. *schurii* NYÁR. 1955: 193

Synonym: *H. inodora* L. c.) *suaveolens subspontanea* SCHUR 1877: 81 p. p.

Folia caulina media basi rotundata ± petiolata. Pedicelli calyce ± aequilongi. Flores intense odorantes.

Neotype: ? CL "Sibiu la Lazarethwiese". (Non vidi, cit. sec. NYÁRÁDY 1955).

Note: The word "*schurii*" was used by NYÁRÁDY 1955 as a new term (nomen novum). He gives a synonym of this name: "*H. silv.* c) *suaveolens* SCHUR Phytogr. in Verh. NV Brünn (1877) 81, non ANDRZ.

SCHUR 1877: 81 wrote: "c) *suaveolens subspontanea* = *H. matronalis* L. et Auctorum". In the quotation I evaluate as very important the word "sbubspontanea". It can be inferred equally from the enumeration of the localities (SCHUR 1877) "An buschigen Orten in Weinbergen an Hecken und Zäunen in Siebenbürgen, Ungarn, Niederösterreich, bei Wien, in Mähren in den Weingärten bei Karthaus" that they are plants originally cultivated, later grown wild. The supposition is verified especially by the locality "Karthaus" (= Královo Pole, nowadays Brno VI). Only *H. matronalis* L. has been wild there. In SCHUR's herbarium there is not any specimen with the label "*H. inodora* c) *suaveolens subspontanea*. Only two specimens are designated as *H. inodora* in LW:

(1) "*H. inodora* L. ? *albiflora* = *H. nivea* BAUMG." — corresponding to *H. matronalis* L. subsp. *nivea* (BAUMG.) KULCZ.

(2) "*H. inodora* L. *floribus lilaceis* Hermannstadt" — corresponding to *H. sylvestris* CRANTZ.

NYÁRÁDY 1955 did not mentions where is kept the type of the taxon f. *schurii*. For that taxon he gave a sole locality: "Reg. Stalin: Sibiu la Lazarethwiese". This locality is given, however, by SCHUR not at the taxon *H. inodora* L. c) *suaveolens subspontanea*, but at the next taxon *H. inodora* L. d) *glabrescens*.

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

As appears from the description of the taxon and from the localities mentioned by SCHUR at the taxon *H. inodora* L. c) *suaveolens subspontanea* and *H. inodora* L. d) *glabrescens*, it can be inferred that they are plants cultivated in gardens, later grown wild. It is possible that the aberrations, especially the base of the upper cauline leaves, were caused by their hybrid origin (probably *H. sylvestris* CRANTZ × *H. matronalis* L.). This presumption will have to be verified experimentally. It is intimated, however, by the diploid *H. sylvestris* being crossable with the polyploid *H. matronalis* (see DVOŘÁK 1965 a).

3.2. Geographical distribution

Note: I retain the names of localities as were given on the labels. Only in some cases, above all at the localities from Czechoslovakia, I have translated the text into latin.

Oesterreich — Austria:

Matzner Wald; 1889; TEYBER (2636 WU bis). 1928; ZERNY (21200 W). — Bei Bergau, Bezirk Hollabrunn; 1932; ? leg. (WU). — Südlich von Groß-Rußbach; 1887; G. BECK (PRC). — Wolkersdorf; 1933; RECHINGER (SLO). — Kahlenberg; 1825; DOLLINER (PR, PRC). — Kahlenberg und Leopoldsberg; 1864; REUSS / herb. NICKERL / (PR). — Leopoldsberg; 1825; DOLLINER (PR, PRC, W). 1844; ETTINGSHAUSEN (54010 GZU). 1860; herb. KERNER (53970 GZU f. *trichogyna*). 1865 J. B. (1278 W). 1881; G. BECK (PRC et 15967/33 BRNM). 1881; PRIHODA (53993 GZU). 1881; KERNER (583976 GZU). 1881; PHILIPP (JE). 1881; DOSTENMEYER (28744 BRNM). 1881; G. BECK (JE). 1884; G. BECK (PRC). 1891; KERNER (53976 GZU). 1892; KELLER (15511 W). 1897; HANDEL-MAZZETTI 2436 WU). 1904; RUDOLPH (PR, PRC). 1899; ? leg. (2100 WU). 1908; ARBESSER (23720 GZU). 1919; KORB (2752 W, 2753 W, 2735 W). FENZL (W). ? leg. (PRC, B). KOVÁTS (PRC). — Prater am Donau-Canal; 1870; WOŁOSZCZAK (14078 W). — Freudenau, Prater, Wien; 1870; WOŁOSZCZAK (14098 W). — In der vordern Brühl bei Wien; PREISSMANN (10535 W). 1872; WOŁOSZCZAK (14079 W). — Wien; PORTENSCHLAG (W bis, sub *H. inodora* L. — resp.: f. *trichogyna*). — Auf buschigen Hügeln, Liesing bei Wien; 1876; WIESBAUR (2172 WU, JE 5×). 1877; WIESBAUR (94251 BPU, 6230 W, B). — Steingerölle unter dem Berg bei Mödling bei Wien; 1867; FREYN(15992/33 BRNM). 1898; HANDEL-MAZZETTI (2436 WU). CZAGL (W). — An Bächen zwischen Hadersdorf, Heimbach und Mauerbach (NEILREICH 1846: 484). — Bei Berchtoldsdorf (NEILREICH 1846: 484). — Im großen Föhrenwalde bei Wr. Neustadt 300 m s. m.; 1886; KERNER (53967 GZU). 1922; HUBER (2737 W, 21280/1961 W). ZAHLBRUCKNER (PRC). — Am Badener Lindkogl (G. BECK 1892). — Bei Fischau; 1923; HUBER (21277/1961 W, 21280/1961 W). — In den Auen der Schwechat bei Baden und Tribuswinkel (NEILREICH 1846: 484). — Bei Tallesbrunn (G. BECK 1892; NEILREICH 1859). — Im Helenenthale bei Baden; 1863; SONKLAR (771 WU). 1872; MILLER (WU). 1881 MÜLLNER (18281 W, 18284 W). 1887 KERNER (54049 GZU, 54048 GZU, SARA No. 4378). 1888; GEROLD (54001 GZU, 54009 GZU). 1885 FRITSCH (54005 GZU). —

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

An der Straße von Baden nach Alland; 1872; ? SPREITZENHOFER (144277 BP). — Auf dem Eisernen Thore bei Baden; 1883; BRAUN (4368 W). 1883; WITTING (PRC herb. BUBELA). 1883; OSTERMEYER (PRC). 1898; NEVOLE (53978 GZU). 1882; EICHENFELD (53973 GZU). 1845; ETTINGSHAUSEN (54011 GZU). — Moosbrunn bei Wien; 1871; WOŁOSZCZAK (14095 W). — Kühberg bei Sieghartskirchen; 1906; KORB (2736 W). — Südabhang des Leithagebirges bei Breitenbrunn; 1902; KORB (W). — Am Fuß des Wasserfalles Galgenberg und bei Bruck a. d. L.; 1881; SABRANSKY (16192 W). — Am Kreutberge bei Unter-Olberndorf; 1887; G. BECK (PRC). — Mauternbach gegen d. Hohe Wand; ? leg. (110801 BPU). — Zwischen Krainerhütte und Sattelbach; 1887; KERNER (54049 GZU, 54048 GZU). 1932; HÜBL (3020 WU). — Maria Zell, verwildert; HÖLZL (54047 GZU). — Wolfsthal; 1878; ESCHFÄLLER (BRA). 1879; herb. RÉSELYI (75827 BP). 1879; WIESBAUR (JE). — Marchegg (NEILREICH 1859). — Bei Stillfried; 1870; BRANDMAYER; (144278 BP). — Radkersburg; GEBHARDT (229 W). — Per Austriam; herb. JACQUIN fil. (W bis). — Bei Linz, verwildert; 1871; ? leg. (85445 BRNU).

ČSSR — Czechoslovakia:

Matricum: Prope vicum Hucín, 200 m s. m.; 1923; TRAPL (479221 PR, PRC). 1935; KRIST (275286 BRNU). — Loci fruticosi inter vicos Turna nad Bodvou et Zádiel, 250 m s. m.; 1898; PAX (75817 BP). 1927; DOSTÁL (PRC). 1928; ? leg. (PRC). 1931; MARGITTAI (75812 BP). 1934; DOSTÁL (PR, PRC). 1934; DOSTÁL et NOVÁK (PRC). 1936; HEJNÝ (PRC). — Šomodské plató, 310 m s. m.; 1952; ČERNOCH (810 Če). — Vallis „Hájská dolina", 260 m s. m.; 1948; FUTÁK (SLO 3×). — Drienovec, 200 m s. m.; 1929; HULJAK (75811 BP). — Prope vicum Hačava, 600 m s. m.; 1934; DOSTÁL (PRC).

Eu-Pannonicum: Radotín, 250—300 m s. m.; 1881; FREYN (15993/33 BRNM). 1887; POLÁK (PRC). 1897; DOMIN (PRC). 1913; LIEBALDT (PR). 1915; SONIER (PRC). SEDLÁČEK (09731 BRNU). — Kosoř, 250—300 m s. m.; 1887; VELENOVSKÝ (PRC 2×). — In silvis et collibus prope vicum Veverská Bitýška, 280 m s. m.; 1836; WESSELY (00178/29 BRNM). 1864; SCHRÖDER (PRC). — Vallis fluvii Svratka, statio „Zouvalka", 240 m s. m.; 1948; PODPĚRA (357156 BRNU, 357157 BRNU). 1963; F. DVOŘÁK (BRNU). — Kadov prope oppidum Moravský Krumlov, 250 m s. m.; 1945; HORŇANSKÝ (PRC). — Načeratice; 1897; OBORNY (PRC). — Tasovice prope oppidum Znojmo, 217 m s. m.; 1881; OBORNY (4911 OL). 1915; TEUBER (23225 BRNM). — Znojmo, vallis fluvii Dyje; 1910; OBORNY (85448 BRNU, 00197/29 BRNM f. *runcinata*, 4911 OL). — Dyje; 1914; OBORNY (PRC). — Vallis fluvii Dyje, in loco „Dlouhý Šóbes" vocato, 400 m s. m.; 1919; OBORNY (PRC). 1949; ŠVESTKA (352897 BRNU 2×). — Vallis fluvii Dyje, locus „Devět mlýnů", 380 m s. m.; 1920 KORB (2740 W). 1921; ŠMARDA (PR). 1932; SUZA (230122 BRNU). — Znojmo; 1912; herb. SCHNEIDER (3565 W). — „Býčí skála", 300 m s. m.; 1907; TEUBER (23229 BRNM). 1962; ZAHRADNIČEK (BRNU). — In declivitatibus lapidosis apud „Trouznický mlýn", 253 m s. m.; 1948; ŠVESTKA (374881 BRNU). 1964; ŠEDA et ŠEVČÍKOVÁ (BRNU 3×). — In collibus „Pálavské vrchy" dictis, ruinae „DĚVIČKY", 400 m s. m.; 1868; OBORNY (PRC). 1923; BÍLÝ (00204/29

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

BRNM). 1929; SILLINGER (PR 5×, PRC 3×, 207858 BRNU, 28151 OP, SLO, BRA, 6088 W, 6087 W, 144249 BP, 48890 OL). 1934; PODPĚRA (258184 BRNU). 1962; F. DVOŘÁK (BRNU). — In montibus latis desertis incultisque supra vicum Dolní Věstonice, 165—200 m s. m.; 1922; BÍLÝ (00205/29 BRNM). 1933; MARTINEC (PR). 1935 et 1951; ČERNOCH (814 Če). 1951; HRABĚTOVÁ; (378080 BRNU 2×). — In montibus latis supra vicum Pavlov; 1929; LAUS (PRC). 1879; ÚLEHLA (PRC). 1894; ROTHE (15079 BRNU). 1928; RUDOLPH (PRC). 1947; MENCL (PRC). 1948; J. DVOŘÁK (86027 BRNM). — In collibus „Pálavské vrchy", dictis, sub cacumine Kotel, 485 m s. m.; 1926; PODPĚRA (130291 BRNU). 1949; ČERNOCH (812 Če). 1963; F. DVOŘÁK (BRNU). — Silva frondosa in loco „Soutěska" vocato, 360 m s. m.; 1934; ? leg. (PRC). herb. SCHOTT (144270 BP). 1963; F. DVOŘÁK (BRNU). — In collibus „Pálavské vrchy" dictis; 1935; WEBER (LJU). — Mons „Tabulová" prope oppidum Mikulov, 450 m s. m.; 1919; STANĚK 314259 BRNU). 1920; STANĚK (314257 BRNU). 1934; WEBER (PRC). — „Zeisselberg", 222 m s. m., prope vicum Mušov; 1923; STANĚK (314246 BRNU). — Vicus Klentnice prope oppidum Mikulov, 450 m s. m.; 1851; DOMAS (23223 BRNM). 1888; SCHIERL (BRA). 1926; FRÖHLICH (53960 GZU). — Prope vicum Nikolčice, 350 m s. m.; ŠEBESTA (00203/29 BRNM). — Častkovec prope vicum Klobouky, 250—300 m s. m.; 1870; STEIGER (85451 BRNU). 1925; PODPĚRA (58578 BRNU 2×, 59044 BRNU). 1925; ŠIRJAJEV (58894 BRNU). — In collibus prope oppidum Hustopeče; 1880; MAKOWSKY (7279 W). 1908; WILDT (25770/36 BRNM). — In silva „Kolby", 250 m s. m.; 1891; SCHIERL (PR). 1897; SCHIERL (00199/29 BRNM, 144279 BP). 1934 LAUS (3050 WU, PRC). SCHIERL (00200/29 BRNM). 1930; ? leg. (23228 BRNM). 1951; ČERNOCH (811 Če). — Silvae margines prope vicum Strachotín, 240 m s. m.; 1908; LAUS (4913 OL, 00196/29 BRNM). 1924; LAUS (BRNS). 1934; LAUS (17440 OP). 1934; PODPĚRA et ZAPLETÁLEK (PRC 2×, PR 3×, SLO, 4914 OL, 13296 OP, 25771/36 BRNM, 272483 BRNU, SARA, LJU). — Lednice, 170 m s. m.; 1910; ZIMMERMANN (PRC, PR 3×. OL, 80231 BRNM, 144187 BP, 85449 BRNU, 53959 GZU). 1801—1806; ? leg. (W). — In silvis prope oppidum Lednice, 250 m s. m.; 1934; WEBER (PRC). — Silva prope oppidum Mikulov, 250 m s. m.; 1931; FRÖHLICH (PRC). — Locus depressus „Záhorská nížina" prope vicum Senica, 220 m s. m.; 1954; (Univ. Kom.; SLO 14×). — Dvorníky, 200 m s. m.; 1908; HULJÁK (75708 BP). 1939; HULJÁK (75714 BP). — Locus depressus „Košická nížina" Trstené pri Horn., 200 m s. m.; 1924; THAISZ (75715 BP). — Ťahanovce, 400 m s. m.; 1908; THAISZ (75712 BP). — Loci fruticosi prope vicum Perín, 200 m s. m.; KUPCSOK (PR). — Locus depressus „Potisská nížina", prope vicum Viničky, 150 m s. m.; MÁJOVSKÝ (SLO). — Prope vicum Streda nad Bodrogom, 100—150 m s. m.; 1961; MÁJOVSKÝ et ŠOMŠAK (SLO). 1961; ŠOMŠAK (SLO). — Prope vicum Bodrog, 100 m s. m.; 1959; ZÁBORSKÝ (SLO 3×). — Nová Vieska prope Bodrog; 1857; ? leg. (186325 BPU).

Sub-Pannonicum. Silva Chlum prope oppidum Mladá Boleslav, 250 m s. m.; 1854; ŠTIKA (PRC). 1895; herb. FLEISCHER (PR). HIPPELLI (PR ČELAKOVSKÝ — 1868 — scribit: 1852 HIPPELLI legit). Silvae margines inter vicos Mlýnce et Roždálovice, 220 m s. m.; 4. 8. 1909; BAUDYŠ (PR, SARA). 1941; DEYL (PR). — Chotuc prope vicum Křinec, 250 m s. m.;

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

1876 et 1877; ČELAKOVSKÝ (PR). 4. 8. 1909; BAUDYŠ (SARA). 1923; SOUKUP (111774 PR). 1936; HEJNÝ (PRC). 1939; KAVKA (PR). 1940; DUCHOŇ (PRC). 1941; DEYL (PR). 1947; KAUFMANN (PRC). POLÁK (PRC). ŠOUREK (PRC). — In lucis prope vicum Mcely, 250 m s. m.; 1810; verosimiliter PRESL (PRC). 1883; HESZ (PRC). — Oškobrh, 260 m s. m.; 1869; ČELAKOVSKÝ (PR). 1878; ANSORGE (94252 BPU). 1880; VELENOVSKÝ (PRC). 1903; herb. FLEISCHER (P, PR 2×, 50451 BRNU). 1903; PODPĚRA (PRC, JE, W). 1923; NOVÁK (PRC). KAŠPAR (PRC). — Loci fruticosi secundum fluvium Labe prope oppidum Nymburk, 180 m s. m.; VŠETEČKA et SEKERA (1223 W, 2157 WU). — Dolany prope urbem Olomouc, 280 m s. m.; 1906; PODPĚRA (00180/29 BRNM). — Loci fruticosi inter vicos Pavlovice et Radslavice, 230 m s. m.; 1928; ZAPLETÁLEK (284817 BRNU). — Prope „Koněšínský mlýn", 370 m s. m.; 1908; R. DVOŘÁK (08276/32 BRNM, 00201/29 BRNM). 1930; SUZA (212271 BRNU). — Locus „Holoubek" prope Vladislav; 1910; R. DVOŘÁK (31550 BRNU). — Vallis fluvii Jihlavka prope oppidum Ivančice; 1899; TEUBER (23230 BRNM, 23224 BRNM). — Silvae margines sub monte „Réna" prope oppidum Ivančice, 210 m s. m.; 1912; PODPĚRA (00198/29 BRNM, 50450 BRNU). 1962; F. DVORÁK (BRNU). — „Rosenberg", 430 m s. m.; 1923 et 1929; MÜLLNER (PRC). 1955; HRABĚTOVÁ (378382 BRNU). — Ripa fluvii Dyje prope Cornštejn, 400 m s. m.; 1908; R. DVOŘÁK (31857 BRNU). 1957; HRABĚTOVÁ (40279 BRNU). 1962; F. DVOŘÁK (BRNU). — Vallis fluvii Dyje inter vicos Bítov et Vranov, 380 m s. m.; 1923; POLÁŠEK (156630 BRNU). — Silvae margines prope vicum Bítov, 360 m s. m.; 1908; R. DVOŘÁK (0827732 BRNM). — Rei publicae fines prope vicum austriacum Hardegg; 1880; MÜLLER (18283 W). — Vallis fluvii Dyje; 1920; KORB (2740 W).

Praecarpaticum moravicum. Ochoz, 450 m s. m.; 1927; DOLEŽAL (9570 W, WU, PRC bis, 25772/36 BRNM, 4888 OL, SLO, PR bis, 141043 BRNU, 144247 BP, 144230 BP, SARA). 1934; SKYVA (25775/36 BRNM). — In montibus latis siccis prope vicum Račice, 350 m s. m.; 1933; DOLEŽAL (284115 BRNU). — Locus „Letonický hájek" prope oppidum Vyškov, 300 m s. m.; 1910; SKYVA (00202/29 BRNM). — Inter vicos Dražovice et Letonice, 300 m s. m.; 1920; TEUBER (23226 BRNM, 23227 BRNM). — Prope oppidum Bučovice; 1920; WILDT (25769/36 BRNM).

Prae-carpaticum slovacum. Sub arcte Trenčín, 350 m s. m.; 1806; herb. SCHNEIDER (3575 W). 1887; HOLUBY (BRA). 1902; BRANCSIK (2440 WU, 7434 BRA, 75814 BP, 75781 BP). ? leg. (JÁVORKA unam plantam pro *H. sibirica* L. revisit). — Štiavnické pohorie, Pukanec, 350 m s. m.; KUPCSOK (BRA, f. *trichogyna*). — Biela skala prope vicum Krompachy, 900 m s. m.; 1932; SILLINGER (PRC).

Intra-Carpaticum. In locis montibus latis „Blaumond" vocatis, 550 m s. m.; 1956; MÁJOVSKÝ (SLO 7×). — In locis calcareis sub arcte Spišský hrad, 550 m s. m.; 1923; ŠMARDA (110009 PR bis). 1930; SUZA (209400 BRNU bis). 1938; DEYL (PR). — In locis desertis incultisque Dreveník, 550 m s. m.; 1888; ? leg. (75798 BP). 1900; FILARZSKY (75835 BP, 75836 BP). 1914; FILARZSKY (83842 BPU, 75690 BP). 1915; FILARZSKY (PRC, PR, 256615 BRNU, SLO 4×, Ny, 75813 BP, 187863 BPU, 5769 W, LE). 1934; PULCHART et SOUČEK (38002 BRNM).

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

Hungary

Ágasvár m. Bátony; 1873; SIMONKAI (75803 BP). — Sorok-Tótfalu; 1890; MÁRTON (75832 BP). — Erdőkben; 1897; FEICHTINGER (144254 BP). — Sabaria; MÁRTON (75831 BP). 1882; BORBÁS (WU). — Torbágy, 600 m s. m.; 1877; RICHTER (144159 BP). herb. FREYN (15971/33 BRNM). — Buda, Kamaraerdő, 500 ', solo calcareo; 1878; BOHATSCH (144160 BP). 1901; FILARZSKY (75841 BP). herb. HEUFFEL (144233 BP). — Zugliget melet Budapest; 1873; SIMONKAI (75808 BP). — Svábhegy; herb. TAUSCHER (75839 BP). MÜLLER (144246 BP). — In fruticetis Huszonnégyökrös hegy ad pag. Buda-Eörs, 200 m s. m.; 24. 5. 1936; BARTHA (B f. *trichogyna*). — Csíkihegy melet Buda-Eörs; 1829; HEUTER (2436 WU). 1873; herb. TAUSCHER (144162 BP). ? leg. (94253 BPU). 1873; RICHTER (7214 W, B sub *H. runcinata* W. et K. f. *subruncinata* BORB.). 1903; DEGEN (SARA). 1916; JÁVORKA (75784 BP, 75786 BP, 75787 BP). 1916; KÜMMERLE (75810 BP, 187862 BPU, 256615 RRNU, 256616 BRNU, PRC, PR 2×, 5770 W, Ny 2×). 1922; JÁVORKA (75782 BP, herb. ENDLICHER W). — Csíkihegy, in dumetis sub m. Szekrényes; 1938; JÁVORKA (75796 BP). — Csíkihegy, in dumetis loco „Sorrento" dicto; 1940; JÁVORKA (75713 BP). 1956; JÁVORKA et CSAPODY (206820 BP). — Buda-Eörs; 1835; PANČIĆ (BEOGRAD). 1881; STEINITZ (B). — Inter Budakeszi et Buda-Eörs; 1935; KORB (2739 W). — Budapest; 1881; SZÉPLIGETI (PRC). — Buda; 1865; ENTZ (110663 BPU). ? leg. (W 2×). — Pest; 1857; JURÁNYI (186305 BPU). — Agria melet Adler, herb. SADLER No. 21023 (144260 BP). — In fruticetis prope Török-Bálint; 1877; SZÉPLIGETI (75799 BP). 1902; SIMONKAI (75785 BP). 1906; SEYMANN (75709 BP). 1934; ANDREÁNSZKY, KÁRPÁTI et UJHELYI (210003 BPU). — Bajóth; 1860; FEICHTIGER (7271 W). 1870; FEICHTNGER (144232 BP, 144245 BP, PRC, 85447 BRNU). ? leg. (75652 BP). — Szadellősvőlgy; 1879; ? CHRYSER (186302 BPU). — Pilis-Szántó; herb. HAYNALD (144240 BP f. *trichogyna*). HEUFFEL (186338 BPU). — Gyöngyös, Kis-Terenne = Kis-Terenye sec. map. (BORBÁS 1902: 375). — Hatvan; 1877; BOHATSCH (144153 BP). — Nadap; 1879; TAUSCHER (144262 BP). — Nógrad; 1871; BORBÁS (144233 BP). 1879; DIETZ (186323 BPU). — Szecsény; herb. SADLER No. 21021 (144258 BP). — Com. Borsod Bükkhegység m. Csengösfertö; 1933; MÁTHE (SLO). — Bátony Mátrae; 1879; BORBÁS (BRA). SADLER (W 2×). — In fruticetis ad pag. Salgó Tarján; 26. 5. 1870; BORBÁS (JE). 1875; SZÉPLIGETI (75838 BP). ? leg. (75800 BP). — Szirma m. Borsod; 1910; BUDAI (75842 BP). — Felsö-Hámor; 1909; BUDAI (75801 BP). — Hór völgye m. Cserépfalu; 1922; JÁVORKA (75783 BP). — Miskolc; 1904; BUDAI (75840 BP, 86096 BPU). 1907; BUDAI (75778 BP). 1911; KIS (52416 BPU). — In silvis umbrosis prope pagum Varsány; 16. 7. 1880; KISS No. 712, F. SCHULZ Herbarium normale nov. ser. cent. 8 (JE, W, PRC). — Varsád, com. Tolna; 1880; KISS (144263 BP, 144264 BP, 19438 W, 110030 BPU, PR, PRC, JE). — Nagy Nyárád; 1867; ? leg. (19440 W f. *runcinata*). HEUFFEL (W). — Com. Baranya; KITAIBEL (PRC). — Prope Szigetvar et Pécs; 1845; ? leg. (PR). — Magyar-Ürög cott. Baranya (BORBÁS 1902: 376). — Pécs; 1843; ? leg. (144282 BP). NENDTVICH, herb. SADLER No. 28234 (144265 BP). — In fruticetis apricis m. Zengő; 1873; SIMONKAI (75795 BP). — Mecsek melet Kővágó Szőllős; 1873; SIMONKAI (75794 BP). — Com. Békés, Körös-Ladány; 1886; BORBÁS (2177 W). 1923; THAISZ (75706 BP). 1921;

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

SCHEFFER (SLO). — Kotonás melet Vésztő; 1880; BORBÁS (144242 BP f. *trichogyna*). — In silva „Fás" ad Sarkad com. Bihar; 1923; THAISZ (75706 BP). — Tolesa; HAZSLINSZKY (75828 BP). — Hungaria; 1827; ROHRER (PRC). 1836; MATZE (PR, 193229 PR f. *runcinata*). PORTENSCHLAG (W f. *trichogyna*). WUZELLA, herb. FENZL (W). FRIWALDSZKY (144267 BP).

Rep. Pop. Romîne — Rumania:

Sighet; WAGNER (75791 BP, 144269 BP). — In dumetis agrorum ad Szatmár; 1867; DIVÉKY (B). — Szatmarer Comität; ? leg. (PR). — Monti Mármaros, herb. SADLER No. 21028 (144257 BP). — Rodna, Chiochiş, Mţii Meseş la Ortelec, Treznea, Lacu, Gherla, Sic, Bonţida (NYÁRÁDY 1955). — Dej = „Dés"; 1890; RICHTER (186309 BPU). — Corpadea (NYÁRÁDY 1955). — „Bós" = ? Boju, 420 m s. m.; 1871; herb. FREYN (15994/33 BRNM). — Cojocna, Dezmir, în jurul Clujului, Berchieşu (NYÁRÁDY 1955). — Cluj = Kolozsvár, Szt. Györgyhegi, 400—500 m s. m.; 1922; NYÁRÁDY (Ny 2×). 1932; NYÁRÁDY(Ny 4×). — Lomb prope Cluj; 1893; RICHTER No. 8016 (JE). — Comit. Kolos, Siebenbürgen, 400 m s. m. Weingärten bei Berkenyes; 187.; FREYN (19439 W). — Aiud = „Nagy-Enyed"; 1878; CSATÓ in C. BAENITZ herbarium europaeum (2533 W, 53968 GZU, SARA, JE). — „Hegyhasadek" prope Turda; 1902; PAX (75816 BP). 1907; ZSÁK (PRC, 349447 BRNU, 04069 BRNU). — „Tordahasadek"; 1855; HAYNALD, 400—500 m s. m, (144234 BP). 1877; BARTH (75824 BP, 86095 BPU, JE). 1904; GUGLER (186307 BPU). — In dumetis prope Torda; 1887; BARTH (JE). — „Toroczkó", 700 m s. m.; 1897; PAX (75818 BP). 1929; SCHEFFER (SLO 5 ×). — Cheile Turzii, Lupşa, Cîmpeni, V. Ordencuşii (NYÁRÁDY 1955). — „Maros-Ludas" = Luduş hort.; NYÁRÁDY (Ny). — Târgu-Mureş = „Maros-Vásárhely"; 1913; NYÁRÁDY (Ny). — Ideciul de Jos, Bălan pe Mt. Őcsém (NYÁRÁDY 1955). — Braşov; SCHUR (W 2×). — Mţii Arpaşului, Tălmaciu, Daia, Guşteriţa (NYÁRÁDY 1955). „Fenyőfalva"; 1887; SIMONKAI (75806 BP). — Blaj = „Balázsfalva"; 1913; BORZA (75748 BP f. *trichogyna*). — „Holzenburg"; HEUFFEL (144261 BP, 144244 BP). — Herbarium normale Florae Transsilvaniae No. 887 — in fruticetis Holzenburg; ? leg. (JE). — Boiţa, Tălmaciu; 1897; BARTH (75825 BP). — Rupea = „Reps"; 1876; BARTH (75826 BP, 144255 BP). 1904; GUGLER (186307 BPU). — Szelindek = Stolzenburg = Slimnic; FUSS (75817 BP). — Orlat; 1904; SIMONKAI (75805 BP). — Hermannstadt = Sibiu; SCHUR (LW sub *H. inodora* L.). — Hinter Hammersdorf gegen Bungard; SCHUR (LW sub *H. runcinata* WALDST. & KIT. var *albiflora* SCHUR). — Hermannstadt — Hammersdorf an den Gürgeln nach Bungard; 1848; herb. SCHUR (LW). — In dumetis et agrorum marginis Transsilv. Hermannstadt; SCHUR (LW). — In dumetis Abtsdorf, 100 m s. m.; 1900; BARTH (B). — Hammersdorf; herb. SCHUR 1883 (W). SCHUR (W 2×). — Zágon; 1862; CSATÓ (75797 BP). — Feneş lîngă, Zlatna, Mihalţ (NYÁRÁDY 1955). — Alba Julia; 1858; HAYNALD (144236 BP). — Mercurea = Reussmarkt; 1872; CSATÓ (75820 BP, 144256 BP, ATH, B). — Deva; 1882; SIMONKAI (75804 BP). KLÁŠTERSKÝ (PRC). — Zam, Roşcani, Petroşeni, Valcăul de Jos (NYÁRÁDY 1955). — „Pecze-Szőllős", Episcopia; 1879; SIMKOVICS (75802 BP, 75807 BP, 75829 BP). — Episcopia, Sînt Martin; 1879; SIMKOVICS (15991/33 BRNM). — Oradea; 1879; SIMKOVICS (75807 BP, 75829 BP). — Arad, in silva „Csála"; 1850; KOTSCHY (144235 BP f. *runcinata*, W bis). 1884; SIMONKAI (75809 BP).

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

1891; ? KARKOVÁNYI (75823 BP). 1806; WAGNER (Ny). — Bihorului, Rontău, Tămăşeu, Cadea, Pecica la Păd, Ciala, Mîsca, Galşa, Pîncota, Pănatul Nou (NYÁRÁDY 1955). — Mocra; 1829; herb. HEUFFEL (144232 BP). 1829; HEUFFEL (W). herb. SADLER No. 21026 (144259 BP). 1909; WAGNER 186328 BPU). 1919; WAGNER (PR). HEUFFEL (186306 BPU). — Cetăţuia de la Timişoara et vicum Cernăteaz, 100 m s. m.; 1942; BORZA & TODOR (Ny). — Băile Herculane; 1832; HEUFFEL (206662 W, 144266 BP, 310395 W). 1836; herb. HEUFFEL (144241 BP, W herb. PITTIONI, 860093 BPU herb. HAYNALD). 1895 et 1899; THAISZ (75710 BP). 1905; LENGYEL (186313 BPU). — In monte Domugled; 1895; THAISZ (75711 BP). — In valle Cserna ad Thermas Hercules; 1895; DEGEN (JE). — Mehadia; HEUFFEL (222191 W bis, W herb. FENZL). 1871; WINKLER (75819 BP herb. PAX). 1872; SIMONKAI (75789 BP). — Oraviţa; 1831; WIERZBICKI (144259 BP herb. SADLER No. 20025). 1841; WIERZBICKI (144252 BP, PR 3×). 1843; WIERZBICKI (144237 BP, 144239 BP ex herb HAYNALD et HEUFFEL, PRC). 1908; WAGNER (B). — Krassó melet Oravicabánya; 1903; WAGNER (PR). — Plavişevita (NYÁRÁDY 1955). — Csudanovitz, Oraviţa, Baziaş, Mehadia; 1843; WIERZBICKI (75788 BP, 2467 W, 53966 GZU, 310391 W f. *runcinata*). — Perjamos = Periam = Perjamosch; 1858; WOLFNER (19444 W). — Periam, 200 m s. m.; 1890; KUPCSOK (64096 PR). — In Wäldern bei Potok, Banat; 1846; WIERZBICKI (W). — Erdély; 1858; CSATÓ (75779 BP). 1877; DIETZ (186322 BPU). — Banát; 1846; WIERZBICKI (W, PRC). 1857; HEUFFEL (75790 BP herb. HAYNALD, 75792 BP, 86094 BPU). BOHATSCH (144253 BP). — Ad margines agrorum Transsilv.; Jun. Jul. SCHUR (JE). — Siebenbürgen an Gräben zwischen Gebüsch; 1872; CSATÓ (JE 4×, ATH). — In dumetis meridion. Banat.; HEUFFEL (W). — Transsilvania; ? leg. (ATH). — Transsilv.; herb. HAYNALD (144238 BP f. *runcinata*). herb. SCHOTT. (W. f. *runcinata*). Vîrciorova pe V. Bahnei, Hinova pe Dl. Stîrminei, Breasta, V. Bisericii la Craiova, Bucureşti, Comana, Păd, Babadag, Niculiţel, Cocoş, Nifon, Balabancea, Isaccea, Dălhăuţi, Neteda, Glodoasa, Bran, Mţii Bărgăului (NYÁRÁDY 1955).

Jugoslavija:

Silvulae margines prope vicum Čortanovci; 1910; KUPCSOK fil. et pater (SARA, 64095 PR). — Karlovci; 1805; ? leg. (144268 BP). — Kamenica; 1909; PRODAN (75834 BP). 1912; JÁVORKA (75833 BP, 147589 BRNU). — Prope Ipeg (BORBÁS 1902). — Banjaluka; 1887; ? leg. (15958/33 BRNM verosimiliter subspontanea).

Polsko — Poland:

Czerna prope urbem Kraków (KULCZYŃSKI 1927: 180).

SSSR — USSR:

Auf Waldbergen und Weingärten in Galizien; MASEK et ROHRER (PRC). — Zoločev; 1860; ? leg. (WU). — Prope vicos Voronjak, Lacke, Točov; 1892; PRUSZ (14077 W). — Auf trockenen Hügeln bei Lacke, Brody; KLOEBER (W).

Balgarija — Bulgaria:

Karlova; 1835; HINKE (144283 BP). — Loveč; 1895; URUMOV (W).

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

3.3. Area

The area extends by continuous localities from Vladislav in southern Moravia across Dolany near Olomouc, Pavlovice and Radslavice near Přerov, Trenčín, Spiš Hollow, Streda on Bodrog to the town of Jaşi in Rumania. The western boundary of the area extends from the Austrian town of Hardegg across the Vienna Basin and Radkersburg to the mountain-range Fruška gora in Yugoslavia. From there the southern boundary of the area proceeds to Rumania and northern Bulgaria.

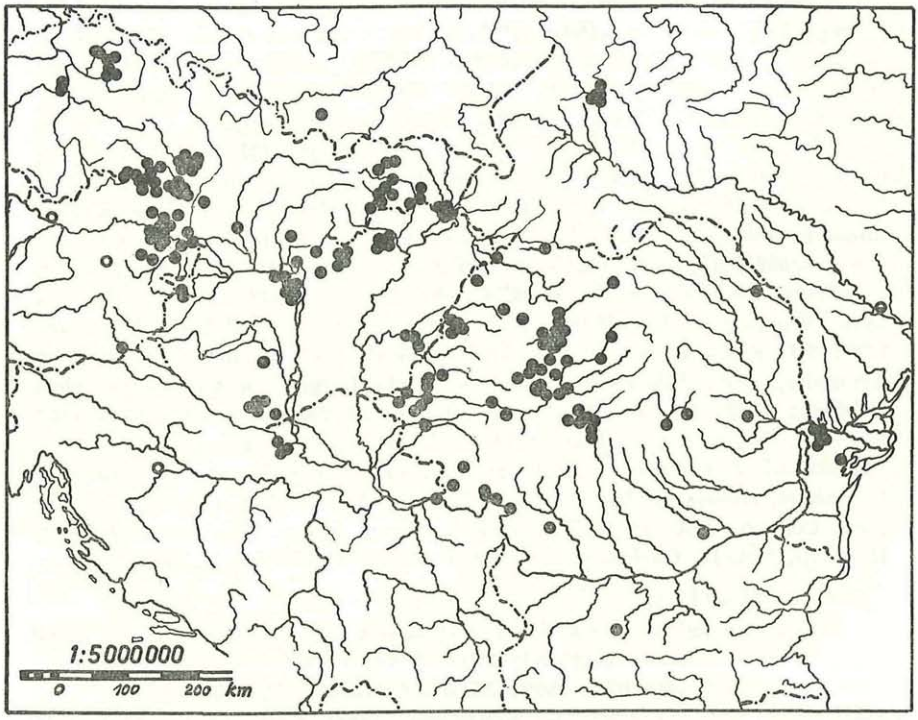


Fig. 2. Map demonstrating the distribution of *Hesperis sylvestris* CRANTZ. ● the locality of *H. sylvestris* CRANTZ, ◒ the locality of *H. sibirica* L., ○ the locality of *H. sylvestris* CRANTZ (wild).

Outside this area there are the following outlying stations: in central Bohemia, in northern Bohemia, in Poland near Cracow, in USSR near Lvov.

The area is obvious from the map (Fig. 2). Nearly all localities heve been recorded. Only some of them, especially in Rep. Pop. Romîne, have not been recorded; their localization, even with the help of special maps, was not possible.

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

According to its area I determine the taxon *H. sylvestris* as a centraleuropean-submediterranean-pontic species (or geoelement according to WALTER 1954). The centrum of the evolution is, probably, South Siberia (see DVOŘÁK 1964 b).

3.4. Biological and ecological characterization

A plant hemicryptophyt that prefers drier situations on a calcareous and granite subsoil. It grows scattered on sunny, stony slopes and on the margin of forest clearings. The centre of distribution of the species in Czechoslovakia is in the phytocenoses of the Quercion pubescentis (Quercion pubescentis-sessiliflorae BR.-BL. 1931—1932) KKA. 1933 (cit. sec. KLIKA 1948: 322) = Quercion pubescentis KKA. 1953 (cit. sec. KLIKA 1955: 321). It is less spread in the phytocenoses of the Quercion roboris-sessiliflorae (MALCUIT 1924) BR.-BL. 1932 (cit. sec. KLIKA 1948: 321) = Quercion roboris-sessiliflorae MALCUIT 1942 (cit. sec. KLIKA 1955: 323).

The centre of distribution of the species on the territory of Czechoslovakia is at the altitudes from 100 to 400 m s. m. The lowest locality is at Streda on Bodrog. The major part of localities with the altitudinal range from 500—600 m s. m. in the Spiš Hollow.

4. Hybrids

H. matronalis L. × *H. sylvestris* CRANTZ = *Hesperis* × *pachycarpa* (BORB.) DVOŘÁK comb. nova.

Basionym: *Hesperis sylvestris* CRANTZ δ) var. *pachycarpa* BORBÁS 1902: 376.

Hesperidi sylvestri CRANTZ 1762: 34 fere respondet; pedicelli (1,0)—1,7—(2,7) cm longi, crassiores ut in *H. sylvestri;* siliquae (1,2)—2,8—(4,2) cm longae et 2,0—2,5 mm latae, glabrae.

Lectotype: 144274 BP; label: "206 J. v. KOVÂTS, Flora exsicc. Vindob. *H. matronalis* L. Leopoldsberg bei Wien. In dumetis."

Note: I quote from BORBÂS's diagnosis: "Altissima, ... habitu multo crassiore ... pedunculi crassiores ... petalorum lamina subrotundata. Siliquae abbreviatae, 3 usque 4 cm longae, usque 3 mm latae, cylindricae, ...glabrae, densae, multo magis ac in typo crassiores."

The height of the plants of the lectotype does not correspond to BORBÁS's "altissmia". The plants are 68—82 cm high. On Réna near Ivančice I have gathered plants up to 140 cm. Equally the description "habitu multo crassiore" does not hold solely for the taxon described

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

by BORBÁS. The pedicels are not only thicker but also shorter in comparison with those of *H. sylvestris*. The shape of the blades in the petals corresponds to BORBÁS description; the petals are rather smaller than is the average value in the species *H. sylvestris*. In the lectotype I have measured 20 pods; their value is included in the diagnosis.

Evidences for the hybrid origin of BORBÁS's taxon

(1) In 1964 (see DVOŘÁK 1965 a) I made crossbreeding of the diploid *H. sylvestris* (2n = 14; DVOŘÁK 1964 a et h. l.) with the polyploid *H. matronalis* (2n = 24; 2n = 26; MANTON 1932, DVOŘÁK 1964 a) (2n = 24; 2n = 26 adhuc ined.); (2n = 24; LÖVE & LÖVE 1956 at 1961). As appears from the table No. 2 the female *H. sylvestris* ♀ is crossable with the male *H. matronalis* ♂. The pods have an average length of 5,9 cm, i. e. a value between the average length of pods of both parent species. Equally the number of seeds in pods corresponds to an average number of seeds in the pods of parent species.

Table 2

No	P	Number of crossed flowers	Developed siliquae abs.	Developed siliquae %	Siliqua length in cm	Average seed number in 1 siliqua
1	♀ *Hesperis sylvestris* CRANTZ (seeds: Pálava Hills)					
	♂ *Hesperis matronalis* L. subsp. *nivea* (BAUMG.) KULCZ. (seeds: Instytut przemysłu zielarskiego w Poznaniu, Polonia)	75	46	61,3	(1,0)—5,9—(9,6)	19,9
	♀ *Hesperis matronalis* L. subsp. *matronalis* (seeds: Bot. Garden Eberwalde) *Hesperis matronalis* L. subsp. (BAUMG.) KULCZ. (seeds: Ogród Botaniczny Bydgoszcz)	45	30	66,6	(2,1)—2,6—(6,1)	3,9
2	♂ *Hesperis sylvestris* CRANTZ seeds: Pálava Hills)					

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

Table 3

No	Taxon	Number of measured siliquae	Siliqua length in cm	Average number in 1 siliqua
1	*Hesperis matronalis* L. subsp. *nivea* (BAUMG.) KULCZ. (seeds: Ogród Botaniczny Bydgoszcz)	50	(3,9)—7,6—(10,3)	17,6
2	*Hesperis matronalis* L. subsp. *matronalis* (seeds: Tábor, Czechoslovakia)	50	(4,8)—7,7—(9,2)	23,2
3	*Hesperis sylvestris* CRANTZ (seeds: Pálava Hills, Czechoslovakia)	50	(3,0)—5,1—(7,7)	19,1

(2) When pollen was transferred from the male plants of the species *H. sylvestris* ♂ to the stigma of the female plants of the species *H. matronalis* ♀ there developed rather shortened pods (see tables No 2 and 3), their length being slightly different in comparison with the length of the pods of BORBÁS's taxon. Their pedicels were shorter and thicker in comparison with those of *H. sylvestris*. The pods were broader in comparison with this species.

(3) KLÁŠTERSKÝ & NOVOTNÁ 1962: 390 wrote about the value of the character: "the length of pods" in the genus *Arabis* L.: "On the other hand the character can be reliably used to distinguish the hybrids from the parent species of taxa in populations, for in hybrids always occur shorter pods as a result of sterility or, sometimes, of a reduced fertility. From it can be inferred that the authors, who identified new taxa according to conspicuously short pods, had in hands plants of an hybrid origin."

Specimens investigated:

Leopoldsberg bei Wien; KOVÁTS 206 (144274, 144275 et 144276 BP). KOVÁTS 706 (144272 et 144273 BP).

Note: It appears from the list of specimens that they come from the same place. From that locality I have revised the specimens belonging to the species *H. matronalis*:

Im Walde unter dem Gipfel des Leopoldsberges gegen die Donau; 1818; WOŁOSZCZAK (14096 W). Herb. SADLER No. 214014. 15 (144161 BP). KERNER (110802 BPU). KOVÁTS (186334 BPU).

The revised specimens belonged to the following two taxa: *H. matronalis* L. subsp. *matronalis* f. *matronalis* and *H. matronalis* L. subsp. *matronalis* f. *subglabra* ZAPAŁ. 1912: 561.

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

5. *Hesperis inodora* LINNÉ 1763: 927

According to the study, made so far, of written works I pose these problems: 1.) Is the name *H. inodora* a synonym of the species *H. sylvestris* CRANTZ or does it denote different taxa differing both by their area and morphological characters? — 2.) Relation of *H. sylvestris* to *H. subsinuata* BORBÁS 1902: 268 ac 1903: 20.

Problem 1

a) Area

LINNÉ 1763: 927 wrote: "Habitat Wiennae, Monspelii ..." The locality of *H. inodora* belongs, according to the author, to the area of the species *H. sylvestris;* it adjoins, according to LINNÉ, the locality of this species described by CRANTZ 1762: 34—35 in the following words: "Prima vice in ascensu inter Kahlenberg & Leopoldsberg legi satis raram, ..." LINNÉ 1763: 927 quoted *"Hesperis sylvestris inodora.* BAUH. pin. 202" in the synonymy. Where does BAUHINUS place the locality of this taxon? We can read in his work (BAUHINUS C. 1620: 202): "IV. *Hesperis syl. inodora. Hesperis* 2. vel *altera pannonica,* CLUS. pan." In the quotation there is an important word *"pannonica"*: it indicates the area of BAUHINUS's taxon. I have not studied CLUSIUS's work mentioned already by LINNÉ 1763: 927 ("*Hesperis* 3. CLUS. hist. I. p. 297"). I was able, however, to examine MORISON 1680: 252. The author wrote there: *"Hesperis inodora, C.* B. P. *Silvestris* 3. CLUS. Hist. ... Excrescit passim Viennensi agro ad Montium radices & vinetorum in collibus sitorum margines. Floret cum vulgari, Maio nempe & Junio: dicitur *Hesperis silvestris"*. It follows from the quotation that the localities of *H. inodora* should be situated again in the area of *H. sylvestris.* Moreover MORISON's description of the localities shows that the ecology factors, under which it grows, should be identical with those of *H. sylvestris.* FOURNIER 1866: 346 the monographer of the genus *Hesperis,* mentioned in his work the taxon: *"H. silvestris* CLUS. Hist. pl. rar. 297. CRANTZ Austr. 32." It follows from this quotation itself the identification of the species, described by CRANTZ, with that of CLUSIUS, which is identical, according to LINNÉ, with *H. inodora.* A logical conclusion: *H. sylvestris* CRANTZ is identical with *H. inodora.* L. This conclusion, ensuing from FOURNIER's heading, is corrected by FOURNIER by establishing the taxon *"H. silvestris* CLUS. Var. δ *silvestris* DC. Syst. II, 451". Its synonym he considers to be the name "*H. inodora* L. Sp. ed. 3 (sic!), 927". Var. *silvestris* grows according to FOURNIER 1866: 347: "... in Italia, in Pedemontii et Liguriae silvis ... ad Albano ... copiose prope *Castel Gandolfo* ... frequens in Austria et in Hungaria, in Rossia meridionali". I have made the selection of the localities for the quotation so as to prove that FOURNIER linked at least the following taxa: *H. matronalis* L. subsp. *oblongifolia*

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

(BORB.) DVOŘÁK, H. *subsinuata* BORB., *H. silvestris* CRANTZ according to the morphological character (predominance of glandular hairs in their indumentum). From newer authors who examined the area of *H. inodora* I mention SIMONKAI 1907: 310—311: "... *Hesperis silvestris* CRANTZ, jam ex WILLDENOW spec. III. (1800) p. 531 cum *Hesperide inodora* L. Spec. ed. II. (1763) p. 927 identica est ... Stirps laudata CRANTZII: est igitur nil aliud, quam. *Hesp. matronalis*" (genitive! — author's note) "L. Spec. (1753) 663, Italiam habitantis ... *subspecies vicaria,* Europae-mediae incola ..."

An other opinion on the area of *H. inodora* is expressed by BALL 1964: 277. He gives the following localities: "Maritime Alps. ? Ga."

b) Morphological characters

If LINNÉ 1763: 927 mentioned CLUSIUS's work let's give the characters of the taxon *Hesperis inodora* according to the latter author. I quote according to the work written by the authors BAUHINUS J. & CHERLERUS 1651: 879: "De hac CLUSIUS: *Vulgari Matronali Violae* adeò similis est, ut ex utriusque collatione vix discrimen conspici possit. Flores in extremis ramulis copiosi exalbidi, qui aetatis successu purpurascunt ..." Unfortunately, the description of an important character in this case — of the colour of the flowers — is not quite explicit. *H. matronalis* L. subsp. *nivea* (BAUMG.) KULCZ., according to author's investigation of the populations in the localities in ČSSR has white flowers; sometimes, however, is the blade of the petals red at the base or even pinkish on the whole lamina. Id did not notice a change of white colour into red as CLUSIUS wrote. In *H. sylvestris* it is otherwise. There young flowers are light purple in the early stage of inflorescence, later their colour turns mauve, when fading away, dark purple. The description of the colour of the flowers of *H. inodora* rather suggests, according to CLUSIUS, the description of the colour of the flowers of *H. sylvestris* CRANTZ.

Equally little precise are the characters attributed to the taxon *H. pannonica inodora* by the authors BAUHINUS J. & CHERLERUS 1651: 878: "*Syluestre* hoc *Hesperidis* genus, ... duûm generum *foliis* donatum, infima ex angusta ceruice mox dilatantur, tandémque in acumen desinunt, sinuatis neruis praedita, alia lata, sessilíque basi *cauli* adnascuntur ... *flores* ... colore exalbicante, vel purpurascente". They recall, besides the colour of the flowers, rather the taxon *H. silvestris* than *H. matronalis*.

CRANTZ's 1762: 34 view on the morphological characters of the taxon *H. inodora* is backed by his quotation of the synonyms of the species *H. sylvestris* CRANTZ, described by himself: "*Hesperis altera pannonica inodora sylvestris* CLUS. pann. 333", ... "*Hesperis sylvestris inodora* C. B. I. R. H." Remarkable is CRANTZ's description of the colour of the petals: "colore ex albo-violaceo, ex albo-caeruleo, rubro."

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

Unfortunately LINNÉ's description of *H. inodora* is inadequate. The following words rather refer to the species *H. sylvestris*: "Folia fere hastata basi transversali, argute dentata praesertim ad basin, magis mollia." An important character — colour of the flowers — was omitted by LINNÉ.

The description of *H. inodora* by BALL 1964: 277 corresponds to the description of the taxon *H. matronalis* L. subsp. *nivea* (BAUMG.) KULCZ.: "... Indumentum dense, of long and short unbranched and branched hairs, eglandular ... Pedicels densely pubescent or glabrous. Petals white."

The description of the indumentum of the typus *H. inodora* by TOWNSEND (a latter of 1st July 1966): "Stem: indumentum dense, softly pubescent with multicellular "glandular" hairs, the cells mostly only 2—4 times as long as broad; longer strigose hairs of 3—4 joints many times as long as broad (as seen in the type of *H. sibirica*) quite absent. Hairs variable in length but all relatively short. Leaves: indumentum similar to that of the stem, but with hairs often rather longer and spreading on each side of the midrib and principal veins on the lower surface; the hairs are also frequently longer on the smaller leaves approaching the inflorescence. Pedicels: indumentum similar, but many hairs longer, up to c. 5 cells long, but still no long, strigose hairs. Sepals: indumentum similar but sparser; calyx virtually as in *H. matronalis*, but petals white and rather smaller."

Problem 2

Relation of *H. sylvestris* CRANTZ to *H. subsinuata* BORBÁS 1902: 268 ac 1903: 20.

Investigated specimens of the species *H. subsinuata*:

E. REVERCHON: Plantes de France 1886 No. 235. Alpes Maritimes, vallée de Riofredo (isotopes); (193225 PR bis, WU bis, BRNU, P, B, W herb. KELLER). — Rio Fredo; 1893; FERRARI (FI). — Di Tenda; 1843; REUTER (FI sub *H. matronalis* var. *inodora*). — Cuneo, verso le sargenti del Pesio, 1100 m s. m.; 15. 6. 1846; BERLUTI (FI). — Chartreuse de Pesio près de Coni; THURET (FI sub *H. inodora* L.). — V. del Pesio; 17. 7. 1880; BURNAT (FI sub *H. sylvestris* CRANTZ). — Alp. pedemont.; 1889; ? MORIS (310387 W). —

Further localities are given by BURNAT 1892: 80.

BORBÁS's description of the species *H. subsinuata* is not accurate: in the description he does not mention glandular hairs prevailing especially in the indumentum of the pedicels. Their presence in the indumentum was established already by BURNAT 1892: 80: "Tiges ... velues sur toute leur long., à poils simples (jamais rameux), allongés et mêlés de poils courts, abondants, glanduleux et non glanduleux ... Feuilles ... munies de poils assez courts, inégaux, simples, plus ou moins glanduleux ... Pédicelles ... munis de poils simples (non rameux)

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

glanduleux et non glanduleux." It will be, therefore, necessary to perform an emendation of the diagnosis of BORBÁS's taxon: *Hesperis subsinuata* BORBÁS 1902: 268 ac 1903: emend. DVOŘÁK, h. l. Planta praecipue pilis glanduliferis phragmiferis articulatis tecta.

BURNAT 1892: 81 investigated also the interrelations of *H. subsinuata* (in the work sub *H. matronalis* L. incl. *H. inodora* L. and *H. sibirica* L.) and *H. sylvestris* CRANTZ (in the work sub. *H. runcinata* WALDST. & KIT.) according to the materials from Austria and Hungary. He fixed that there exist three characters differing them from each other (shape of the lower cauline leaves, length of the pedicels, colour of the flowers). According to my own investigation the following characters must be added: size of the pollen grains implying a polyploid species and area.

Discussion and Conclusions

1. The description of the taxon *H. inodora* L., as published by BALL 1964: 277, is erroneous as far as the description of the indumentum is concerned.

2. Colour of the flowers of the type *H. inodora*. Even if, according to BALL 1964: 277, *H. inodora* should have white flowers, and though TOWNSEND wrote "but petals white", I have my doubts about the white colour of the flowers of the type. I have verified that the colour of the flowers of the species of the genus *Hesperis* changes by drying: some of them (for inst. *H. sylvestris* and *H. matronalis*) fade out when dried so that their flowers are finally whitish or nearly white; others, on the contrary, turn darker or even bright purple (for inst. *H. hyrcana*, *H. pycnotricha*).

3. TOWNSEND wrote in the letter: "... I have selected the sheet from the Kew Herbarium which is most similar to the Linnean type of *H. inodora* and which to my eyes looks conspecific with it. This is SCHUR 14 from Transylvania." The specimen was lent to me. It belongs unambiguously and beyond doubt to the species *H. sylvestris* CRANTZ.

Having evaluated the two decisive characters of *H. inodora* L., i. e. a) the indumentum of the type (see the letter by TOWNSEND), b) the shape of the leaves (LINNÉ 1763: 927—928), I identify *H. inodora* L. 1763: 927 with *H. sylvestris* CRANTZ 1762: 34. It ensues from it that the name *H. inodora* L. is a synonym of the species *H. sylvestris* CRANTZ.

4. LINNÉ wrote about the locality: "Habitat Wiennae, Monspelii." BALL 1964: 277 at variance with LINNÉ and other botanists situates the locality of *H. inodora* in the Maritime Alps. It is another mistake.

5. *H. sylvestris* CRANTZ (syn.: *H. inodora* L.) is not identical with *H. subsinuata* BORBÁS emend. DVOŘÁK h. l. *H. subsinuata* from the Maritime Alps belongs to the following, evolutionally young, group of

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

alpid oreophytes: *H. dinarica* G. BECK 1895: 174 (south-western Jugoslavia); *H. australis* DVOŘÁK 1965 b: 6 (northern Greece); *H. degeniana* BORBÁS 1901: 456 ac 1903: 21 (Bulgaria — BALL incorrectly links this species with that of *H. dinarica*); *H. slovaca* DVOŘÁK 1965 b: 13 (the Low Tatras in ČSSR); *H. romineaca* DVOŘÁK 1965 b: 14 (Nagy Pietrosz in Rumania). *H. sylvestris* CRANTZ differs from those species by morphological, cytological and ecological characters.

6. The name *H. inodora* has been, so far, and still is a source of mistakes. Their cause was a quite inaccurate description by LINNÉ which made it possible to refer the name *H. inodora* both to *H. sylvestris* and *H. matronalis*. Besides the authors quoted in this study it is mentioned by ZAPAŁOWICZ 1912: 562—563: "*H. inodora* L. ma według DE CANDOLLE'a (Prodr. I p. 189) i ROUY et FOUCAUD (Fl. de France II p. 3) "folia subtriangularia inferiora et media basi cordata". Pierwszy zalicza ją jako odm. *silvestris* DC. do *H. matronalis*. BECK (Fl. v. Nied. Oest. p. 474) i HAYEK (Fl. v. Steierm. I p. 503) włączają tak *H. inodora* L. jak i *H. runcinata* W. et K. do *H. silvestris* CRANTZ (Stirp. Austr. 1762). W braku dzieł odnośnych a materyału zielnikowego nie mogę sprzeczności wyjaśnić."

6. Summary

The study is a preliminary monograph on the species *Hesperis sylvestris* CRANTZ 1762: 34. The type of the species is kept in BP. The species is rather little variable. The following forms can be distinguished in it: f. *sylvestris* (synonymus: *H. sylvestris* CRANTZ var. *albiflora* SCHUR; *H. sylvestris* CRANTZ (var.) β *subruncinata* BORB.); f. *runcinata* (WALDST. & KIT.) DVOŘÁK comb. nova (basionym: *H. runcinata* WALDST. & KIT. 1805: 220 p. p.; type: PR); f. *trichogyna* (BORB.) NYÁR. 1955: 193 (lectotype: 144242 BP); f. *schurii* NYÁR. 1955: 193. BORBÁS 1902 described the taxon *H. sylvestris* CRANTZ δ) var. *pachycarpa* BORB.; the present author identifies it as a hybrid to which belongs the name *Hesperis* × *pachycarpa* (BORB.) DVOŘÁK comb. nova. On the basis of the study of specimens from the herbarium of 22 institutions is described the geographical distribution of *H. sylvestris*. It is a centraleuropean-submediterranean-pontic species.

7. References

BALL P. W. 1964. *Hesperis* L. — in TUTIN T. G. & al. Flora europaea. 1. — Cambridge.

BAUHINUS C. 1620. Prodromos Theatri Botanici Caspari Bauhini Basileens. — Francofurti ad Moenum.

BAUHINUS J. & CHERLERUS J. H. 1651. Historia plantarum universalis. 2. — Ebroduni.

BECK-MANNAGETTA G. 1892. Flora von Nieder-Österreich. 2 (1). — Wien.

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

BOISSIER E. 1867. Flora orientalis. 1. — Basileae et Genevae.

BORBÁS V. 1901. Az illatozó estike. A Kert, Budapest 7: 456—458.

— 1902—1903. Hazánk meg a Balkán *Hesperis* — egyesíntendő. — Magy. bot. Lap. 1: 161—167, 196—204, 229—237, 261—272, 304—313, 344—348, 369—380; 2: 12—23.

BURNAT E. 1892. Flore des Alpes Maritimes. 1. — Lyon.

BUŠ N. A. 1939. Krestocvětnyje — *Cruciferae* B. JUSS. — Fl. SSSR, 8: 14—606.

CANDOLLE A. P. de. 1821. Regni vegetabilis systema naturale. 2. — Parisiis.

CRANTZ H. J. N. 1762. Stirpes austriacae. 1. — Viennae et Lipsiae.

ČELAKOVSKÝ L. 1875. Prodromus der Flora von Böhmen. 3. — Prag.

DC = CANDOLLE de.

DOSTÁL J. 1950. Květena ČSR a ilustrovaný klíč k určení všech cévnatých rostlin na území Československa planě rostoucích nebo běžně pěstovaných. — Praha.

DVOŘÁK F. 1964 a. Taxonomické závěry ze studia počtu chromosomů druhů rodu *Hesperis* L. Taxonomic Results of the Studies on the Chromosome Numbers in the Genus *Hesperis* L. — Preslia 36: 178—184.

— 1964 b. Filogenětičeskije otnošenija vidov *Hesperis sylvestris* CRANTZ i *Hesperis sibirica* L. — Biológia 19: 649—659.

— 1965 a. First Results of the Hybridization in some Species of the *Hesperis* L. Genus. — Biológia 20: 777—779.

— 1965 b. An evolutionally younger group of the taxa of the *Hesperis* genus on the Balkan Peninsula, in Central and south-eastern Europe. — Vývojově mladá skupina taxonů rodu *Hesperis* na Balkánském poloostrově, ve střední a v jihovýchodní Evropě. — Publ. Fac. Sci. Univ. J. E. Purkyně Brno No. 459: 1—20 (1965).

FOURNIER M. E. 1866. Monographie du genre *Hesperis*. — Bull. Soc. bot. France 13: 326—362.

FRITSCH K. 1896. Beiträge zur Flora der Balkanhalbinsel mit besonderer Berücksichtigung von Serbien. 3. — Verh. zool.-bot. Ges. Wien 45: 367—382.

FUSS M. 1866. Flora Transsilvaniae excursoria. — Cibinii.

HAYEK A. 1927. Prodromus Florae peninsulae Balcanicae. — Repert. Spec. nov. Beiheft 30 (1): 1—1193.

HERMANN E. 1956. Flora von Nord- und Mitteleuropa. — Stuttgart.

JANCHEN E. 1953. Beiträge zur Benennung, Verbreitung und Anordnung der Farn- und Blütenpflanzen Österreichs, 4. — Phyton 5 (1 et 2): 55—106.

— 1957. Catalogus florae Austriae. 1. — Wien.

KANITZ A. 1863. Reliquiae Kitaibelianae... — Verh. zool.-bot. Ges. Wien 13: 57—118.

KLÁŠTERSKÝ I. & NOVOTNÁ I. 1962. Komplex *Arabis hirsuta*. — Preslia 34: 387—393.

KLIKA J. 1948. Rostlinná sociologie (fytocenologie). — Praha.

— 1955. Nauka o rostlinných společenstvech (fytocenologie). — Praha.

LINNÉ C. 1753. Species plantarum, ed. 1. — Holmiae.

— 1754. Genera plantarum, ed. 5. — Holmiae.

— 1763. Species plantarum, ed. 2. — Holmiae.

©Verlag Ferdinand Berger & Söhne Ges.m.b.H., Horn, Austria, download unter www.biologiezentrum.at

LÖVE Á. & LÖVE D. 1956. Cytotaxonomical conspectus of the Icelandic flora. — Acta Horti gotob. 20: 65—291.

— 1961. Chromosome Numbers of Central and Northwest European Plant Species. — Opera bot. 5: 1—581.

MANTON, I. 1932. Introduction to the general cytology of the *Cruciferae*. — Ann. Bot. London 46: 505—556.

MORISON R. 1680. Plantarum Historiae Universalis Oxoniensis Pars 2. — Oxonii.

NEILREICH A. 1846. Flora von Wien. — Wien.

— 1859. Flora von Nieder-Österreich. — Wien.

NYÁRÁDY E. I. 1955. *Cruciferae* B. JUSS. — Fl. Rep. Romîne 3: 103—501.

PRODAN G. 1915. Bács-Bodrog vármegye flórája. Flora des Komitates Bács-Bodrog. — Magy. bot. Lap. 14: 120—269.

SCHUR F. 1853. Sertum Florae Transsilvaniae sive Enumeratio ... — Verh. Mitt. siebenbürg. Ver. Naturwiss. 4.

— 1853. Beiträge zur Kenntnis der Flora von Siebenbürgen. 5 (1). — Verh. Mitt. siebenbürg. Ver. Naturwiss. 4: 57—68.

SIMONKAI L. 1907. Apró közlemények. Kleine Mitteilungen. — Magy. bot. Lap. 6: 310—311.

SOÓ R. & JÁVORKA S. 1951. A Magyar növenyvilág kézikönyve. — Budapest.

SPACH E. 1838. Histoire naturelle. 6. — Paris.

STOJANOV N. & STEFANOV B. 1933. Flora na Balgarija. — Sofija.

SZAFER W., KULCZYŃSKI S. & PAWŁOWSKI B. 1953. Rośliny polskie. — Warszawa.

THELLUNG A. 1919. *Cruciferae*. — In HEGI, Ill. Flora Mitteleur. 4 (1): 51—482.

TZVELEV N. N. 1959. Rod *Hesperis* v SSSR. Genus *Hesperis* in USSR. — Bot. Mat. Gerb. Inst. 19: 114—155.

WALDSTEIN F. A. & KITAIBEL P. 1805. Descriptiones et icones plantarum rariorum Hungariae. 2. — Viennae.

WALTER H. 1954. Einführung in die Phytologie. 3 (2) Arealkunde. — Stuttgart.

WIDDER F. J. 1964. Der Wandel des Arealbildes von *Dianthus alpinus*. — Ber. bayer. bot. Ges. 37: 81—97.

WILLDENOW C. L. 1800. Caroli a LINNÉ species plantarum ... ed. 4, 3. — Berolini.

ZAPAŁOWICZ H. 1912. Conspectus florae Galiciae criticus, 26. Krytyczny przegląd roślinności Galicyi, 26. — Rozpr. Wydział. matemat. — przyrod. Akad. Um. ser. 3, 12 B: 546—565.

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: Phyton, Annales Rei Botanicae, Horn

Jahr/Year: 1967

Band/Volume: 12_1_4

Autor(en)/Author(s): Dvorak Frantisek

Artikel/Article: Further chapter from the study on Hesperis sylvestris. 6-30