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Electronic Appendix 1. – Previously published data on the chromosome counts of *Jacobaea vulgaris* from Slovakia until 2006 (data are supplemented or corrected according to Marhold et al. 2007).

Pop. no.	Locality (sampling site) (each locality is given as follows: phytogeographical district according to Futák 1984; closest town or village; other data)	Chromosome number	Literature
A	SK, Podunajská nížina, Bratislava-Petržalka	2n = 40	Letz et al. (1999)
B	SK, Bukovské vrchy, Ulič	2n = 40	Murín et al. (1999)
C	SK, Čergov, Kamenica	2n = 40	Murín et al. (1999)
D	SK, Ipeľsko-rimavská brázda, Lučenec, motorway restaurant of Halier	2n = 40	Murín et al. (1999)
E	SK, Liptovská kotlina, Liptovská Mara, Havránok hill	2n = 40	Murín et al. (1999)
F	SK, Nízke Beskydy, Topoľovka	2n = 40	Murín et al. (1999)
G	SK, Považský Inovec, Nová Lehota, Bezovec hill	2n = 40	Murín et al. (1999)
H	SK, Spišské kotliny, Primovce	2n = 40	Murín et al. (1999)
CH	SK, Spišské vrchy, Nižné Ružbachy	2n = 40	Murín et al. (1999)
I	SK, Stredné Pohornádie, Obišovce	2n = 40	Murín et al. (1999)
J	SK, Strážovské vrchy, Slopná, Mt. Ostrá Malenica	2n = 40	Murín et al. (1999)
K	SK, Strážovské vrchy, Záskalie, Manínska tiesňava gorge	2n = 40	Murín et al. (1999)
L	SK, Strážovské vrchy, Bojnice	2n = 40	Murín et al. (1999)
M	SK, Šarišské vrchy, Fintice	2n = 40	Murín et al. (1999)
N	SK, Štiavnické vrchy, Lehôtka pod Brehmi	2n = 40	Murín et al. (1999)
O	SK, Turčianska kotlina, Turčianska Štiavnička	2n = 40	Murín et al. (1999)
P	SK, Veľká Fatra, Blatnica, Dedošová dolina valley	2n = 40	Murín et al. (1999)
R	SK, Podunajská nížina, Bratislava-Petržalka	2n = 40	Májovský et al. (2000)
S	SK, Slovenský kras, Turňa nad Bodvou, edge of the village, near the road to the castle ruins	2n = 80	Murín & Váchodvá (1970)
T	SK, Záhorská nížina, Plavecký Štvrtok	2n = 80	Murín & Májovský (1987)
U	SK, Devínska Kobyla, Bratislava-Devín, above abandoned orchard E of the cottage community Svätopluk	2n = 80	Feráková et al. (1997)
V	SK, Burda, Chľaba, Burda hill	2n = 80	Murín et al. (1999)
W	SK, Slovenský kras, Turňa nad Bodvou	2n = 80	Murín et al. (1999)
Y	SK, Stredné Pohornádie, Košice, Hradová hill	2n = 80	Murín et al. (1999)
Z	SK, Tribeč, Nitra, Zobor hill	2n = 80	Murín et al. (1999)
X	SK, Záhorská nížina, Skalica, Veterník hill	2n = 80	Murín et al. (1999)

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Electronic Appendix 2. – List of the studied *Jacobaea vulgaris* populations. Each record is given as follows:

– population (voucher) number (Pop. no.; populations marked with "#" were used in the study of environmental data);

– locality description [all localities are in Slovakia and are given as follows: closest village or town, and other information; date of collection (if the plants were collected on the locality more than twice, only the dates of the first and the last collection are given; name of collector(s)];

– geographic coordinates (in WGS84); altitude (Alt; in m a. s. l.);

– habitat type [meadow/pasture (E2.1, E2.7, E7), steppic grassland (E1.2), thermophile fringe (E5.2, F3.1, F3.2, incl. overgrown meadows and pastures), sand dune/steppe (E1.1, E1.9), forest (G1, G3); codes of habitats given in parentheses corresponding to the EUNIS habitat classification (Davies et al., 2004)];

– habitat naturalness [low = vegetation strongly influenced or created by humans, with a higher proportion (more than 15 % of abundance) of ruderal or alien species (e.g. intensively managed or disturbed grasslands, abandoned fields); medium = semi-natural vegetation with moderate proportion (up to 15 % of abundance) of ruderal or alien species (e.g. grazed grasslands, road margins, steppe grasslands in the close proximity of houses); high = natural and semi-natural vegetation without a strong anthropogenic influence and with absence or very low proportion of ruderal or alien species (e.g. steppe grasslands out of proximity of houses, natural forests)];

– geological substrate [granites and gneisses, andesites, loam sediments, shales, loesses, sandy sediments, flysch, calcareous flysch, quartzites, limestones, dolomites, and travertines; correspondence between 12-degree classification and those of Káčer (2005) is explained in the Electronic Appendix 4].

– the number of individuals who were analysed for the DNA ploidy level (by flow cytometric assessment; the numbers labelled with "DC" were also determined by a direct counting from the mitotic cells), with the author(s) of the measurements of ploidy level or place of the original publication of the analyses; the ploidy level data marked with asterisks were taken from the literature: *[1] – from Hodálová et. al. (2007), *[2] – from Hodálová et al. (2010), *[3] – from Hodálová et al. (2015); all other data (given in bold) represent new records.

Other abbreviations and symbols that were used for collectors and authors of the ploidy level analyses were as follows: DD – D. Dítě, IH – I. Hodálová, JS – J. Somogyi, MV – M. Valachovič, Pen – M. Peniašteková, PM – P. Mereďa jun.

Pop. no.	Locality description	Geographic coordinates	Alt	Habitat type	Habitat natu-ralness	Geological substrate	DNA ploidy level		
							4x	6x	8x
12	Čebovce-Opava, western edge of the village, xerophilous places near the road, 27 Jul 2001, IH	48°11' N 19°10' E	420	–	–	–	4*[1]	–	**1**
13#	Plešivec, S of the town, xerophilous places near the road, 27 Jul 2001, IH; 15 Jul 2009, IH & PM	48°31'48" N 20°23'32" E	220	meadow/pasture	medium	dolomites	5*[1] +13*[3]	–	–
14#	Bratislava-Devínska Nová Ves, Štokeravská vápenka stone-pit, between the road and railway, 25 Jul 2002, IH; 16 Jul 2008, IH	48°12'19" N 17°00'32" E	170	meadow/pasture	medium	loam sediments	3DC*[1] +5*[1] +29*[2]	1*[2]	–
15#	Bratislava-Karlova Ves, road margin to the city quarter of Dúbravka, 16 Jul 2001, IH; 18 Jul 2008, IH	48°10'02" N 17°02'54" E	200	meadow/pasture	medium	loam sediments	5*[1] +15*[2]	–	–

Pop. no.	Locality description	Geographic coordinates	Alt	Habitat type	Habitat natu-ralness	Geological substrate	DNA ploidy level		
							4x	6x	8x
16	Čachtice, xerophilous meadows under the stone-pit, 17 Jul 2001, IH	48°43' N 17°47' E	200 –250	–	–	–	1*[1]	–	–
17#	Rudno nad Hronom, west of the village, road margin, 22 Aug 2002, IH	48°25'30" N 18°40'04" E	220	meadow/pasture	medium	loam sediments	2*[1]	–	–
18#	Vinné, ner the entrance to the camping Hôrka, 27 Aug 2001, IH	48°47'48" N 21°58'11" E	150	meadow/pasture	medium	andesites	3*[1]	–	–
19#	Folkušová, foot of Mt. Havranová skala, 29 Jul 2001, Pen	48°58'25" N 18°57'56" E	660	meadow/pasture	medium	loam sediments	3*[1]	–	–
20#	Snina, eastern edge of the town, road margin to Stakčín village, 28 Jul 2001, IH	48°59'04" N 22°11'26" E	240	meadow/pasture	medium	loam sediments	2*[1]	–	–
21	between the town of Snina and village of Stakčín, road margin, 28 Jul 2001, IH	48°59' N 22°12' E	240 –270	–	–	–	1*[1]	–	–
36#	Krásnohorské Podhradie, castle hill Krásna Hôrka, 12 Jul 2003, IH; 15 Jul 2009, IH & PM	48°39'25" N 20°36'05" E	440	steppic grassland	high	limestones	–	–	6*[1] +8*[3]
37	Bratislava-Devínska Nová Ves, cottage settlement of Devínske Jazero, near the railway, 16 Jul 2001, IH	48°15'02" N 16°57'42" E	148	–	–	–	–	–	2*[1]
38#	Bratislava-Devínska Nová Ves, cottage settlement of Devínske Jazero, 16 Jul 2001, IH	48°15'36" N 16°57'49" E	165	sand dune/steppe	medium	sandy sediments	–	–	3*[1]
39#	Gajary, near the fish-pond of Starý Rybník, 7 Aug 2002, IH, DD & JS	48°29'41" N 16°55'33" E	150	sand dune/steppe	medium	sandy sediments	–	–	2*[1]
40#	Plavecký Mikuláš, near the gamekeeper lodge of Haluška, 10 Aug 2001, IH; 25 Oct 2008, IH & PM	48°31'21" N 17°16'07" E	195	meadow/pasture	medium	sandy sediments	42*[3]	1DC*[2] +2*[2]	5*[1] +32*[2]
41#	Bratislava-Devínska Nová Ves, National Nature Reserve Devínska Kobyla, Sandberg hill (type locality of the subspecies), 25 Jul 2002, IH; 25 Jul 2013, PM	48°12'05" N 16°58'26" E	190	steppic grassland	high	sandy sediments	–	–	6*[1] +25*[2]
42	Senec, near the highway, 22 Aug 2002, IH	48°14' N 17°22–25' E	120 –160	–	–	–	–	–	2*[1]
43#	Mužla-Čenkov, National Nature Reserve Čenkovská step, 15 Jul 2001, IH	47°46'08" N 18°31'10" E	110	sand dune/steppe	high	sandy sediments	–	–	1*[1]
44#	Štúrovo, Nature Reserve Vŕšok, 15 Jul 2001, IH	47°49'10" N 18°39'24" E	180	steppic grassland	high	andesites	–	–	3*[1]
45#	Malý Kamenec, Tarbucka hill, 17 Jul 2002, IH & MV; 16 Jul 2009, IH & PM	48°21'35" N 21°47'21" E	230	steppic grassland	high	andesites	–	–	2*[1] +23*[3]
46#	Kočín-Lančár, near the stone-pit, 17 Jul 2001, IH	48°35'33" N 17°38'41" E	290	steppic grassland	high	dolomites	–	–	4*[1]
50#	Demandice, east of the village, 15 Jul 2002, IH; 25 Oct 2008, IH & PM	48°07'52" N 18°47'32" E	170	thermophile fringe	high	andesites	3*[1] +16*[2]	–	3*[1]

Pop. no.	Locality description	Geographic coordinates	Alt	Habitat type	Habitat natu-ralness	Geological substrate	DNA ploidy level		
							4x	6x	8x
51	Lehota, near the highway, 22 Aug 2002, IH	48°19' N 17°58' E	180 –190	–	–	–	1*[1]	–	1*[1]
64#	Vinné, southern foot of the Vinné castle hill, 16 Jul 2009, IH & PM	48°48'59" N 21°57'00" E	150	meadow/pasture	high	andesites	**2**	–	–
65#	Jasenov, near the northern edge of the village, margin of the road no. 582, 17 Jul 2009, IH & PM	48º48'04" N 22º09'54" E	175	meadow/pasture	medium	loam sediments	**2**	–	–
66#	Vojnatina, road margin to Priekopa village, 17 Jul 2009, IH & PM	48°44'14" N 22°14'08" E	140	meadow/pasture	medium	loam sediments	**3**	–	–
67#	Podhoroď, nort-western foot of the Podhoroď castle hill, 17 Jul 2009, IH & PM	48°49'20" N 22°18'12" E	370	meadow/pasture	medium	calcareous flysch	**3**	–	–
68#	Socovce, on the top of the Stráž hill, 11 Aug 2009, IH & PM	48°56'53" N 18°51'37" E	534	meadow/pasture	high	loam sediments	**1**	–	–
69#	Lisková, road margin to the town of Ružomberok, foot of the Mních hill, 11 Aug 2009, IH & PM	49°05'10" N 19°20'06" E	500	meadow/pasture	medium	dolomites	**3**	–	–
70#	Beckov, Skalice hill, near the former quarry, 25 Jul 2009, PM	48°46'32" N 17°53'38" E	200 –260	meadow/pasture	high	limestones	**5**	–	–
71#	Beckov, meadow 0.2–0.4 km south-east from the castle, 25 Jul 2009, PM	48°47'21" N 17°54'03" E	220 –250	meadow/pasture	high	limestones	**5**	–	–
72#	Dolná Súča, Krasín hill, meadows on the south-eastern slopes, 25 Jul 2009, PM	48°57'33" N 18°01'27" E	340	meadow/pasture	high	limestones	**6**	–	–
73#	Dubnica nad Váhom, pastures 1.3 km north-west-west from the Ostrý vrch hill, 25 Jul 2009, PM	48°56'43" N 18°10'35" E	270	meadow/pasture	medium	dolomites	**4**	–	–
74#	Vršatské Podhradie, Vršatec hill, 26 Jul 2009, PM	49°04'20" N 18°09'24" E	840	meadow/pasture	high	loam sediments	**6**	–	–
75#	Horná Poruba, south-western slopes of the Mt. Vápeč, 10 Aug 2009, IH & PM	48°56'07" N 18°18'45" E	490	meadow/pasture	high	calcareous flysch	**3**	–	–
76#	Dolné Vestenice, cote of 287.8, west of the village, 10 Aug 2009, IH & PM	48°42'11" N 18°23'21" E	280	meadow/pasture	medium	dolomites	**2**	–	–
77#	Nitrianske Rudno, meadows near the crossroads to Bojnice village, 10 Aug 2009, IH & PM	48°48'04" N 18°28'38" E	330	meadow/pasture	medium	loam sediments	**2**	–	–
78#	Jasenovo, slope under the cemetery near the road to Nitrianske Pravno village, 11 Aug 2009, IH & PM	48°52'46" N 18°43'19" E	520	meadow/pasture	medium	limestones	**3**	–	–
79#	Slovenské Pravno, slopes above the road no. 519, 11 Aug 2009, IH & PM	48°53'50" N 18°45'11" E	490	meadow/pasture	medium	loam sediments	**2**	–	–
80#	Brezová pod Bradlom, Bradlo hill, 6 Aug 2010, PM	48°40'46" N 17°33'41" E	510	meadow/pasture	medium	limestones	**6**	–	–
81#	Mokrý Háj, slope above the water reservoir, 6 Aug 2010, PM	48°48'13" N 17°13'33" E	250	meadow/pasture	low	loam sediments	**4**	–	–

Pop. no.	Locality description	Geographic coordinates	Alt	Habitat type	Habitat natu-ralness	Geological substrate	DNA ploidy level		
							4x	6x	8x
82#	Skalica, on the top of the Veterník hill, 6 Aug 2010, PM	48°48'59" N 17°13'50" E	315	meadow/pasture	high	sandy sediments	–	**1**	**6**
83#	Bešeňová, Natural Monument Bešeňovské travertíny, 11 Aug 2009, IH & PM	49°06'15" N 19°26'13" E	525	meadow/pasture	high	travertines	**6**	–	–
84#	Beňadiková, slope near the road to the town of Liptovský Mikuláš, 11 Aug 2009, IH & PM	49°04'23" N 19°40'37" E	615	meadow/pasture	medium	flysch	**3**	–	–
85#	Hôrka-Primovce, Nature Reserve Primovské skaly and meadows in their surroundings, 11 Aug 2009, IH & PM; 20 Jul 2012, PM	49°01'02" N 20°22'53" E	600 –650	thermophile fringe	high	andesites	35*[3]	**1**	2*[3]
86#	Spišské Podhradie, National Nature Reserve Sivá brada [hill], 11 Aug 2009, IH & PM; 5 Aug 2012, IH	49°00'21" N 20°43'16" E	470 –480	steppic grassland	high	travertines	14*[3]	–	2*[3]
87#	Spišské Podhradie, pastures opposite to Spiš castle, 12 Aug 2009, IH & PM	48°59'53" N 20°46'17" E	570	thermophile fringe	high	travertines	**4**	–	–
88#	Veľký Folkmar, Folkmar saddle, 12 Aug 2009, IH & PM	48°51'02" N 21°01'53" E	540	meadow/pasture	medium	shales	**3**	–	–
165#	Muráň, meadow in the saddle between the Mt. Cigánka and Mt. Šiance, 15 Jul 2012, PM	48º45'50" N 20º03'50" E	840	thermophile fringe	high	dolomites	**1**	–	–
166#	Lisková, pastures between the villages of Lisková and Turík, 20 Jul 2012, PM	49º05'48" N 19º22'14" E	530 –600	meadow/pasture	medium	flysch	**3**	**1**	–
167#	Gánovce, Gánovce travertines no. II, pastures around the spring, 20 Jul 2012, PM	49º01'38" N 20º20'11" E	620	thermophile fringe	high	travertines	**3**	–	–
168#	Granč-Petrovce, Sobotisko hill, 21 Jul 2012, PM	48º59'55" N 20º47'01" E	510 –540	thermophile fringe	high	travertines	**3**	–	–
169#	Spišské Podhradie, Dreveník hill, pastures near the road to Dobrá Vôľa settlement, 21 Jul 2012, PM	48º58'43" N 20º45'54" E	420 –450	meadow/pasture	medium	flysch	**3**	–	–
170#	Margecany, near the cross of the roads no. 546 and 547, 21 Jul 2012, PM	48º53'13" N 21º00'19" E	340	meadow/pasture	medium	granites and gneisses	**2**	–	–
171#	Trsťany (near Spišský Hrušov village), pasture above the road, 21 Jul 2012, PM	48º58'03" N 20º43'21" E	450 –500	thermophile fringe	high	flysch	**7**	–	–
172#	Spišský Hrhov-Doľany, xerothermic habitat south-east from the village, 21 Jul 2012, PM	49º00'32" N 20º39'38" E	550	thermophile fringe	medium	flysch	**1**	–	–
173#	Dravce, south-western edge of the village, road margin, 21 Jul 2012, PM	49º01'01" N 20º28'54" E	660	meadow/pasture	medium	flysch	**1**	–	–
174#	Dlhé Stráže, south of the village, road margin, 21 Jul 2012, PM	49º01'09" N 20º31'31" E	570	meadow/pasture	medium	flysch	**1**	–	–
175#	Kišovce, Nature Reserve Švábovská stráň, 21 Jul 2012, PM	49º01'53" N 20º22'50" E	650	meadow/pasture	high	flysch	**3**	–	–

Pop. no.	Locality description	Geographic coordinates	Alt	Habitat type	Habitat natu-ralness	Geological substrate	DNA ploidy level		
							4x	6x	8x
219#	Marcelová, Nature Reserve Mašan, 14 May 2013, PM	47º46'12" N 18º19'06" E	125	sand dune/steppe	high	sandy sediments	–	–	**3**
220#	Lúka, near the north-eastern edge of the village, south-west-western slope, 23 May 2013, IH & PM	48º39'46" N 17º53'35" E	230	steppic grassland	high	dolomites	–	–	**5**
221#	Nové Mesto nad Váhom, Prepadliská hill, 21 Jun 2013, IH & PM	48º46'43" N 17º50'18" E	273	thermophile fringe	medium	limestones	**3**	–	–
222#	Dovalovo, north-west of the village, near the highway, 6 Jul 2013, IH	49º03'29" N 19º45'21" E	680	meadow/pasture	medium	loam sediments	**3**	–	–
223#	Hybe, north-north-west of the village, near the highway, 6 Jul 2013, IH	49º03'24" N 19º49'18" E	760	meadow/pasture	medium	loam sediments	**3**	–	–
224#	Timoradza, southern edge of the village, above the road to Podlužany village, 6 Jul 2013, PM	48º47'34" N 18º14'45" E	235	meadow/pasture	high	dolomites	**3**	–	–
225#	Timoradza, betwwen the southern edge of the village and Zlobiny settlement, 6 Jul 2013, PM	48º47'53" N 18º15'03" E	280	meadow/pasture	high	dolomites	**4**	–	–
226#	Lúka, cote of 212.3, ca 0.7 km north-east from the north-east edge of the village, 8 Jul 2013, IH & PM	48º39'54" N 17º53'57" E	220	thermophile fringe	high	dolomites	–	–	**3**
227#	Lúka, between cote of 212.3 and north-east edge of the village, 8 Jul 2013, IH & PM	48º39'45" N 17º53'48" E	210	thermophile fringe	high	dolomites	**1**	–	–
228#	Lúka, northern edge of the village, near the road to Hrádok village, 8 Jul 2013, IH & PM	48º40'11" N 17º52'25" E	170	meadow/pasture	medium	loam sediments	**2**	–	–
231#	Tachty, slope near the western edge of the village, 11 Jul 2013, PM	48°09'16" N 19°56'00" E	290	thermophile fringe	high	sandy sediments	**6**	–	–
233#	Hajnáčka-Šťavica, northern slope above the south-eastern edge of the village, 12 Jul 2013, PM	48°11'42" N 19°57'35" E	290	meadow/pasture	high	sandy sediments	**3**	–	**1**
234#	Hajnáčka, Zaboda hill, southern slope, oak forest, 12 Jul 2013, PM	48°13'52" N 19°58'20" E	380	forest	high	sandy sediments	**1**	–	–
235#	Hajnáčka-Gortva, Plešivská dolina valley, 12 Jul 2013, PM	48°14'56" N 19°58'01" E	220	meadow/pasture	low	loam sediments	**2**	–	–
236#	Šurice, slopes east from the Soví hrad castle, 12 Jul 2013, PM	48°13'33" N 19°55'02" E	250	steppic grassland	high	sandy sediments	**3**	–	–
237#	Belina, south-east of the village, slopes of the Belina hill, 12 Jul 2013, PM	48°14'43" N 19°51'15" E	240	meadow/pasture	high	sandy sediments	**2**	–	–
238#	Šimonovce, near the raod to Hostice village, near the crossroads to Petreš settlement, 12 Jul 2013, PM	48°15'40" N 20°05'51" E	185	meadow/pasture	medium	sandy sediments	**1**	–	–
239#	Gemerský Jablonec, north-east of the village, road margin, 13 Jul 2013, PM	48°12'05" N 19°59'18" E	290	meadow/pasture	low	sandy sediments	**1**	–	–
240#	Drňa, slopes ca 1 km north-east-east of the village, 13 Jul 2013, PM	48°15'59" N 20°07'50" E	190	steppic grassland	high	sandy sediments	**3**	–	**4**

Pop. no.	Locality description	Geographic coordinates	Alt	Habitat type	Habitat natu-ralness	Geological substrate	DNA ploidy level		
							4x	6x	8x
241#	Holíč, near the cemetery, small hill with three crucifixes, 16 Jul 2013, PM	48°48'21" N 17°09'58" E	205	meadow/pasture	medium	loesses	–	–	**2**
242#	Holíč, south-east of the town, edge of the cottage settlement, 16 Jul 2013, PM	48°47'44" N 17°10'17" E	220	thermophile fringe	high	loesses	–	–	**6**
243#	Lopašov, north-east of the village, 16 Jul 2013, PM	48°45'24" N 17°20'07" E	315	thermophile fringe	high	sandy sediments	**3**	–	–
244#	Sobotište, east of the village, 16 Jul 2013, PM	48°44'12" N 17°25'25" E	330	thermophile fringe	high	sandy sediments	–	–	**2**
245#	Vrbovce-Vápeník, southern edge of the settlement, road margin, 16 Jul 2013, PM	48°45'51" N 17°27'52" E	465	meadow/pasture	medium	flysch	**1**	–	–
246#	Vaďovce, slope opposite to the railway station, 16 Jul 2013, PM	48°43'55" N 17°43'32" E	260	thermophile fringe	high	sandy sediments	**2**	–	–
247#	Višňové, National Nature Reserve Čachtický hradný vrch, foot of the Čechtice castle hill, 16 Jul 2013, PM	48°43'23" N 17°45'31" E	280	thermophile fringe	high	dolomites	**3**	–	–
248#	Višňové, NNR Čachtický hradný vrch, mountain ridge south of the castle, 16 Jul 2013, PM	48°43'22" N 17°45'46" E	360	steppic grassland	high	dolomites	**3**	–	**2**
249#	Závada, Protected Site Dolné lazy, 17 Jul 2013, PM	48°38'21" N 18°04'43" E	250 –270	thermophile fringe	high	dolomites	**4**	–	**3**
250#	Závada, pine forest above the stone-pit, 17 Jul 2013, PM	48°38'44" N 18°03'40" E	410	forest	high	dolomites	**2**	–	–
251#	Klátova Nová Ves, north-western foot of the Kostrín hill, 17 Jul 2013, PM	48°33'34" N 18°17'51" E	240	thermophile fringe	high	limestones	**1**	–	–
252#	Podhorany, Veľký Bahorec hill, south-south-western slope, 20 Jul 2013, PM	48°22'39" N 18°05'38" E	180 –190	meadow/pasture	low	quertzites	**3**	–	–
253-1#	Podhorany, Veľký Bahorec hill, north-eastern slope, 20 Jul 2013, PM	48°22'54" N 18°05'56" E	190	meadow/pasture	medium	quertzites	–	–	**2**
253-2#	Podhorany, Malý Bahorec hill, southern slope near the small stone-pit, 20 Jul 2013, PM	48°23'07" N 18°06'09" E	195	steppic grassland	high	dolomites	–	–	**4**
253-3#	Podhorany, Malý Bahorec hill, forest near the top of the hill, 20 Jul 2013, PM	48°23'09" N 18°06'10" E	205	forest	high	quertzites	**3**	–	–
253-4#	Podhorany, Malý Bahorec hill, steppic grassland near the top of the hill, 20 Jul 2013, PM	48°23'14" N 18°06'05" E	200 –208	steppic grassland	high	quertzites	**3**	–	**7**
254#	Kovarce, north-western foot of the cote of 345.3, 20 Jul 2013, PM	48°29'26" N 18°10'44" E	230 –250	meadow/pasture	medium	loam sediments	**2**	–	–
255#	Krásno, north-east of the village, 20 Jul 2013, PM	48°35'53" N 18°19'10" E	245	thermophile fringe	medium	dolomites	**1**	–	–

Pop. no.	Locality description	Geographic coordinates	Alt	Habitat type	Habitat natu-ralness	Geological substrate	DNA ploidy level		
							4x	6x	8x
256#	Oslany, Nature Reserve Veľký vrch, foot of the hill above the road, 20 Jul 2013, PM	48°38'35" N 18°27'11" E	225	thermophile fringe	high	dolomites	–	–	**19**
257#	Dolné Vestenice, south-west-west of the village, cote 287.8, north-west-west slope, 22 Jul 2013, PM	48°41'58" N 18°23'06" E	250	steppic grassland	high	dolomites	–	–	**3**
258#	Dolné Vestenice, north of the villge, 22 Jul 2013, PM	48°42'32" N 18°23'16" E	300	steppic grassland	high	dolomites	–	–	**4**
259#	Nitrianske Sučany, Háj hill, 22 Jul 2013, PM	48°43'48" N 18°28'38" E	320	meadow/pasture	medium	shales	**3**	–	–
260#	Trenčianske Mitice-Zemianske Mitice, above the village, 23 Jul 2013, PM	48°49'19" N 18°06'58" E	400 –420	meadow/pasture	high	limestones	**2**	–	–
261#	Trenčianske Mitice-Rožňovské Mitice, eastern margin of the stone-pit, 23 Jul 2013, PM	48°48'58" N 18°06'36" E	380 –400	thermophile fringe	high	dolomites	**4**	–	–
262#	Haluzice, Hájnica hill, 23 Jul 2013, PM	48°49'04" N 17°52'05" E	290 –340	meadow/pasture	high	dolomites	**4**	**2**	–
263#	Nové Mesto nad Váhom, Nature Reserve Turecko and meadows in their surroundings, 23 Jul 2013, PM	48°46'49" N 17°51'21" E	240 –270	thermophile fringe	medium	limestones	**2**	–	**1**
264#	Kuzmice-Dancov Potok, road margin near the southern edge of the village, 30 Jul 2013, PM	48°33'36" N 21°33'35" E	200	meadow/pasture	medium	loam sediments	**6**	–	–
265#	Somotor, Somotorská hora hill, surroundings of the cote of 150.6, 30 Jul 2013, PM	48°24'32" N 21°48'20" E	140 –150	meadow/pasture	high	andesites	–	**1**	**7**
266#	Brehov, Veľký vrch hill, north-western slopes, 31 Jul 2013, PM	48°29'37" N 21°48'33" E	210 –240	steppic grassland	high	andesites	–	–	**3**
267#	Sirník, cote of 238.5, 31 Jul 2013, PM	48°31'15" N 21°47'30" E	200 –230	meadow/pasture	high	andesites	**7**	–	–
268#	Kazimír, west of the village, 31 Jul 2013, PM	48°31'34" N 21°34'23" E	190	meadow/pasture	high	loam sediments	**3**	–	–
269#	Malá Bara, Stredný vrch hill, north-western slopes, 31 Jul 2013, PM	48°25'03" N 21°43'30" E	140 –150	meadow/pasture	medium	quertzites	**2**	–	–
270#	Nižná Myšľa, southern edge of the village, site Várhegy, 1 Aug 2013, PM	48°37'00" N 21°22'07" E	190	meadow/pasture	medium	loam sediments	**2**	–	–
271#	Bidovce, south-eastern edge of the village, 1 Aug 2013, PM	48°43'51" N 21°26'47" E	270	meadow/pasture	low	loam sediments	**2**	–	–
272#	Vyšná Kamenica, north-eastern edge of the village, above the stone-pit, 1 Aug 2013, PM	48°46'53" N 21°29'17" E	380	steppic grassland	high	andesites	**6**	–	–
273#	Demjata, Nature Reserve Demjatské kopce, 1 Aug 2013, PM	49°06'35" N 21°17'51" E	400	thermophile fringe	high	limestones	**6**	–	–
274#	Fintice, north of the village, near the stone-pit, 2 Aug 2013, PM	49°03'58" N 21°16'46" E	390	forest	low	andesites	**1**	–	–

Pop. no.	Locality description	Geographic coordinates	Alt	Habitat type	Habitat natu-ralness	Geological substrate	DNA ploidy level		
							4x	6x	8x
275#	Záhradné, southern and south-western slopes north-west of the village, 2 Aug 2013, PM	49°05'16" N 21°15'28" E	330 –350	meadow/pasture	high	sandy sediments	**21**	–	–
276#	Šarišské Sokolovce, east of the village, surroundings of the stope-pit, 2 Aug 2013, PM	49°06'13" N 21°10'42" E	480	meadow/pasture	high	flysch	**9**	–	–
277#	Krížová Ves, north-western slopes of the Najhy hill, 7 Aug 2013, PM	49°10'54" N 20°29'13" E	640 –680	meadow/pasture	medium	flysch	**7**	–	–
278#	Podolínec,Osí vrch hill, eastern slopes, 7 Aug 2013, PM	49°15'05" N 20°31'04" E	580 –620	meadow/pasture	medium	flysch	**12**	–	–
279#	Nižné Ružbachy, south of the village, slopes above the railway tunnel, 7 Aug 2013, PM	49°16'24" N 20°34'25" E	560 –620	steppic grassland	high	flysch	**8**	–	–
280#	Vyšné Ružbachy, Nature Monument Kráter, 7 Aug 2013, PM	49°18'19" N 20°33'38" E	640	meadow/pasture	medium	travertines	**1**	–	–
281#	Haligovce, north-western edge of the village, 8 Aug 2013, PM	49°22'43" N 20°26'28" E	510 –540	meadow/pasture	high	calcareous flysch	**8**	–	–
282#	Veľký Lipník, Lesnícke sedlo saddle, pastures on the southern slopes, 8 Aug 2013, PM	49°22'57" N 20°29'37" E	700	meadow/pasture	medium	calcareous flysch	**3**	–	–
283#	Údol, Nature Monument Skalky pri Údole and pastures in their surroundings, 8 Aug 2013, PM	49°17'20" N 20°48'12" E	530	thermophile fringe	high	limestones	**2**	–	–
284#	Kyjov, south-west of the village, northern slope of the prominent rock, 8 Aug 2013, PM	49°12'35" N 20°55'57" E	680 –690	steppic grassland	high	limestones	**4**	**1**	–
285#	Kamenica, Kamenica castle hill, 8 Aug 2013, PM	49°11'43" N 20°58'08" E	600 –700	steppic grassland	high	limestones	**10**	–	–
286#	Vranov nad Topľou, hill north of the town, 9 Aug 2013, PM	48°53'42" N 21°41'12" E	200 –230	thermophile fringe	medium	loesses	**3**	–	–
287#	Trhovište, north of the village, 9 Aug 2013, PM	48°42'50" N 21°48'31" E	170	meadow/pasture	medium	loesses	**3**	–	–
288#	Brekov, Klokočiny hill, north-eastern slope, 9 Aug 2013, PM	48°54'00" N 21°50'03" E	230	thermophile fringe	high	dolomites	**5**	–	–
289#	Jasenovce-Poloma, north of the village, road margin, 9 Aug 2013, PM	49°00'23" N 21°44'49" E	160	meadow/pasture	medium	flysch	**2**	**1**	–
290#	Hrabovec, eastern edge of the village, road margin, 9 Aug 2013, PM	49°16'14" N 21°23'16" E	230	meadow/pasture	medium	loam sediments	**3**	–	–
291#	Miklušovce, Zajačia hora hill, south-eastern slope, 10 Aug 2013, PM	48°55'20" N 21°05'01" E	610	thermophile fringe	high	flysch	**2**	–	–
292#	Družstevná pri Hornáde-Malá Vieska, north of the village, under the church, 10 Aug 2013, PM	48°48'50" N 21°14'07" E	240	meadow/pasture	high	dolomites	**9**	–	–
293#	Nemčiňany, south-east of the church, 13 Aug 2013, PM	48°18'00" N 18°27'41" E	240	meadow/pasture	medium	sandy sediments	**2**	–	–

Pop. no.	Locality description	Geographic coordinates	Alt	Habitat type	Habitat natu-ralness	Geological substrate	DNA ploidy level		
							4x	6x	8x
294#	Červený Hrádok, east of the villge, near the water reservoir, 13 Aug 2013, PM	48°17'49" N 18°24'18" E	225	meadow/pasture	medium	sandy sediments	**3**	–	–
295#	Čifáre, south of the village, 13 Aug 2013, PM	48°13'45" N 18°23'21" E	170	thermophile fringe	high	sandy sediments	**4**	**1**	–
296#	Hronský Beňadik, Horný Koniec street, road margin, 13 Aug 2013, PM	48°20'44" N 18°33'02" E	210	meadow/pasture	medium	andesites	**3**	–	–
297#	Počúvadlo, north-east of the village, 14 Aug 2013, PM	48°22'11" N 18°50'22" E	590	meadow/pasture	high	andesites	**3**	–	–
298#	Jabloňovce, north-north-west of the village, 14 Aug 2013, PM	48°19'43" N 18°47'08" E	350	meadow/pasture	high	andesites	**3**	–	–
299#	Lišov, north of the village, road margin, 14 Aug 2013, PM	48°15'18" N 18°51'36" E	300	meadow/pasture	high	andesites	**1**	–	–
300#	Krupina, Vartovka hill, in the former stone-pit, 14 Aug 2013, PM	48°20'43" N 19°04'39" E	320	meadow/pasture	medium	andesites	**1**	–	–
301#	Krupina, north-east of the town, cote of 454.4, 14 Aug 2013, PM	48°21'59" N 19°05'48" E	440	meadow/pasture	low	andesites	**3**	–	–
302#	Senohrad, north of the village, 14 Aug 2013, PM	48°22'00" N 19°11'35" E	650	meadow/pasture	medium	loam sediments	**3**	–	–
303#	Podzámčok, slope above the road, near the railway station, 14 Aug 2013, PM	48°29'55" N 19°05'51" E	350	meadow/pasture	medium	loam sediments	**3**	–	–
304#	Breziny, slope above the road between settlements of Horné Breziny and Šnajderovci, 14 Aug 2013, PM	48°30'53" N 19°05'16" E	350	thermophile fringe	high	andesites	**3**	–	–
305#	Plášťovce, north-east edge of the village, 15 Aug 2013, PM	48°09'47" N 18°59'36" E	210	meadow/pasture	high	andesites	**3**	–	–
306#	Slovenské Ďarmoty, Biely vrch hill, north-east-east of the top of the hill, 15 Aug 2013, PM	48°05'46" N 19°17'53" E	210	meadow/pasture	low	loesses	**1**	–	–
307#	Záhorce-Selešťany, Nature Reserve Seleštianska stráň, 15 Aug 2013, PM	48°05'40" N 19°21'55" E	150 –190	steppic grassland	high	loesses	–	–	**10**
308#	Opatovská Nová Ves, north of the village, 15 Aug 2013, PM	48°07'30" N 19°16'52" E	170	meadow/pasture	medium	loesses	**2**	–	–
309#	Malá Lehota, northern edge of the village, road margin, 16 Aug 2013, PM	48°30'04" N 18°34'26" E	595	meadow/pasture	high	shales	**3**	–	–
310#	Malá Lehota, Tomov štál settlement, 16 Aug 2013, PM	48°31'06" N 18°33'31" E	660 –680	meadow/pasture	high	granites and gneisses	**16**	–	–
311#	Rudno nad Hronom, south-western edge of the village, sourroundings of the chapel, 20 Aug 2013, PM	48°25'42" N 18°40'52" E	255	meadow/pasture	medium	sandy sediments	**2**	–	–
312#	Trnavá Hora, Plešiny hill, 20 Aug 2013, PM	48°35'36" N 18°56'10" E	370 –410	meadow/pasture	low	andesites	**5**	–	–

Pop. no.	Locality description	Geographic coordinates	Alt	Habitat type	Habitat natu-ralness	Geological substrate	DNA ploidy level		
							4x	6x	8x
313#	Banská Bystrica-Rakytovce, stone-pit margin, 20 Aug 2013, PM	48°40'58" N 19°07'17" E	360 –380	thermophile fringe	high	dolomites	**7**	–	–
314#	Banská Bystrica, Nature Reserve Malachovské skalky, 20 Aug 2013, PM	48°42'51" N 19°06'51" E	400 –450	thermophile fringe	high	dolomites	**6**	–	–
315#	Dolná Mičiná, National Nature Monument Mičinské travertíny, 20 Aug 2013, PM	48°40'03" N 19°13'50" E	380	meadow/pasture	high	travertines	**8**	–	–
316#	Dolná Mičiná, slopes south-west of the villages, 20 Aug 2013, PM	48°40'04" N 19°13'44" E	390 –420	meadow/pasture	high	andesites	**9**	–	–
317#	Jelšava, Skalka hill, southern foot of the hill, 21 Aug 2013, PM	48°36'47" N 20°14'08" E	300	thermophile fringe	medium	dolomites	–	–	**2**
318#	Prihradzany, 1.7 km north-west-west of the church, 21 Aug 2013, PM	48°35'11" N 20°13'04" E	330 –350	steppic grassland	high	dolomites	–	–	**11**
319#	Prihradzany, 1.5 km north-west-west of the church, 21 Aug 2013, PM	48°35'08" N 20°13'11" E	330	meadow/pasture	high	dolomites	**2**	–	–
320#	Slizké, pastures in the surroundings of the cememetry, 21 Aug 2013, PM	48°31'11" N 20°05'41" E	390 –430	meadow/pasture	medium	andesites	**11**	–	–
321#	Muránska Dlhá Lúka, southern slopes of the cote of 488.1, 22 Aug 2013, PM	48°43'09" N 20°04'34" E	360 –420	meadow/pasture	medium	granites and gneisses	**10**	–	–
322#	Rochovce, south-western slopes of the Dúbrava hill, 22 Aug 2013, PM	48°42'18" N 20°18'17" E	380 –500	meadow/pasture	medium	shales	**7**	–	–
323#	Koceľovce, 0.9 km north-west of the church, 22 Aug 2013, PM	48°42'45" N 20°19'53" E	350 –420	meadow/pasture	high	limestones	**20**	–	–
324#	Dobšiná, small hill situated 1 km east of the Martoň hill, 22 Aug 2013, PM	48°49'43" N 20°21'32" E	540 –600	meadow/pasture	medium	shales	**3**	–	–
325#	Medzev, cote of 405.0, near the Jarná ulica street, 22 Aug 2013, PM	48°42'14" N 20°53'49" E	350	meadow/pasture	medium	granites and gneisses	**3**	–	–
326#	Moldava nad Bodvou, Výhľad hill, 22 Aug 2013, PM	48°36'53" N 20°58'58" E	270 –280	steppic grassland	medium	limestones	–	**1**	**15**
327#	Kyjatice-Kadlub, 0.5 km south of the settlement, 23 Aug 2013, PM	48°32'29" N 19°59'56" E	540	meadow/pasture	medium	shales	**3**	–	–
328#	Ožďany-Tehlovňa, small hill south of the settlement, 23 Aug 2013, PM	48°22'58" N 19°54'11" E	255	thermophile fringe	high	loesses	**3**	–	–
329#	Slovenské Kľačany, west of the village, pastures near the road no. 75, 24 Aug 2013, PM	48°15'55" N 19°26'28" E	210	meadow/pasture	medium	andesites	**3**	–	–
330#	Malé Zlievce, road margin near the cote of 166.5, 24 Aug 2013, PM	48°10'36" N 19°27'58" E	170	meadow/pasture	medium	loam sediments	**2**	–	–
331#	Plachtinské lazy, pasture near the road, 24 Aug 2013, PM	48°15'15" N 19°14'15" E	540	meadow/pasture	medium	andesites	**3**	–	–

Pop. no.	Locality description	Geographic coordinates	Alt	Habitat type	Habitat natu-ralness	Geological substrate	DNA ploidy level		
							4x	6x	8x
332#	Hrušov-Krížne cesty, northern slope of the Matiášov vrch hill, 24 Aug 2013, PM	48°10'34" N 19°05'13" E	430 –450	meadow/pasture	medium	andesites	**5**	–	–
333#	Hrušov-Prašný vrch, Prašný vrch hill and a small hill south-west of the settlement, 24 Aug 2013, PM	48°10'04" N 19°05'34" E	480 –510	meadow/pasture	high	andesites	**5**	–	–
334#	Trstín, ca 1 km north-west of the village, pasture near the field margin, 27 Aug 2013, PM	48°32'16" N 17°26'43" E	240	meadow/pasture	medium	dolomites	**3**	–	–
337#	Turňa nad Bodvou, National Nature Reserve Turňa castle hill, 10 Sep 2014, PM	48°36'41" N 20°52'24" E	320 –350	steppic grassland	high	limestones	–	–	**3**
338#	Lipovce, west of the village, 11 Sep 2014, PM	49°03'14" N 20°56'34" E	550	meadow/pasture	high	loam sediments	**3**	–	–

Electronic Appendix 3. - List of environmental variables measured at sites of *Jacobaea vulgaris* tetra- and octoploids. Abbreviations used: delta of solar incidence angle – the delta of maximum to each value of solar incidence angle for a point on an inclined plane at all time steps; maximum solar incidence angle – the maximum solar incidence angle for a point on an inclined plane; maximum of solar incidence angle – maximum of solar incidence angle for a point on an inclined plane; min – minimum, max – maximum, mean – arithmetic mean, sd – standard deviation.

Environmental variable [variable explanation]		J. vulgaris subsp. vulgaris (2n = 40 = 4x) (N = 144)				J. vulgaris subsp. pannonica (2n = 80 = 8x) (N = 37)			
		min	max	mean	sd	min	max	mean	sd
1.	HABITAT TYPE [for explanation see Materials and Methods]	-	-	-	-	-	-	-	-
2.	Habitat naturalness (0 -low, 0.5 - medium, 1 - high)	0	1	0,71	0,3	0,5	1	0,89	0,21
3.	GEOLOGICAL SUBSTRATE [for explanation see Materials and Methods]	-	-	-	-	-	-	-	-
4.	Altitude [m a. s. l.]	140	840	357,7	168,13	110	650	241,6	99,67
5.	Exposure (0-4)	0	3,911	1,623	1,13	0,022	3,933	1,509	1,08
6.	Inclination [°]	0	31	10,29	6,5	0	24	10,71	6,45
7.	Precipitation: January [monthly sum, at 2 m, mm]	22,9	71,6	39,61	9,04	22,9	47,9	36,63	5,66
8.	Precipitation: February [monthly sum, at 2 m, mm]	24,8	64,7	37,78	7,96	24,8	46,7	35,85	5,50
9.	Precipitation: March [monthly sum, at 2 m, mm]	28	62,5	37,66	6,16	27,5	40,7	34,43	3,93
10.	Precipitation: April [monthly sum, at 2 m, mm]	40,4	73,9	50,38	6,12	39,8	60,1	45,73	4,90
11.	Precipitation: May [monthly sum, at 2 m, mm]	58,6	111,3	75,07	10,38	54,9	88,6	66,93	8,60
12.	Precipitation: June [monthly sum, at 2 m, mm]	67,8	129	88,14	11,45	64,3	99,4	78,35	8,53
13.	Precipitation: July [monthly sum, at 2 m, mm]	52,9	115,3	74,54	13,6	51,6	82,8	64,97	8,15
14.	Precipitation: August [monthly sum, at 2 m, mm]	52,4	110,1	72,76	11,65	54,4	81,2	65,32	6,84
15.	Precipitation: September [monthly sum, at 2 m, mm]	41,3	84	52,97	7,63	41	55,3	46,53	3,80
16.	Precipitation: October [monthly sum, at 2 m, mm]	37	78,9	46,61	7,14	33,3	52,2	41,34	4,71
17.	Precipitation: November [monthly sum, at 2 m, mm]	42	95,7	58,34	10,63	42,4	65,9	54,8	6,24
18.	Precipitation: December [monthly sum, at 2 m, mm]	29,4	94,4	50,82	12,61	29,4	62,7	46,42	8,40
19.	Precipitation: yearly sum [at 2 m, mm]	556,8	1076,6	684,65	90,3	537,6	731,1	617,27	55,08
20.	Air temperature: January [monthly average, at 2 m, °C]	-5,6	-1,8	-3,7	0,99	-5,5	-1,8	-3,08	0,88
21.	Air temperature: February [monthly average, at 2 m, °C]	-3,3	0,4	-1,35	1,1	-3,2	0,6	-0,57	0,90
22.	Air temperature: March [monthly average, at 2 m, °C]	0,2	4,6	2,75	1,18	0,8	4,9	3,55	0,88
23.	Air temperature: April [monthly average, at 2 m, °C]	5,2	9,9	8,17	1,19	6,1	10,2	8,93	0,82
24.	Air temperature: May [monthly average, at 2 m, °C]	10,2	14,8	13,08	1,16	11,1	15,2	13,87	0,85
25.	Air temperature: June [monthly average, at 2 m, °C]	13,2	17,7	16,04	1,15	14,1	18,2	16,83	0,83
26.	Air temperature: July [monthly average, at 2 m, °C]	14,7	19,3	17,56	1,2	15,6	19,7	18,4	0,85
27.	Air temperature: August [monthly average, at 2 m, °C]	14,2	18,7	16,9	1,22	14,9	19,2	17,76	0,89
28.	Air temperature: September [monthly average, at 2 m, °C]	10,8	14,9	13,23	1,06	11,5	15,4	13,99	0,78
29.	Air temperature: October [monthly average, at 2 m, °C]	6,3	9,7	8,24	0,92	6,7	10	8,86	0,75
30.	Air temperature: November [monthly average, at 2 m, °C]	1	4,2	2,8	0,84	1,4	4,4	3,35	0,67
31.	Air temperature: December [monthly average, at 2 m, °C]	-3,5	-0,1	-1,68	0,91	-3,3	0	-1,08	0,81
32.	Air temperature: yearly average [at 2 m, °C]	5,4	9,3	7,67	1,06	5,9	9,6	8,4	0,79
33.	Insolation time of beam solar radiation: January [monthly sum,hrs]	0,2	266	220,16	45,43	144,2	268,85	232,44	29,87
34.	Insolation time of beam solar radiation: February [monthly sum, hrs]	86,55	277,7	243,84	29,86	190,4	281,75	251,08	19,10
35.	Insolation time of beam solar radiation: March [monthly sum, hrs]	184,75	361,9	327,75	26,95	293,3	364,1	332,87	18,29
36.	Insolation time of beam solar radiation: April [monthly sum, hrs]	239,2	405,8	372,18	25,52	326,1	405,15	376,35	19,06
37.	Insolation time of beam solar radiation: May [monthly sum, hrs]	309,5	468	429,92	29,03	369,4	466,2	434,81	23,44
38.	Insolation time of beam solar radiation: June [monthly sum, hrs]	318,55	477,3	438,43	30,66	372,5	476,7	443,06	26,19
39.	Insolation time of beam solar radiation: July [monthly sum, hrs]	321,75	481,3	442,14	30,26	377,75	480	447,16	24,93
40.	Insolation time of beam solar radiation: August [monthly sum, hrs]	272,9	438,7	403,34	27,07	350,65	437,75	407,69	20,94

41.	Insolation time of beam solar radiation: September [monthly sum, hrs]	200,95	371,75	339,27	25,26	301,3	372,75	343,81	17,74
42.	Insolation time of beam solar radiation: October [monthly sum, hrs]	149,35	328,1	291,76	29,77	240,1	331,4	298,15	19,46
43.	Insolation time of beam solar radiation: November [monthly sum, hrs]	7,5	269,4	228,66	39,27	166,95	272,95	239,07	25,20
44.	Insolation time of beam solar radiation: December [monthly sum, hrs]	0	252,9	202,21	53,26	98,55	255,05	216,24	36,11
45.	Insolation time of beam solar radiation: yearly sum [hrs]	2213,95	4383,05	3939,65	347,39	3405,5	4399,55	4022,77	236,32
46.	Beam solar radiation: January [monthly sum, W.m^{-1}]	0,81	65718,91	30253	12857	4322,84	65247,9	33186	13995,61
47.	Beam solar radiation: February [monthly sum, W.m-1]	13522,26	82204,75	48738	13542,91	19121,16	83084,61	51241	14652,64
48.	Beam solar radiation: March [monthly sum, W.m-1]	49989,5	132136,5	96247	16342,4	58940,59	132893,2	99325	17280,21
49.	Beam solar radiation: April [monthly sum, W.m-1]	90710,61	158794,1	135405	13790,24	106034,9	159611,9	138398	13537,79
50.	Beam solar radiation: May [monthly sum, W.m-1]	122922,3	179436,7	161412	11404,81	144255,9	185782	167443	9935,25
51.	Beam solar radiation: June [monthly sum, W.m-1]	127611,1	177364,3	160128	11156,63	146654,3	180911,5	167135	8081,99
52.	Beam solar radiation: July [monthly sum, W.m-1]	121430,8	175564,8	158872	10030,73	142857,9	177332	163519	8515,15
53.	Beam solar radiation: August [monthly sum, W.m-1]	91398,61	155875,8	131722	11865,09	108393,5	156135,4	135936	11129,00
54.	Beam solar radiation: September [monthly sum, W.m-1]	56639,78	123255,4	94826	13694,83	67505,22	123992,2	99699	13829,24
55.	Beam solar radiation: October [monthly sum, W.m-1]	24222,51	96546,02	62560	14428,43	31873,23	98381,22	67188	15503,77
56.	Beam solar radiation: November [monthly sum, W.m-1]	965,96	70915,48	35439	13297,3	7951,84	70715,79	38492	14346,60
57.	Beam solar radiation: December [monthly sum, W.m-1]	0	56539,05	24768	12302,3	1264,86	56911,87	27411	13306,91
58.	Beam solar radiation: yearly sum [W.m-1]	728797,25	1470851	1140368	145632,1	842969,93	1478241	1188980	148227,60
59.	Diffuse solar radiation: January [monthly sum, W.m-1]	13722,06	24385,37	18151	2175,64	14053,65	24159,6	18492	2535,90
60.	Diffuse solar radiation: February [monthly sum, W.m-1]	18204,25	30524,76	24402	2425,57	18908,14	30141,24	24718	2686,65
61.	Diffuse solar radiation: March [monthly sum, W.m-1]	29306,41	42828,46	37037	2902,06	30524,41	42719,89	36844	2997,97
62.	Diffuse solar radiation: April [monthly sum, W.m-1]	39851,12	51672,34	46652	2623,73	40009,08	50861,85	45815	2648,89
63.	Diffuse solar radiation: May [monthly sum, W.m-1]	54490,25	70269,75	62460	3977,88	54730,36	68524,59	59371	3096,31
64.	Diffuse solar radiation: June [monthly sum, W.m-1]	60525,55	81946,25	69418	5464,82	61535,18	78008,36	65294	3587,36
65.	Diffuse solar radiation: July [monthly sum, W.m-1]	60663,98	77432,57	69092	3649,1	62644,77	74599,59	66472	2757,07
66.	Diffuse solar radiation: August [monthly sum, W.m-1]	53774,49	68919,85	61856	3380,69	55318,41	67117,42	59949	2933,22
67.	Diffuse solar radiation: September [monthly sum, W.m-1]	37803,81	52680,52	46655	3280,52	38058,42	50892,54	45050	3483,97
68.	Diffuse solar radiation: October [monthly sum, W.m-1]	25151,52	39848,09	33080	3153,36	25067,74	38873,82	32242	3468,90
69.	Diffuse solar radiation: November [monthly sum, W.m-1]	15096,99	25961,18	19796	2303,7	15211,78	25713,72	20029	2615,43
70.	Diffuse solar radiation: December [monthly sum, W.m-1]	11040,79	21630,63	15238	1981,39	12268,08	21403,65	15718	2362,89
71.	Diffuse solar radiation: yearly sum [W.m-1]	432846,75	569418,9	503838	31509,87	431339,81	549068,7	489999	31119,47
72.	Reflected solar radiation: January [monthly sum, W.m-1]	0	434,82	69,61	73,12	0	434,82	74,48	83,80
73.	Reflected solar radiation: February [monthly sum, W.m-1]	0	738,63	113,55	120,96	0	738,63	116,63	137,11
74.	Reflected solar radiation: March [monthly sum, W.m-1]	0	1234,51	205,78	217,5	0	708,5	220,83	196,60
75.	Reflected solar radiation: April [monthly sum, W.m-1]	0	2176,07	330,43	357,88	0	1052,05	348,98	305,31
76.	Reflected solar radiation: May [monthly sum, W.m-1]	0	3051,87	474	519,6	0	1480,98	483,32	429,34
77.	Reflected solar radiation: June [monthly sum, W.m-1]	0	3323,96	474,1	526,49	0	1644,05	495,29	439,56
78.	Reflected solar radiation: July [monthly sum, W.m-1]	0	2715,9	448,97	486,89	0	1506,25	473,02	420,33
79.	Reflected solar radiation: August [monthly sum, W.m-1]	0	2172,67	359,77	392,32	0	1153,57	370,98	321,10
80.	Reflected solar radiation: September [monthly sum, W.m-1]	0	1462,62	246,11	263,17	0	853,17	256,12	229,41
81.	Reflected solar radiation: October [monthly sum, W.m-1]	0	880,1	152,2	159,87	0	545,35	162,42	141,86
82.	Reflected solar radiation: November [monthly sum, W.m-1]	0	431,43	67,19	75,22	0	431,43	85,46	89,62
83.	Reflected solar radiation: December [monthly sum, W.m-1]	0	346,13	24,9	44,85	0	346,13	27,97	59,25
84.	Reflected solar radiation: yearly sum [W.m-1]	0	18246,73	2966	3171,25	0	10377,25	3115,54	2797,77
85.	Solar incidence angle for a point on an inclined plane: January [monthly average, °]	5,59	18,7	12,84	1,6	10,95	16,82	13,07	1,19
86.	Solar incidence angle for a point on an inclined plane: February [monthly average, °]	7,95	22,63	16,94	2,88	9,77	21,08	17,22	2,78
87.	Solar incidence angle for a point on an inclined plane: March [monthly average, °]	8,06	29,22	22,38	4,87	10,47	27,66	22,84	4,67

88.	Solar incidence angle for a point on an inclined plane: April [monthly average, °]	8,63	34,76	27,48	6,85	10,48	33,46	27,98	6,80
89.	Solar incidence angle for a point on an inclined plane: May [monthly average, °]	8,79	38,22	30,82	8,09	11,04	36,56	31,28	7,83
90.	Solar incidence angle for a point on an inclined plane: June [monthly average, °]	8,08	39,22	31,84	8,98	9,89	38,81	32,83	9,12
91.	Solar incidence angle for a point on an inclined plane: July [monthly average, °]	9,47	38,89	31,72	8,26	11,53	37,41	32,46	8,14
92.	Solar incidence angle for a point on an inclined plane: August [monthly average, °]	7,43	36,65	28,64	7,88	9,24	35,14	29,07	7,81
93.	Solar incidence angle for a point on an inclined plane: September [monthly average, °]	10	30,91	24,65	5,13	11,87	29,57	25,02	4,93
94.	Solar incidence angle for a point on an inclined plane: October [monthly average, °]	6,67	25,21	18,71	4,12	8,42	23,75	18,99	4,06
95.	Solar incidence angle for a point on an inclined plane: November [monthly average, °]	6,95	20,03	14,39	1,64	12,1	18,26	14,78	1,32
96.	Solar incidence angle for a point on an inclined plane: December [monthly average, °]	4,17	17,11	11,17	1,79	7,51	14,86	11,1	1,51
97.	Solar incidence angle for a point on an inclined plane: yearly average [°]	8,51	29,19	22,63	4,97	10,27	27,77	23,06	4,86
98.	Delta of solar incidence angle: January [monthly average from daily maximum, °]	2,85	9,95	7,01	1,02	5,04	8,9	7,24	0,97
99.	Delta of solar incidence angle: February [monthly average from daily maximum, °]	5,33	44,51	16,55	12	6,22	42,95	13,71	10,05
100.	Delta of solar incidence angle: March [monthly average from daily maximum, °]	4,5	18,34	13,62	3,2	5,6	17,17	13,87	3,22
101.	Delta of solar incidence angle: April [monthly average from daily maximum, °]	4,13	24,22	18,24	5,26	5,59	22,95	18,56	5,08
102.	Delta of solar incidence angle: May [monthly average from daily maximum, °]	4,09	30,36	22,48	7,18	5,13	28,85	22,93	7,17
103.	Delta of solar incidence angle: June [monthly average from daily maximum, °]	4,54	32,9	24,96	7,82	6,27	30,57	24,94	7,44
104.	Delta of solar incidence angle: July [monthly average from daily maximum, °]	3,82	32	23,49	7,78	4,74	30,05	23,69	7,63
105.	Delta of solar incidence angle: August [monthly average from daily maximum, °]	5,02	26,18	20,32	5,52	7,03	24,95	20,78	5,36
106.	Delta of solar incidence angle: September [monthly average from daily maximum, °]	3,66	21,26	15,25	4,43	4,5	19,79	15,67	4,43
107.	Delta of solar incidence angle: October [monthly average from daily maximum, °]	5,67	15,18	11,38	1,55	7,95	14,04	11,69	1,36
108.	Delta of solar incidence angles: November [monthly average from daily maximum, °]	3,61	10,83	7,5	1,35	4,39	9,86	7,59	1,22
109.	Delta of solar incidence angle: December [monthly average from daily maximum, °]	1,72	12,41	6,75	1,71	4,72	10,66	7,27	1,56
110.	Delta of solar incidence angle: yearly average [°]	5,69	20,7	15,63	3,29	5,95	21,53	15,66	3,47
111.	Maximum of solar incidence angle: January [monthly average from daily maximum, °]	8,2	28,44	19,8	2,52	15,99	25,71	20,28	2,02
112.	Maximum of solar incidence angle: February [monthly average from daily maximum, °]	13,31	36,37	26,51	4,39	15,99	33,64	27,08	4,13
113.	Maximum of solar incidence angle: March [monthly average from daily maximum, °]	13,39	47,38	35,84	8	16,07	44,64	36,53	7,81
114.	Maximum of solar incidence angle: April [monthly average from daily maximum, °]	13,4	58,94	45,62	12,06	16,07	56,2	46,45	11,84
115.	Maximum of solar incidence angle: May [monthly average from daily maximum, °]	13,49	67,95	53,27	15,24	16,17	65,21	54,19	14,98
116.	Maximum of solar incidence angle: June [monthly average from daily maximum, °]	13,49	72,12	56,8	16,73	16,17	69,38	57,77	16,46
117.	Maximum of solar incidence angle: July [monthly average from daily maximum, °]	13,59	70,21	55,19	16,01	16,27	67,46	56,14	15,74
118.	Maximum of solar incidence angle: August [monthly average from daily maximum, °]	13,6	62,74	48,87	13,34	16,28	59,99	49,73	13,10
119.	Maximum of solar incidence angle: September [monthly average from daily maximum, °]	13,7	51,99	39,78	9,5	16,38	49,24	40,52	9,30
120.	Maximum of solar incidence angle: October [monthly average from daily maximum, °]	13,72	40,39	29,97	5,53	16,39	37,64	30,58	5,32
121.	Maximum of solar incidence angle: November [monthly average from daily maximum, °]	10,52	30,76	21,84	2,8	16,49	28,01	22,34	2,37
122.	Maximum of solar incidence angle: December [monthly average from daily maximum, °]	5,88	26,13	17,92	2,4	15,12	23,38	18,37	1,81
123.	Maximum of solar incidence angle: yearly average [°]	13,56	49,45	37,62	8,66	16,23	46,71	38,33	8,47

Electronic Appendix 4. – Geological substrates occurring on studied sampling sites of *Jacobaea vulgaris* in Slovakia.

Geological units used in the study (see Table 3).	Geological units according to Digital geological map of the Slovak Republic at scale 1:50,000 (Káčer 2005)
I. Igneous rocks and rocks derived from them	
granites and gneisses	gr19; gray-green medium-grained, mylonitised hercynian granodiorites (blastomylonites) [sivozelené strednozrnné, mylonitizované hercýnske granodiority (blastomylonity)]
	mg3; migmatites, orthogneisses, strongly directed hybrid granitic rocks and paragneisse horizons (hybrid complex) [migmatity, ortoruly, výrazne usmernené hybridné granitoidy a polohy pararúl (hybridný komplex)]
	mg5; fine-grained biotite gneisses and metatexite migmatites with a substantial proportion of substrate [jemnozrnné biotitické ruly a oftalmitické migmatity s podstatným podielom substrátu]
	trD1; fine- to medium-grained metarhyolite tuffites [jemno-strednozrnné metaryolitové tufity]
andesites	a1a31S2; extrusive breccias of hornblende-hypersthene andesites [extruzívne brekcie amfibolicko-hypersténických andezitov]
	b1a34S12; ignimbrites of biotite-hornblende-pyroxene andesites [ignimbrity biotiticko-amfibolicko-pyroxénických andezitov]
	b3a3B23; pumice tuffs and tuffs of hornblende-pyroxene andesites [pemzové tufy a tufy amfibolicko-pyroxénických andezitov]
	e1a23S12; block-and-ash pyroclastic flows of pyroxene andesites [blokovo-popolové pyroklastické prúdy pyroxénických andezitov]
	h3a23S12; epiclastic volcanic breccias of pyroxene andesites [epiklastické vulkanické brekcie pyroxénických andezitov]
	k1a2B23; coarse to block epiclastic volcanic breccias/conglomerates of intermediate andesites [hrubé až blokové epiklastické vulkanické brekcie až konglomeráty intermediálnych andezitov]
	k1a23B23; coarse to block epiclastic volcanic breccias/conglomerates of pyroxene andesites [hrubé až blokové epiklastické vulkanické brekcie až konglomeráty pyroxénických andezitov]
	k3a3B1; fine epiclastic volcanic breccias/conglomerates of hornblende-pyroxene andesites [drobné epiklastické vulkanické brekcie až konglomeráty amfibolicko-pyroxénických andezitov]
	Na23S1; extrusions of pyroxene andesite [extrúzie pyroxénického andezitu]
	Na28B12; extrusive domes of augite-hypersthene andesites [extruzívne dómy augiticko-hypersténických andezitov]
	Na31S2; extrusions of hornblende-hypersthene andesites [extrúzie amfibolicko-hypersténických andezitov]
	Na42S2; extrusive domes of hypersthene-hornblende andesites [extruzívne dómy hypersténicko-amfibolických andezitov]
	Na45B1; garnet-bearing extrusive domes of pyroxene-hornblende andesites [extruzívne dómy pyroxénicko-amfibolických andezitov s granátom]
	Nr71B3; extrusions of rhyodacite [extrúzie ryodacitu]
	n1a28B12; coarse epiclastic volcanic conglomerates of augite-hypersthene andesites [hrubé epiklastické vulkanické konglomeráty augiticko-hypersténických andezitov]
	Oa23S(1); lava flows of pyroxene andesite [lávové prúdy pyroxénického andezitu]
	Oa34S12; lava flows of biotite-hornblende-pyroxene andesites [lávové prúdy biotiticko-amfibolicko-pyroxénických andezitov]
	p1a23B2; coarse epiclastic volcanic sandstones of pyroxene andesites [hrubé epiklastické vulkanické pieskovce pyroxénických andezitov]
	t2a2B3; tuffaceous sandstones of intermediate andesites with horizons of minute conglomerates [tufirické pieskovce intermediálnych andezitov s polohami drobných konglomerátov]
	p2a23B23; epiclastic volcanic sandstones of pyroxene andesites

	[epiklastické vulkanické pieskovce pyroxénických andezitov]
	p7a23B2; epiclastic volcanic sandstones and siltstones of pyroxene andesites [epiklastické vulkanické pieskovce a siltovce pyroxénických andezitov]
	p7a3B23; epiclastic volcanic sandstones and siltstones of hornblende-pyroxene andesites [epiklastické vulkanické pieskovce a siltovce amfibolicko-pyroxénických andezitov]
	t6a2S12; tuffaceous sediments of intermediate andesites with gravel horizons of neovolcanic material [tufitické sedimenty intermediálnych andezitov s polohami štrkov s nevulkanickým materiálom]
	vP2h; II. eruptive phase: tholeite basalts and andesites [erupčná fáza: tholeiitové bazalty a andezity]
II. Sedimentary rocks and derived metamorphic rocks	
loam sediments (clayey to loam sediments)	d; deluvial sediments altogether: lithologicaly undifferenciated slope-sediments and rubbles [deluviálne sedimenty vcelku: litofaciálne nerozlíšené svahoviny a sutiny]
	dfh; deluvial-fluvial sediments: mainly loam, sandy loam with fragments, fine-grained sands and sediments from loess [deluviálno-fluviálne sedimenty: prevažne ronové hliny, piesčité hliny s úlomkami, jemnozrnné piesky a splachy zo spraší]
	dhk; deluvial sediments: mainly loamy-stony (rarely sandy- stony) slope-sediments and rubbles [deluviálne sedimenty: prevažne hlinito-kamenité (podradne piesčito-kamenité) svahoviny a sutiny]
	fhh; fluvial sediments: lithologicaly undifferenciated alluvial loam, or sandy to gravel loam of valley floodplains and floodplains of mountain brooks [fluviálne sedimenty: litofaciálne nečlenené nivné hliny, alebo piesčité až štrkovité hliny dolinných nív a nív horských potokov]
	iHu; claystones predominant over sandstones and conglomerates [ílovce v absolútnej prevahe nad pieskovcami a zlepencami]
	koS23; Kochanovce Formation: clays, coal clays, lignites, bentonites [kochanovské súvrstvie: íly, uhoľné íly, lignity, bentonity]
	pgh; deluvial-polygenetical sediments: loamy-clayey and sandy slope loam [deluviálno-polygenetické sedimenty: hlinito-ílovité a piesčité svahové hliny]
	phr2; proluvial sediments: loamy and sandy gravels with fragments of rocks in lower middle alluvial cones with deposits of loess and deluvial sediments [proluviálne sedimenty: hlinité a piesčité štrky s úlomkami hornín v nižších stredných náplavových kužeľoch s pokryvom spraší a deluviálnych splachov]
	phš; proluvial sediments: loam, sandy loam and loamy gravels with fragments of rocks in upper alluvial cones [proluviálne sedimenty: hliny, piesčité hliny a hlinité štrky s úlomkami vo vyšších nivných náplavových kužeľoch]
	pr2; proluvial sediments: loamy and sandy gravels with fragments of rocks in lower middle alluvial cones [proluviálne sedimenty: hlinité a piesčité štrky s úlomkami hornín až rezíduá v nižších stredných náplavových kužeľoch]
	pw; proluvial sediments: loamy and sandy gravels with fragments of rocks in lower alluvial cones [proluviálne sedimenty: hlinité a piesčité štrky s úlomkami hornín v nízkych náplavových kužeľoch]
	stS1; Stretava Formation: clays, sands, tuffs [stretavské súvrstvie: íly, piesky, tufy]
shales (clayey, sandy, calcareous to recrystallized shales, including phyllites)	BeT1; Benkov Formation: sandstones, clayey and clayey-sandy shales [benkovské súvrstvie: pieskovce, ílovité a ílovito-piesčité bridlice]
	bpCsg; alternation of metasandstones and shales [striedanie metapieskovcov a bridlíc]
	cfC1sg; chloritic phyllites [chloritické fylity]
	fbD23; phyllites with intercalations of metabasaltic tuffs and tuffits [fylity s vložkami metabazaltových tufov a tufitov]
	sCh; gray/black cyclically arranged sandstones, shales, sporadically conglomerates, locally with thin intermediate volcanic rocks and their volcanoclastics [sivé až čierne cyklicky usporiadané pieskovce, bridlice, sporadicky zlepence, at places with

	tenkými telesami intermediárnych vulkanitov a ich vulkanoklastík]
	zpP1sg; violet and greenish-gray sandstones, shales with interlayers of polymictic conglomerates [fialové a zelenosivé pieskovce, bridlice s medzivrstvami polymiktných zlepencov]
loesses	drE; Fiľakovo Formation - Ďarmoty Member: friable siltstones, claystones, conglomerates [fiľakovské súvrstvie - ďarmotské vrstvy: rozpadavé prachovce, ílovce, zlepence]
	hoS1; Holíč Formation: calcareous claystones, siltstones, interlayers of sandstones and acid tuffs [holíčske súvrstvie: vápnité ílovce, prachovce, medzivrstvy pieskovcov a kyslých tufov]
	OvBp; Opatová Member: calcareous silts to clays with thin coal seams [opatovské vrstvy: vápnité aleurity až íly s tenkými slojkami uhlia]
	sePt; Senné Formation: variegated clays, silts, sands, gravels, lignites, freshwater limestones [senianske súvrstvie: pestré íly, prachy, piesky, štrky, lignity, sladkovodné vápence]
	ssBp; Szeczén sandy marlstones: calcareous silts - siltstones, rarely with sandy and clay horizons [szeczénský šlír: vápnité silty - siltovce, ojedinele s polohami piesku a ílu]
	vrB2; Vranov Formation: siltstones, claystones, sandstones [vranovské súvrstvie: prachovce, ílovce, pieskovce]
sandy sediments (sandy to gravelly sediments, including sandstones and conglomerates)	chE; Lužice Formation - Chropov Conglomerate: conglomerates [lužické súvrstvie - chropovský zlepenec: zlepence]
	čeE; Čelovce Formation: sandstones, claystones, conglomerates, volcanoclastics, thin coal seams [čelovské súvrstvie: pieskovce, ílovce, zlepence, vulkanoklastiká, slojky uhlia]
	fep; fluvial-eolian sediments: fluvial sands with short eolian transport [fluviálno-eolické sedimenty: fluviálne piesky s krátkym eolickým transportom]
	fp; fluvial sediments: fine- and medium-grained sands/sandy gravels in dikes [fluviálne sedimenty: jemnozrnné a strednozrnné piesky až piesčité štrky v agradačných valoch]
	hh2; fluvial sediments: alluvial flood fine-sandy loam, fine- to medium-grained sands [fluviálne sedimenty: nivné povodňové jemnopiesčité hliny, jemno až strednozrnné piesky]
	npPl; Volkovce Formation: sands, gravels, clays, coal clays [volkovské súvrstvie: piesky, štrky, íly, uhoľné íly]
	plOK; Planina Formation: silts, claystones, conglomerates, breccias, sandstones [planinské súvrstvie: prachy, ílovce, zlepence, brekcie, pieskovce]
	sa2B3; Studienka Formation - Sandberg Member: sands, sandstones with intercalations of gravels [studienske súvrstvie - sandberské vrstvy: piesky, pieskovce s vložkami štrkov]
	šhw; fluvial sediments: gravels, sandy gravels and sands in lower terraces with cover of loesses and deluvial sediments [fluviálne sedimenty: štrky, piesčité štrky a piesky v nízkych terasách s pokryvom spraší a deluviálnych splachov]
	šm; fluvial sediments: gravels, sandy gravels and residual gravels of undifferentiated accumulations of younger terraces [fluviálne sedimenty: štrky, piesčité štrky a reziduálne štrky nerozlíšených akumulácií mladších terás]
	šm2; fluvial sediments: gravels, sandy gravels and residual gravels of 2nd upper terrace [fluviálne sedimenty: štrky, piesčité štrky a reziduálne štrky 2. vrchnej terasy]
	taE; Fiľakovo Formation - Tachty Sandstone: sandstones, siltstones [fiľakovské súvrstvie - tachtiansky pieskovec: pieskovce, prachovce]
	voPl; Volkovce Formation - Nemčiňany Gravel sand: gravels, sands, gravel sands [volkovské súvrstvie - nemčiniansky štrkopiesok: štrky, piesky, štrkopiesky]
	wiE; Lužice Formation - Winterberg Conglomerate: conglomerates, sandstones [lužické súvrstvie - winterberský zlepenec: zlepence, pieskovce]
flysch	fBj; Javorina Member and Svodnica Formation: claystones and graywacke sandstones - uncategorized (flysch) [javorinské vrstvy a svodnické súvrstvie: ílovce a drobové pieskovce - nerozčlenené (flyš)]
	ifZu; flysch with mainly claystones and claystone horizons in flysch [flyš s prevahou ílovcov a ílovcové polohy vo flyši]
	kfBi; conglomerate flysch: thick benches of polymictic conglomerates, thin horizons of siltstones/claystones

	[konglomerátový flyš: hrubé lavice polymiktných zlepencov, tenké polohy siltovcov až ílovcov]
	KvZu; Kežmarok Member: thick benches of sandstones, thin claystone horizons [kežmarské vrstvy: hrubé lavice pieskovcov, tenké polohy ílovcov]
	St; "Older Malcov Formation": sandstones with small cavings of claystones, microconglomerates (coarse sandy flysch) ["staršie malcovské súvrstvie": pieskovce so závalkami ílovcov, drobnozrnné zlepence (hrubopsamitický flyš)]
	zHu; horizons of polymictic conglomerates [polohy polymiktných zlepencov]
	Zu; normal flysch: claystones, siltstones and sandstones [normálny flyš: ílovce, siltovce a pieskovce]
calcareous flysch	Pr; carbonate sandstones, conglomerates, claystones, marlstones (carbonate flysch) [karbonátové pieskovce, zlepence, ílovce, slieňovce (karbonátový flyš)]
	PoK12; Poruba Formation: marlstones, clayey-sandy shales, sandstones, sandy limestones, orthoconglomerates [porubské súvrstvie: slieňovce, ílovito-piesčité bridlice, pieskovce, piesčité vápence, ortokonglomeráty]
	PuK2; Púchov Formation: variegated marls and marlstones with calcareous sandstone horizons or sandy limestones [púchovské súvrstvie: pestré sliene a slieňovce s polohami vápnitých pieskovcov, resp. piesčitých vápencov]
quartzites	LuT1; Lužňany Formation: pale-gray, pink and red quartzites, quartz sandstones, arkosic sandstones, conglomerates [lúžňanské súvrstvie: svetlosivé, ružové, červené kremence, kremenné pieskovce, arkózové pieskovce, konglomeráty]
limestones (including marbles)	ckv; gray, greenish and red crinoidal limestones [sivé, zelenkavé a červené krinoidové vápence]
	DzBp; (carbonate) Drieňov Conglomerates [(karbonatické) drienovské zlepence]
	Gb; breccias composed of fragments of cherty limestones and limestones of Late Jurassic to Lower Cretaceous (Gregorian, Záskalie Breccias) [brekcie zložené z úlomkov rohovcových vápencov a vápencov vrchnej jury až spodnej kriedy (gregoriánske, záskalské brekcie)]
	GvT2; Guttenstein Formation (Guttenstein Member) - Guttenstein (Annaberg) Limestones: dark-gray and black thick-benched, bedded, worm-like limestones [gutensteinské súvrstvie (gutensteinské vrstvy) - gutensteinské (annabergské) vápence: tmavosivé a čierne hrubolavicovité, vrstevnaté, červíkovité vápence]
	HT2; Honce Formation: Honce limestones - light massive, recrystallized limestones (marbles) [hončianske súvrstvie: hončianske vápence - svetlé masívne, kryštalické vápence (mramory)]
	RvT23; Reifling and Pseudoreifling limestones: chert-bearing gray bedded limestones [reiflinské a pseudoreiflinské vápence: sivé vrstevnaté vápence s rohovcami]
	SbK2m; limestones of Široké klipp: organodetritic and organogenic limestones, fine-grained conglomerates [vápence Širokého bradla: organodetritické a organogénne vápence, jemnozrnné zlepence]
	StvT2; Steinalm Limestones: pale organodetritic limestones, locally dolomites [steinalmské vápence: svetlé organodetritické vápence, miestami dolomity]
	TlJ1t; Trlen Formation: gray to dark-gray, sandy-crinoidal limestones with silicites, calcareous sandstones with interlayers of dark calcareous claystones [trlenské súvrstvie: sivé až tmavosivé, piesčito-krinoidové vápence so silicitmi, vápnité pieskovce s medzivrstvičkami tmavých vápnitých ílovcov]
	vJ3K1; platy to schistose dark-gray and brown-gray limestones [doskovité až bridličnaté tmavosivé a hnedosivé vápence]
	WvT23; Wetterstein Limestones: pale-gray organodetritic a organogenic massive, riff limestones [wettersteinské vápence: svetlosivé organodetritické a organogénne masívne, rifové vápence]
	ZaT2; Zámost Formation: dark-gray bedded, organodetritic limestones with isolated particles of black cherts [zámostské súvrstvie: tmavosivé vrstevnaté, organodetritické vápence s ojedinelými hľuzami čiernych rohovcov]

dolomites	dpP3; dolomite sandstones with concretions and travertines [dolomitové pieskovce s konkréciami a travertíny]
	dT3; Hauptdolomite: pale, gray massive and bedded dolomites [hlavné dolomity: svetlé, sivé masívne a vrstevnaté dolomity]
	GdT2; Guttenstein Dolomites: dark-gray bedded dolomites, dolomite breccias [gutensteinské dolomity: tmavosivé vrstevnaté dolomity, dolomitové brekcie]
	RdT2; Ramsau Dolomites: gray bedded dolomites [ramsauské dolomity: sivé vrstevnaté dolomity]
	RHdT23; Ramsau Dolomites and Hauptdolomite: gray bedded dolomites and pale, gray massive and bedded dolomites [ramsauské dolomity a hlavné dolomity: sivé vrstevnaté dolomity a svetlé, sivé masívne a vrstevnaté dolomity]
	SiT1; Szin Member: shales, limestones, dolomites, organodetritic limestone horizons, rauhwackes; Kampil Member: marly and sandy shales, limestones [sinské vrstvy: bridlice, vápence, dolomity, polohy organodetritických vápencov, rauvaky; "kampilské vrstvy: slienité a piesčité bridlice, vápence]
	WdT23; Wetterstein Dolomites: pale-gray bedded dolomites, lagoon bedded dolomites, cherty dolomites [wettersteinské dolomity: svetlosivé vrstevnaté dolomity, lagunárne vrstvovité dolomity, rohovcové dolomity]
travertines	vp; chemogene-organogenic sediments: freshwater limestones (travertines, calcareous tufas, calcareous flowstones) [chemogénno-organogénne sedimenty: sladkovodné vápence (travertíny, penovce, vápnité sintre)]

Electronic Appendix 6. Environmental characteristics of 144 populations of tetraploid *Jacobaea vulgaris* subsp. *vulgaris* and 37 populations of octoploid *J. vulgaris* subsp. *pannonica* from Slovakia. Displayed are proportions for categorical variables and mean values (minimum–maximum) for continuous variables. For variable explanations, see Electronic Appendices 2, 3 and 4.

Environmental characteristics	*J. v.* subsp. *vulgaris* (2n = 4x = 40)	*J. v.* subsp. *pannonica* (2n = 8x = 80)
Habitat type		
meadow/pasture (%)	70.8	16.2
steppic grassland (%)	6.3	48.7
thermophile fringe (%)	20.2	24.3
sand dune/steppe (%)	0.0	10.8
forest (%)	2.8	0.0
Habitat naturalness		
low (%)	6.3	0.0
medium (%)	46.5	21.6
high (%)	47.2	78.4
Geological substrate		
granites and gneisses (%)	2.8	0.0
andesites (%)	15.2	16.2
loam sediments (%)	18.0	0.0
shales (%)	4.2	0.0
loesses (%)	3.5	8.1
sandy sediments (%)	11.1	27.0
flysch (%)	10.4	0.0
calcareous flysch (%)	2.8	0.0
quartzites (%)	2.8	5.4
limestones (%)	9.7	10.8
dolomites (%)	14.6	29.8
travertines (%)	4.9	2.7
Topography		
altitude (m)	358 (140–840)	242 (110–650)
exposure (°)	1.6 (0.0–3.9)	1.5 (0.0–3.9)
inclination	10 (0–31)	11 (0–24)
Climate (annual characteristics)		
precipitation (mm)	685 (557–1077)	617 (538–731)
temperature (°C)	7.7 (5.4–9.3)	8.4 (5.9–9.6)
TIM (hours.year^{-1} × 10^{2})	39 (22–44)	40 (34–44)
BEAM (W.m^{-2}.year^{-1} × 10^{4})	114 (73–147)	119 (84–148)
DIFF (W.m^{-2}.year^{-1} × 10^{4})	50 (43–57)	49 (43–55)
REF (W.m^{-2}.year^{-1} × 10^{2})	30 (0–182)	31 (0–104)
sun angel (°)	23 (9–29)	23 (10–28)
sun angle delta (°)	16 (6–21)	16 (6–22)
sun angle max (°)	38 (14–49)	38 (16–47)