



Presentation of the **SLOVENIAN** *Lathyrus* collections and related on-going projects

EUGrainLeg

Lathyrus diversity: available resources with relevance to crop improvement –
progress reviews and relationship with AEGIS



Bucharest, 10th April, 2019

assoc.prof. dr. Vladimir Meglič
dr. Barbara Pipan

Slovenian *Lathyrus* collection



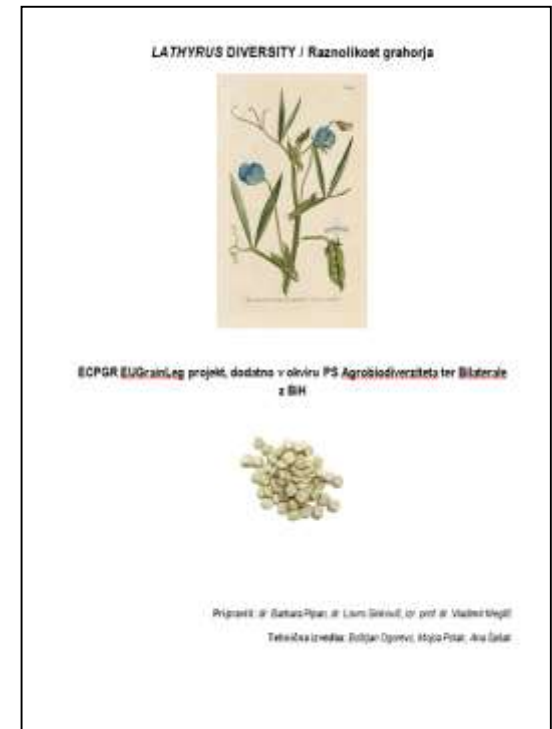
List of 18 accessions stored in Slovenian Plant Genebank

INSTCODE	ACCNUMB	COLLNUMB	COLLCODE	COLLNAME	INSTADD	COLLMISS1	GENUS	SPECIES	SPAUTHOR	SUBTAXA	IBTAUTH	CR.OPNAME	ACCNAME	ACCDATE	ORIGCTY	COLLSITE	ECLA.TITUD	LATITUDE	LONGITU	LONGITUD
SVND19	5486	6-66	SVND19	inštitut	va ulica		Lathyrus	sativus	L.			Glahor		20060823	SVK	ã Božena,	48.3572	482126N	18.7256	0184832E
SVND19	1285	34/99	SVND19	inštitut	va ulica		Lathyrus	sp.				rod			SVN	Tibljje	45.5833	453800N	13.9667	0135800E
SVND19	1224	25/98	SVND19	inštitut	va ulica		Lathyrus	pratensis	L.			gahor		19980921	SVN	Jezerško	45.4097	452485N	14.5253	0148131E
SVND19	1225	26/98	SVND19	inštitut	va ulica		Lathyrus	pratensis	L.			gahor		19980921	SVN	Jezerško	45.3900	452324N	14.5356	0148208E
SVND19	1120	04/95	SVND19	inštitut	va ulica		Lathyrus	pratensis	L.			gahor			SVN	-	45.9333	453600N	14.2500	0141500E
SVND19	1313	63/99	SVND19	inštitut	va ulica		Lathyrus	pratensis	L.			gahor		19990730	SVN	Srni voh	45.9083	455480N	13.9281	0135548E
SVND19	5497	006-11	SVND19	inštitut	va ulica		Lathyrus	pratensis	L.			gahor		20061003	SVN	Isrvnik	45.4611	452740N	14.6847	0144803E
SVND19	5139	LP99_125	SVND19	inštitut	va ulica		Lathyrus	pratensis	L.			gahor		19990914	SVN	Koprivnik	45.2981	451753N	13.8831	0135259E
SVND19	5127	LP99_251	SVND19	inštitut	va ulica		Lathyrus	pratensis	L.			gahor		19990915	SVN	Rateče	45.5122	453044N	13.7181	0134303E
SVND19	5170	0_99	SVND19	inštitut	va ulica		Lathyrus	pratensis	L.			gahor		20000831	SVN	Glažuta	45.6728	454022N	14.6853	0144807E
SVND19	5245	01_12	SVND19	inštitut	va ulica		Lathyrus	pratensis	L.			gahor		20000827	SVN	Gabrk -	45.6800	454088N	13.9969	0135948E
SVND19	5271	01_88	SVND19	inštitut	va ulica		Lathyrus	pratensis	L.			gahor		20000828	SVN	sv. Peter	45.5897	453523N	13.9236	0135523E
SVND19	5254	01_47	SVND19	inštitut	va ulica		Lathyrus	pratensis	L.			gahor		20000827	SVN	Prem	45.5961	453546N	14.1714	0148017E
SVND19	6201	11/96	SVND19	inštitut	va ulica		Lathyrus	pratensis	L.			gahor		19960000	SVN	Vrhnika				
SVND19	5306	01_192	SVND19	inštitut	va ulica		Lathyrus	sp.				rod		20000829	SVN	Okroglič	45.5444	453240N	14.1747	0148029E
SVND19	6283	25/03	SVND19	inštitut	va ulica		Lathyrus	sp.				gahor		20030824	SVN	Blatce -				
SVND19	6289	03/07	SVND19	inštitut	va ulica		Lathyrus	sp.				gahor		20070819	SVN	rad Izob				
SVND19	6227	34/99	SVND19	inštitut	va ulica		Lathyrus	sp.				gahor		19990628	SVN	Tibljje				

EUGrainLeg activities



- Requested from the national curator for the selected accessions.
- Prepared the WORKING PLAN to better organise project activities.
- Prepare the file for morphologic evaluation in growing season 2019 at Jablje location and protocols observing:
 - I. **phenological traits** (days to beginning of flowering, days to flowering, days to maximum flowering, days to the end of flowering, days to harvest, days to maturity),
 - II. **growth habit and architectural traits** (plant height, height to first pod),
 - III. **symptoms of pest and diseases**,
 - IV. **pod traits**: shape, size,
 - V. **seed traits** colour, shape, coat surface,
 - VI. **seed productivity** (number of branches, number of pods per plant, number of seeds per pod, number of seeds per plant, weight of seed per plant, mass per 100 seeds),
 - VII. **protein content in seeds** it will be decided on which accessions it will be accomplished; leaf shape, brilliance of seed, seed shape and size.
 - VIII. a subset of **other traits according individual interest (e.g. genetic diversity assessment,...)** Considering interests of other EUGrainLeg participant countries to provide seeds from their national collections.



Related on-going projects

- Bilateral project: **Slovenia and Bosnia and Herzegovina** (ARRS-MS-BI-BA-JR-Prijava/2018/77)
- Project duration: 1.1.2019 - 31.12.2020
- Project with the particular reference to the wetch species (*Lathyrus* sp.) as an important underutilized and nearly completely forgotten crop. Importance will be given also to re-introduction of this once widely cultivated and nowadays largely neglected traditional European grain legume.
- Genetic analysis SSR markers **from four origins related to *Lathyrus* germplasm** will be performed as proposed by Wang *et al.* (PLOS ONE | DOI:10.1371/journal.pone.0118542 March 20, 2015).

The origin of the primers

Lioi et al. (2011)

Shiferaw et al. (2012)

Yang et al. (2014)

This study

doi:10.1371/journal.pone.0118542.t001

Primer	Repeat motif	Primer sequence(5'-3')	Real product size(bp)	T _m °C
G5	(AAC)10	FP-CACAACCAAGTTCATCATG RP-TGCTCAGATGATGGTTTGT	200-220	54
G9	(AAC)6	FP-CAADCAGAGCAACCAAG RFP-GGTTGCAAGAGGTTGCAGAT	200-250	53
G17	(AAT)5	FP-CAGGTCCGGTTATCTCTCA RFP-TTGTTTCAACCCACTCCTC	195-240	52
G26	(AC)16	FP-CCACCAAAATTCCTTTTTG RFP-GTAAGAGAGGTTGACTTTTTGTTT	170-200	52
G49	(AC)7	FP-ACGCACACACCGAAGAAAG RFP-GTGTCCGATGTGTATGA	180-195	58
G67	(AC)9	FP-CACCTCTTCACTGGCTAGC RFP-TTGGGGTTGTAGAAGGAAC	135-150	52
G68	(AC)9	FP-GCACACAAGGGCAGACTG RFP-TGCCTCGTGTGTATGTTG	180-220	52
G116	(CA)9(CACACG)5	FP-CACACAGGACGACTCACA RFP-GTGTCCGTTGTGTGATGC	140-175	56
G131	(CA)7aacacgtop(CA)8	FP-GCGCTCACACCACTAAAG RFP-TGTATCCGTCGATGTCTG	150-160	54
G157	(CAA)6	FP-ACATCCAATCCCACTATAA RFP-AATGCATGGTTGTGTTDA	210-220	60
G163	(CAC)6	FP-CAGTAGCATCAACACGACTCC RFP-GTTGTCCATGTGTGTGTG	140-160	52
G185	(GT)19	FP-TGGGTGTGTGCTCTATCAT RFP-TACTGCGACACCGAACGTA	120-130	52
G200	(GT)7	FP-GGATGGTGTGCTGTGTGT RFP-AACACCACACCGCAACT	140-150	52
G206	(GT)8	FP-AACTGCGCCGTGCATTTTC RFP-GTTCATGCAATTTGAGACA	180-195	52
G213	(GT)9c(GT)7	FP-TTTGTGTACAGCCCTGTT RFP-CATGTTGGCTGCAAGTTGT	170-180	52
G245	(TG)8	FP-CGTTGTTGTTAGTCCGTC RFP-GAACGAAACGACGACAA	220-240	52
G285	(TTG)6	FP-TTGTGCGGTTGATGTTGTT RFP-CTACGTGACCCGTCATACC	195-220	52
G15624	(AAC)11	FP-GCAACAACAATGCAACATC RFP-TGTTGTTACTGCTGCTGCTCT	150-170	52
G15709	(CAT)5	FP-GACCTCGAGGACATTAGCA RFP-CCAAAGAAAGAAAGGACACAA	130-150	52
G15771	(TCG)5	FP-AGTGCCTGATGGGAGTCAGT RFP-CCGACGACGACGACTACTAA	200-230	56
G17243	(GTC)5	FP-GCGTGTGTCGTCGTGAGTT RFP-GCCGTACGACACCAAGTACC	140-180	52
G17922	(CC)5	FP-CACCACCATACCCACTCCT RFP-ATGGGATTGAAAGGATGAAC	180-220	52
G18078	(TGT)8	FP-TTCAAGATGCAAGTGGTTCAG RFP-AACGGTGGACTCTTCTCTAT	140-150	52
G18109	(CGA)5	FP-GACGACACACCGGCAACAC RFP-ACGTCGTGTGTGCTGTTT	170-200	52
G18200	(AAC)5	FP-CAACACACACACCAACAGAT RFP-CAGTCACTCCCTCAGTGC	90-100	52
G18308	(AAC)5	FP-CAATATACAAAGCAACACAG RFP-TGTTGGTCTAATTGTTGTGTTT	185-195	52
G18549	(GTT)5	FP-TGAGGTTGTTGAACGTGAG RFP-CACCAACAACAACAACCCAC	140-170	52
G19207	(AAG)5	FP-ATCGAAACCGTGAAGGTC RFP-AGCTTGTGTGGCTACTGC	200-210	54
G19337	(ACA)5	FP-CGACAACAGATACAGCAAC RFP-TGTTGTTGTTGTTGTTGTTGTT	220-240	52
G19347	(GAA)5	FP-CCTCTCCCGCAATGTTGTC RFP-GTTCATCATCCATCATCCT	110-120	52

doi:10.1371/journal.pone.0118542.t001

BiH *Lathyrus* accessions (Institute of Genetic, Resources, University of Banja Luka, BiH, Republic of Srpska)

List of *Lathyrus* accessions – Gene bank of Republic of Srpska, Institute of genetic resources, University of Banja Luka

	Acc No	Species	Location	Aquisition date
1.	GB00999	<i>Lathyrus sativus</i> L.	Zgonjevo, Trebinje	2018
2.	GB01000	<i>Lathyrus sativus</i> L.	Kremeni do, Trebinje	2018
3.	GB01001	<i>Lathyrus sativus</i> L.	Gomiljani, Trebinje	2018
4.	GB01002	<i>Lathyrus sativus</i> L.	Šipovo	2018
5.	GB01003	<i>Lathyrus sativus</i> L.	Drvar	2018
6.	GB01004	<i>Lathyrus sativus</i> L.	Poljoprivredni institut Banja Luka	2018
7.	GB00954	<i>Lathyrus sativus</i> L.	Trebinje	2012
8.	GB00518	<i>Lathyrus sylvestris</i> L.	Srebrenik	2009



ZGONJEVO



KREMENI DO



GOMILJANI



ŠIPOVO





TO BE CONTINUED

