



SEE-ERA.NET PLUS

ERA 91/01 “Preservation and establishment of true-to-type and virus free material of endangered grapevine cultivars in Croatia and Montenegro”

Project and workshop topics

Zagreb, September 27, 2012

Participants

- FAZ (HR) - coordinator
 - Ivan Pejić
 - Maja Žulj Mihaljević
 - Silvio Šimon
 - Darko Preiner
 - Edi Maletić
- BOKU (A) – partner 1
 - Astrid Forneck
 - Ulrike Anhalt
- IRZ Geisenheim (D), part. 2
 - Ernst Ruehl
 - Bettina Lindner
- BTF (MNE) – partner 3
 - Vesna Maraš
 - Milena Mugoša (Tomić)
 - Sanja Šučur
 - Miroslav Čizmović

Key information

- Coordinator: FAZ (HR)
- Partners: BOKU (A), IRZ Geisenheim (D), BTF (MNE)
- Title: **ERA 91/01 - “Preservation and establishment of true-to-type and virus free material of endangered grapevine cultivars in Croatia and Montenegro”**
- Duration: 2 years
- Funds requested: 145.000,00 EUR
- Funds approved: 122.400,00 EUR
- Budget share:
 - FAZ (39%)
 - BTF (29%)
 - BOKU (16%)
 - IRZ Geisenheim (16%)

Project concept

1. Croatia & Montenegro are **neighboring countries that base their development on strong tourism** sharing similar potentials and problems > main targets of the project
2. HR & MNE have rich grapevine germplasm that might be very relevant for **global biodiversity preservation** purposes, and
3. This germplasm might contribute development of **local products (wines)** of benefit for **tourism development** in HR & MNE
4. **Project sustainability** envisioned through safe accession duplicates, education & training

Project idea

Montenegro

Croatia

Austria

Germany

Field expeditions in HR & MNE to collect and conserve rare native grapevine varieties:

- Conservation is international obligation (Kartagena protocol)
- Native grape varieties - source for unique local wines supporting the fast growing tourism in both countries

Primary description and quality assessment :

- Standard description methods *in situ*
- Bunch morphology and must analyses, microwinifications

DNA fingerprinting and clonal variation analysis:

- SSR markers & training for MNE (**Zagreb**)
- AFLP, REMAP, SNP & training for HR (**Vienna**)

MNE & HR

- National *ex situ* collections
- Mother blocks for nurseries
- Dissemination to winemakers
- Training for end users

Propagation (Geisenheim):

- ELISA testing
- Grafting
- Certification

EU Vitis database

EU *ex situ* collections

Work packages

WP-1 Field expedition, cultivar identification and evaluation

- Field expedition on the territory of Croatia and Montenegro - cultivar and *Vitis vinifera* no name genotypes (NN) identification and evaluation by basic ampelographic methods
- Grape and tissue sampling for evaluation of grape quality, molecular marker analyzes, virus testing and grafting purpose.
- Cultivar identification by SSR markers conducted by coordinator's (FAZ).

WP-2 Intravarietal studies and confirmation of SSR data (by other marker systems)

- Molecular analysis for inter- and intra-varietal variability via S-SAP conducted by Partner 1 (BOKU, Austria).

WP-3 Virus testing, propagation of virus-free material and its maintaining

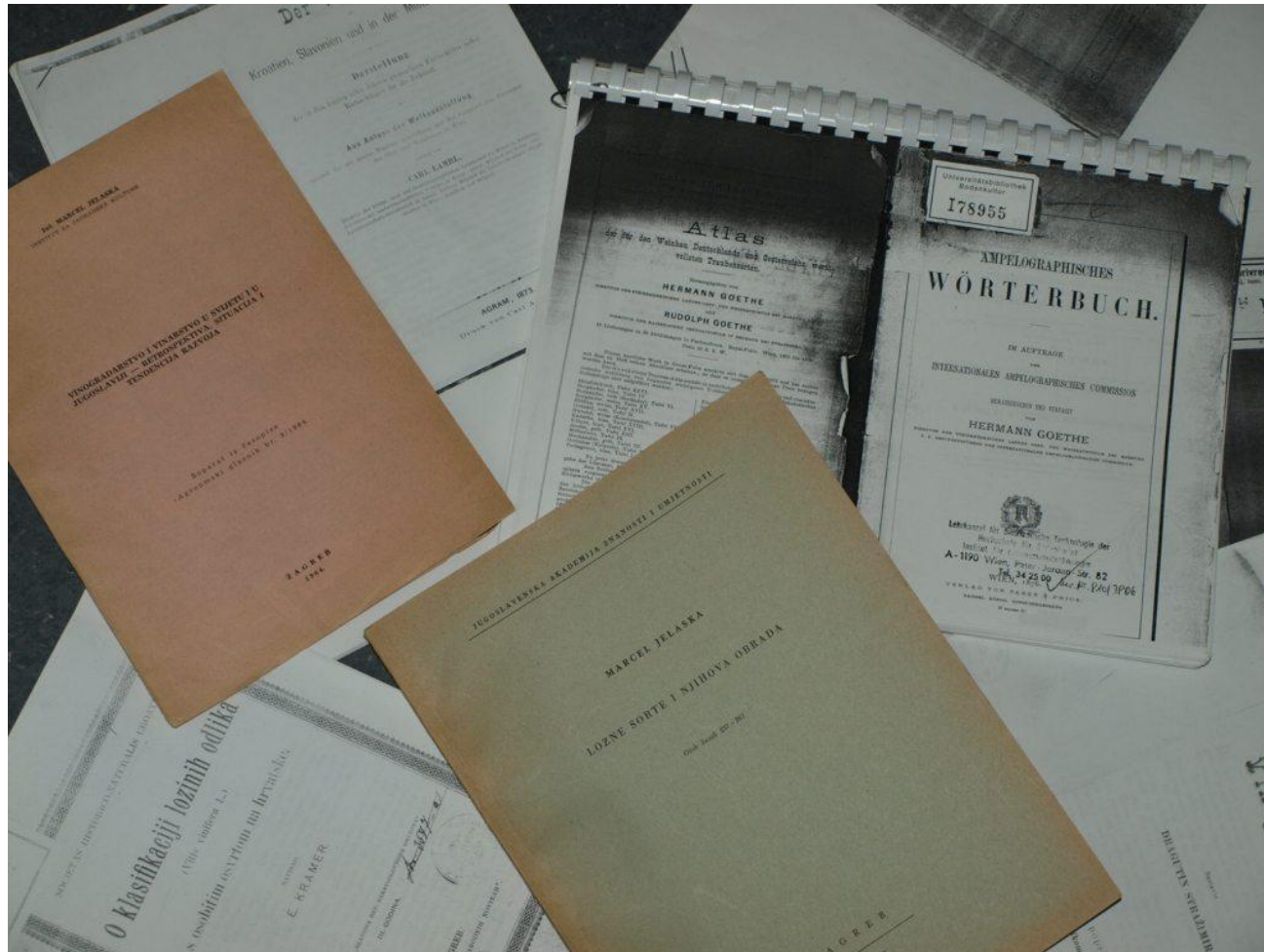
- Laboratory and nursery research on virus infections of grape cultivar populations, as well as their ecotype (clonal) differences conducted by Partner 2 (IRZ Geisenheim, Germany).
- Propagation for long term conservation of selected and analyzed material.

WP1

Aim 1: Make a thorough **survey through available literature** and available databases already dealing with national and international grapevine conservation efforts

Methodology: All available books, S&T papers related to grapevine cultivars, their history and agronomic properties and conservation efforts will be systematically screened through classical library and advanced e-databases. This will encompass diploma and PhD thesis and interviews with local producers.

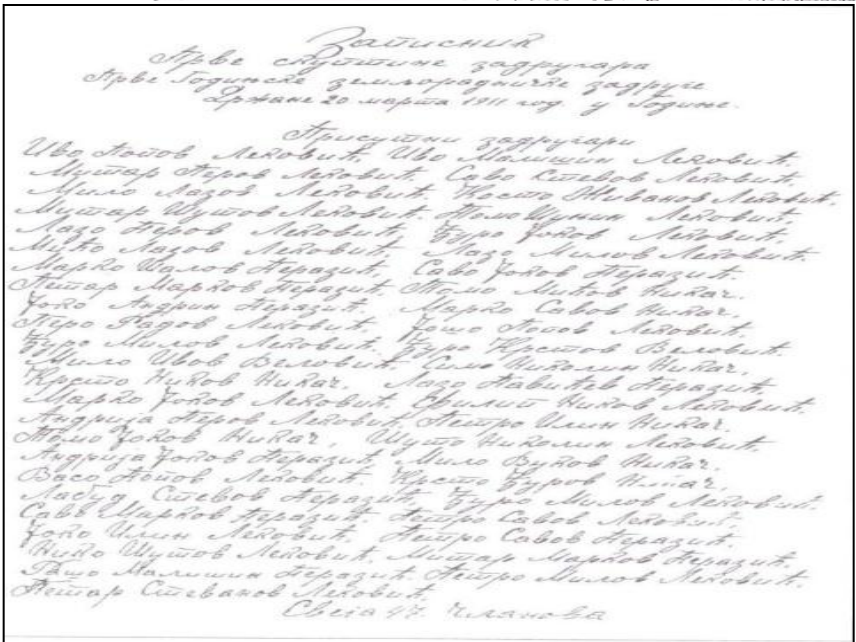
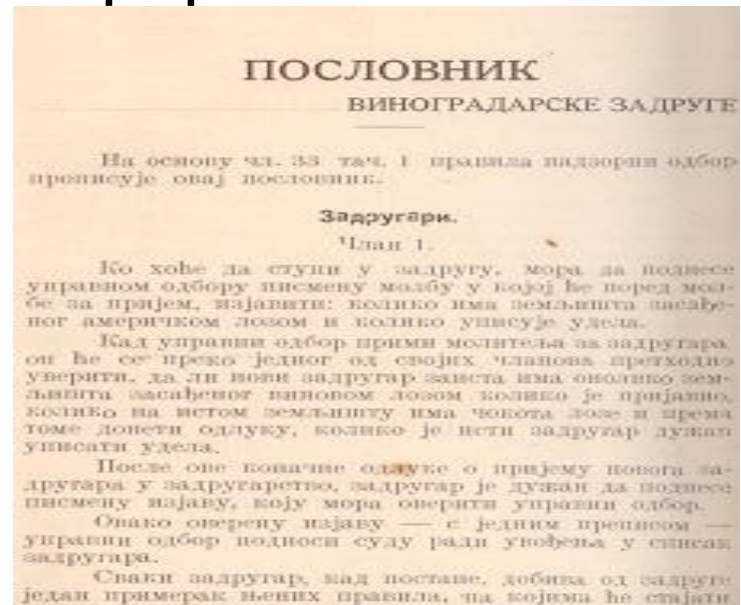
D01 – FAZ: Bibliography (searching for and reading available books, S&T papers related to native varieties)



D01 – BTF: Bibliography (searching for and reading available books, S&T papers related to native varieties)

Rovinski (1994) navodi "da se u Crmnici vinogradi mogu naći samo u Godinju i Boljevićima". Da li je Rovinski mislio na veće površine vinograda sa organizovanim zasadima ili su ratovi, zapuštenost i bolesti u tom periodu toliko devastirali vinograde da ih je bilo moguće naći samo u ovim selima (prim.aut.). On dalje nastavlja da "kada su vinogradi izloženi suncu i na nižem mjestu grožde je slade i vino bolje. Smatra se da je vino najbolje u Sotonićima, naročito lokalitet Mačuge, pa Godinje, Boljevići i u nižim djelovima Limljana i Boljevića. Ali je u višojim selima Podgor, Gornje Brčele, Bukovik, Gluhi Do-bolja rakija".

M. Plamenac (1891) u "Grlici" ističe da se "grožde po boji dijeli u Crmnici, na tri sorte: crno, riđe i bijelo. Crno grožde, kome je zrno okruglo, na kratkoj peteljci, zove se kratošija. Grozdovi kratošije obično su nabijeni. Ima, pak, jedna vrsta kratošije, kojoj grozdovi nijesu zbijeni, nego zrna poreda, i to se zove reavica. Crno grožde, kome su jagode ovalne, zove se vranac. Ako su zrna vranca krupnija nego u običnog, takav zove se krstač. Riđe grožde u koga su zrna okrugla, zove se sijerovina, ako li je zrna sitnije a ovalne forme, zove se lisičina (lisica). Bijelo grožde naziva se samo jednim imenom-bijelo grožde, premda ima i bijelog kome su jagode malo krupnije ili sitnije, a tako isto više bijelo ili nažuto. Samo ima malo loze bijele kojijema grožde ima jak miris i zove se muškačelica, muškat. Ove loze je vrlo malo u Crmnici." U daljem tekstu autor opisuje čauš i razakliju. "Čauš je donesen iz Carigrada, krupnih ovalnih zrna, naročito nježno i slatko grožde. Rozaglija je sorta koja može biti svijtu tri boja, ovalnih je hobica, tvrde opne (kornina). Ova sorta se koristi samo za jelo, a ne obrazuje se kao ostale sorte već raste kao odrina (za lozu napravljena specijalna rešetka-odard) a ako se loza penje uz drvo, naziva se podrevina".



Факсимил Зайишника (прва страна)

24

БЕРБА							1913 ГОДИНЕ						
ДОНЕСЕНО ГРОЖЂЕ							ИЗУЗЕТО НА ИМЕ ИСПЛАТЕ ГРОЖЂА						
Датум	Врста грожда	Бруто	Трето	Чето	Процент (по броју и по врсти)	Вредност	Датум	У чему (укупно, од којег, остало)	Колонка (која од којих)	Врста	У износу	На име и исплата	Укупно
28/3	Грожда			12418 1/2	275	341	28/3	у износу			341	98	341

WP1

Aim 2: Perform surveys (**field expeditions**) to identify and collect rare and neglected indigenous *Vitis vinifera* undetermined genotypes, not previously evaluated and not present in the existing national *Vitis ex situ* collections

Methodology:

- search for old grape native varieties not previously genotyped by molecular markers.
- existing *ex situ* collections to be sampled as well in order to check and establish the new and fully compatible SSR genotype database
- emphasis to be given to extremely rare genotypes previously not collected and/or evaluated
- A special effort to find and sample genetic variation (mutant ecotypes) within the perspective variety populations as well as individual vines with absent symptoms of economically relevant virus diseases.

D02 – FAZ: Field expedition plan

SEERANET projekt 2010 - plan terena - Microsoft Word

Datoteka Uređivanje Pogled Umetanje Oblikovanje Alati Tablica Prozor Pomoć

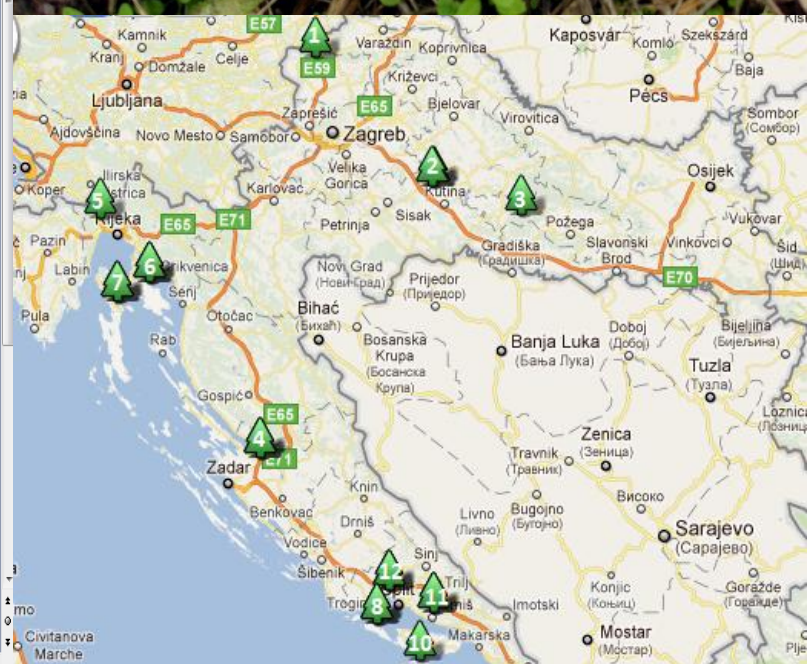
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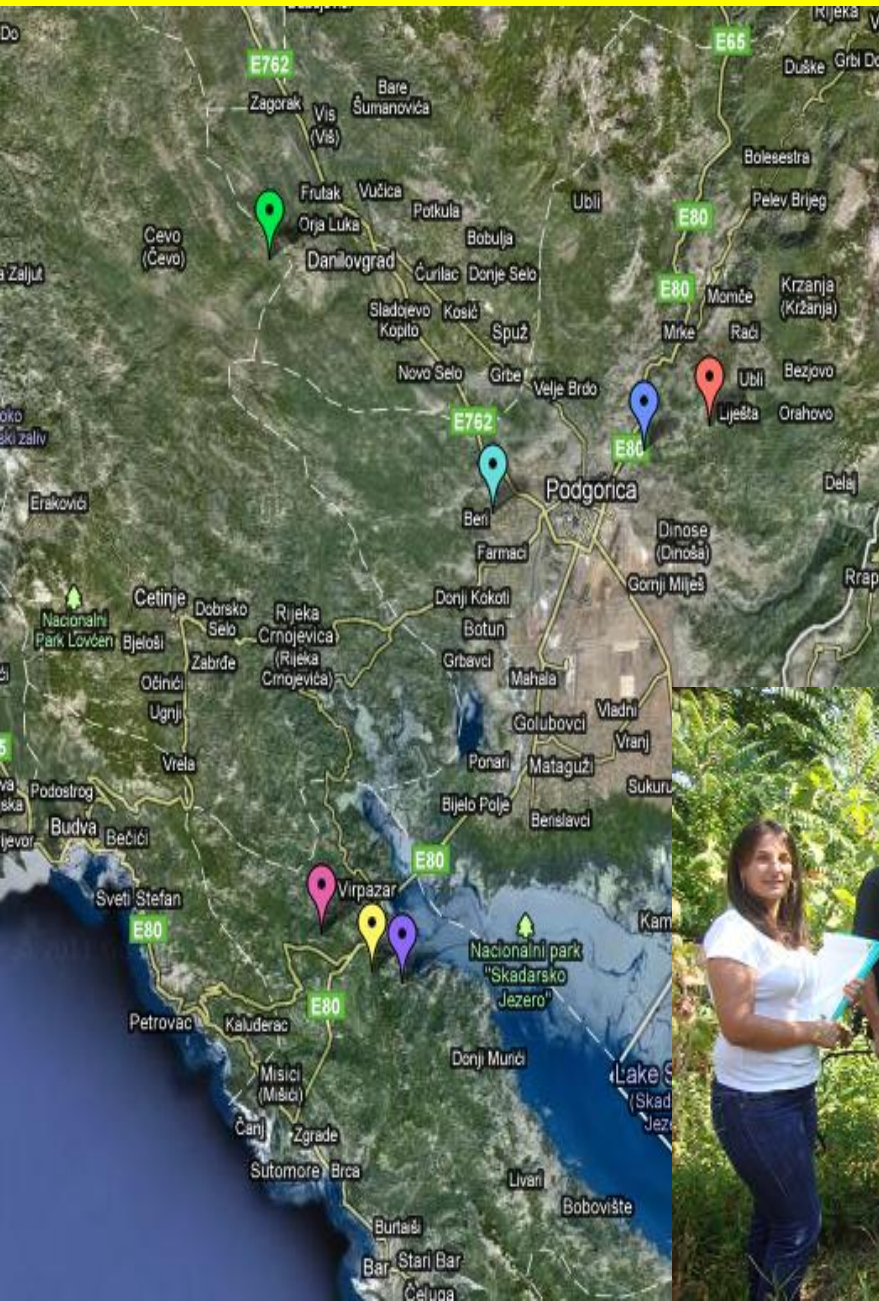
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SEERANET project 2010 Field trip planning

Location	Variety	Date/Person
Moslavina	Dišuća ranina	13.9. IP & MŽ
Moslavina	Beline – min 10 vines	13.9. IP & MŽ
Zagorje	Starohrvatska črmina (Kavčina)	
Zagorje	Sokol	DP
Zagorje	Another variety chosed by EM & DP	
Psunj	NN materijals from location Rudine	14.9. IP & MŽ
Virovitica, Slatina	Kadarka, ?	15.9. IP & MŽ
Ilok	Kadarka, Ružica	15.9. IP & MŽ
Krk	Vrbić	14.9.
Matulji	Jarbola (with help from colleague from CBPP)	16.9. IP & EM
Krk	Volarovo	14.9.
Krk	Sansigot (contact: Katunar)	14.9. SŠ
Krk	Kamenina	14.9.
Cres	Draganela	13.9. SŠ
Cres	Magrovina	13.9.
Hvar – Rudine i Dol	NN materijals	19/20.9. IP, EM, SŠ
Peļješac	NN materijals from Vignja i Trstenika	21.9. IP, EM, SŠ
Korčula	NN materijals + Zlatarica blat	21.9. IP, EM, SŠ
Konavle	MDB	22.9. IP, EM, SŠ
Baštica	Grk	DP
Kaštela – A. Vuletin	IP-161	GZ ?
Kaštela – A. Vuletin	IP-165	GZ ?
Šolta	Dobričić	GZ ?
IJK Split	Rare varieties from GZ	GZ ?



D02 – FAZ: Field expedition plan




Sampling locations :

 Doljani

 Medun

 Markovina

 Beri

 Boljevići

 Godinje

 Otočići



D03 – FAZ: Ampelographic description and evaluation of sampled genotypes

Microsoft Excel - Ampelografske analize ERA 91-01

Datoteka Uređivanje Pogled Umetanje Oblikovanje Alati Podaci Prozor Pomoć

Za pomoć upišite pitanje

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Sampled genotypes	Photos			Ampelographic descriptors (OIV)																								
	shoots	leaf	cluster	3	4	51	53	67	68	70	79	80	84	87	151	153	155	202	204	208	223	225	235	236	505	506	508	
ERA91/01																												
MAGROVINA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DRAGANELA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SANSIGOT	Y	Y	Y	1	1	3	1	2	3	1	3	2	1	3	3	2	5	3	7	1	2	6	3	1	1	3	5	
DIŠEĆA RANINA	-	Y	Y	-	-	-	-	3	4	2	7	2	5	5	4	2	1	5	5	1	2	1	1	5	-	-	-	
STARA BELINA AROMATIČNA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BELINA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
JARBOLA	Y	Y	-	1	3	2	5	4	3	3	7	3	1	3	3	2	5	-	-	-	-	-	-	-	3	-	-	
REBULA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SOKOL	-	Y	Y	-	-	-	-	3	3	3	3	2	1	3	-	1	1	5	5	2	5	1	3	1	-	-	-	
Glavinuša, okatac	Y	Y	Y	3	1	3	5	3	3	1	5	1	3	1	3	1	5	3	3	1	6	5	2	1	5	3	5	
DOBRIČIĆ	Y	Y	Y	5	1	5	3	3	1	3	1	1	1	3	3	2	5	7	3	2	1	1	1	1	3	5	3	
GRK	Y	Y	Y	1	1	3	3	3	3	3	3	1	3	1	4	2	9	5	5	2	2	1	2	1	5	5	5	
Zlatarica blatska b.	Y	Y	Y	1	1	3	1	3	3	-	3	1	1	1	3	-	-	7	3	2	6	-	-	5	7	3	5	

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10:19 24.1.2012.



D03 – BTF: Ampelographic description and evaluation of sampled genotypes

HEA-ERA NEI PLUS (ERA 91.01)

"Preservation and establishment of true-to-type and virus free material of endangered grapevine cultivars in Croatia and Montenegro"

Name of variety or synonym: **KRAJČIČKA**
 Code of variety (number of sample): **MDNE 02**
 Number and code of the taken samples from this location: **10**
 Date of sampling: **11.09.2010** year
 Vineyards and place: **Dražugrad (Maklešina)**
 Name of vineyard: **Jasinski**




GPS position and the vine's position in vineyard:
 MDNE 02-1-N 42°31'743"; EO 19°00'592"
 MDNE 02-2-N 42°31'744"; EO 19°00'594"
 MDNE 02-3-N 42°31'753"; EO 19°00'404"
 MDNE 02-4-N 42°31'741"; EO 19°00'409"
 MDNE 02-5-N 42°31'743"; EO 19°00'409"
 MDNE 02-6-N 42°31'742"; EO 19°00'410"
 MDNE 02-7-N 42°31'731"; EO 19°00'427"
 MDNE 02-8-N 42°31'732"; EO 19°00'424"
 MDNE 02-9-N 42°31'743"; EO 19°00'414"
 MDNE 02-10-N 42°31'743"; EO 19°00'414"

Data about vineyard's owner: *Name and surname:* **Spasoje Vrgočić**

Address: **Pašićki Sl 410 Dražugrad**

Phone number: **+382 49 949 300**

DESCRIPTION OF VARIETY

Training system, vigorous and age of the vine	without defined training system, slightly vigorous, over 50 years
Rating of vine's health	poor health, vines throughout visible symptoms of periderm mottle w/  on clusters and leaves
Opening date	the end of the September
Description of cluster	medium large, loose, conical
Description of berry	globose, small dark blue to purple color, colorless juice
Description of leaf	large mature leaf, five lobes, laminae of leaf and hairy back
Description of the young shoot tip	



HEA-ERA NEI PLUS (ERA 91.01)

"Preservation and establishment of true-to-type and virus free material of endangered grapevine cultivars in Croatia and Montenegro"

Name of variety or synonym: **CUBRICA**
 Code of variety (number of sample): **MDNE 07**
 Number and code of the taken samples from this location: **10**
 Date of sampling: **12.09.2010** year
 Vineyards and place: **Podgorica's vineyards, Doljan**
 Name of vineyard: **Racka**



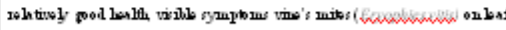
GPS position and the vine's position in vineyard:
 MDNE 07-1-N 42°28'078"; EO 19°18'374"
 MDNE 07-2-N 42°28'079"; EO 19°18'375"
 MDNE 07-3-N 42°28'079"; EO 19°18'375"
 MDNE 07-4-N 42°28'082"; EO 19°18'375"
 MDNE 07-5-N 42°28'081"; EO 19°18'377"
 MDNE 07-6-N 42°28'080"; EO 19°18'374"
 MDNE 07-7-N 42°28'078"; EO 19°18'375"
 MDNE 07-8-N 42°28'078"; EO 19°18'375"
 MDNE 07-9-N 42°28'074"; EO 19°18'374"
 MDNE 07-10-N 42°28'075"; EO 19°18'374"

Data about vineyard's owner: *Name and surname:* **Sasa Vrgočić**

Address: **Doljan bb. 20 000 Podgorica**

Phone number: **+382 47 245 301**

DESCRIPTION OF VARIETY

Training system, vigorous and age of the vine	modified pergola, medium vigorous, over 50 years
Rating of vine's health	relatively good health, visible symptoms vine's mottle () on leaf
Opening date	middle of the September
Description of cluster	medium large, medium loose, cylindrical conical
Description of berry	globose to slightly ellipsoidal, small dark blue color
Description of leaf	large mature leaf, three lobes, slightly pubescent face of leaf
Description of the young shoot tip	



D04 – FAZ: Leaf samples for DNA extraction

Microsoft Excel - Pregled SEEERA.NET

Datoteka Uređivanje Pogled Umetanje Oblikovanje Alati Podaci Prozor Pomoć

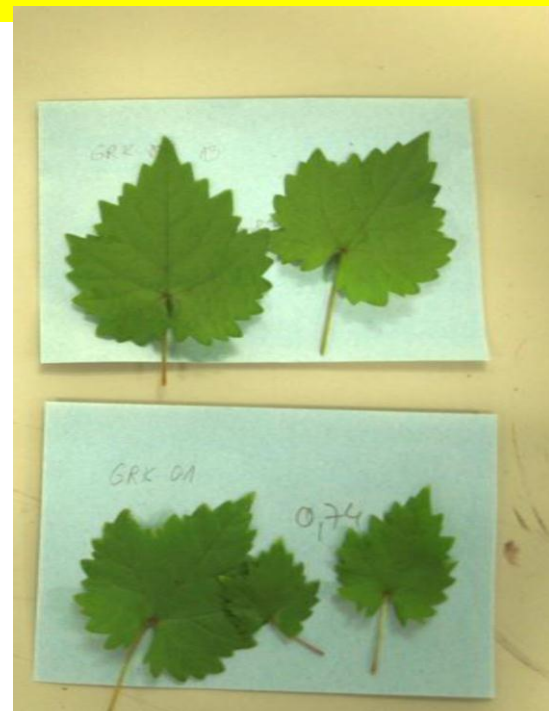
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Calibri 11

	A	B	C	D	P	Q	R	S	T	U	V	W	X	Y	Z	
1	LAB CODE	CODE in Vineyard	VARIETY/ SORTA	Leaf sample												
2	SEE 1	HR1-1	MAGROVINA	Y												
3	SEE 2	HR1-2		Y												
4	SEE 3	HR1-3		Y												
5	SEE 4	HR1-4		Y												
6	SEE 5	HR1-5		Y												
7	SEE 6	HR1-6		Y												
8	SEE 7	HR1-7		Y												
9	SEE 8	HR1-8		Y												
10	SEE 9	HR1-9		Y												
11	SEE 10	HR1-10		Y												
12	SEE 11	HR1-11	Y													
13	SEE 12	HR1-12	Y													
14	SEE 13	HR1-13	Y													
15	SEE 14	HR1-14	Y													
16	SEE 15	HR1-15	Y													
17	SEE 16	HR2-1	DRAGANELA	Y												
18	SEE 17	HR2-2		Y												
19	SEE 18	HR2-3		Y												
20	SEE 19	HR2-4		Y												
21	SEE 20	HR2-5		Y												
22	SEE 21	HR2-6		Y												
23	SEE 22	HR2-7		Y												
24	SEE 23	HR2-8		Y												
25	SEE 24	HR2-9		Y												
26	SEE 25	HR2-10		Y												
27	SEE 26	HR2-11	Y													
28	SEE 27	HR2-12	Y													
29	SEE 28	HR2-13	Y													
30	SEE 29	HR2-14	Y													
31	SEE 30	HR2-15	Y													
32	SEE 31	HR3-1	SANSIGOT	Y												
33	SEE 32	HR3-3		Y												
34	SEE 33	HR3-4		Y												
35	SEE 34	HR3-5		Y												
36	SEE 35	HR3-6		Y												
37	SEE 36	HR3-7		Y												
38	SEE 37	HR3-8		Y												
39	SEE 38	HR3-9		Y												
40	SEE 39	HR3-10		Y												
41	SEE 40	HR4-1		Y												

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pregled SEEERA.NET / CHECK LIST 18.05.2011. / popis za Beč-pregled tab.1 / Popis za Beč-pregled tab. 2 / PRE



WP1

Aim 3: Determine neglected indigenous **varieties with distinguished enological potential** (based on quality of grape) and collect their cuttings for fast clonal selection;

Methodology:

- During the project year **1 and 2**, up to 10 (?) neglected varieties suitable for quality wine production in each WBC country will be selected in farmers' vineyards (*in situ*) based on the sensory and analytical evaluation (quality of grapes estimated by sugar and acid content, primary aromas, color intensity, etc.).
- All grapes from 20 – 30 vines per variety will be selected and harvested from farmers' vineyards and transported to experimental wine cellar.
- Same vines will be used for WP2 and WP3

WP1

- **Aim 4:** Perform **positive genotype identification and assessment of its genetic variability** using both standard ampelographic and modern molecular tools;

Methodology:

- SSR analysis of all collected samples, both from HR & MNE to be analyzed with 9 SSR markers;
- Combine the results of SSR analysis and ampelographic descriptions, as well as enological estimates to make final report on genotype description and its value.

D08 – FAZ: Optimized SSR protocol

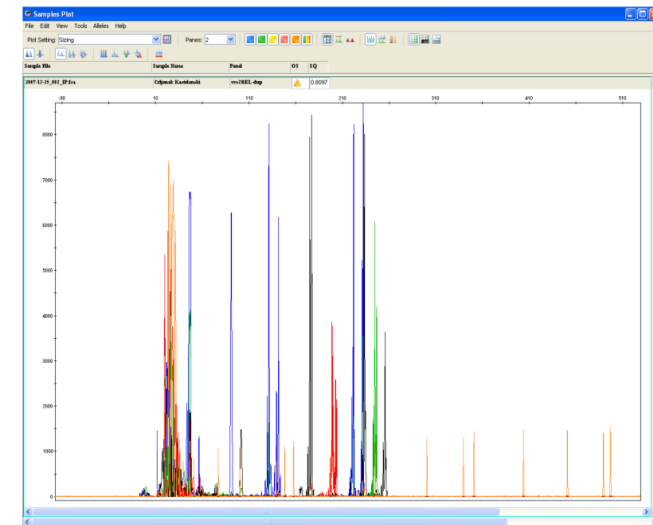
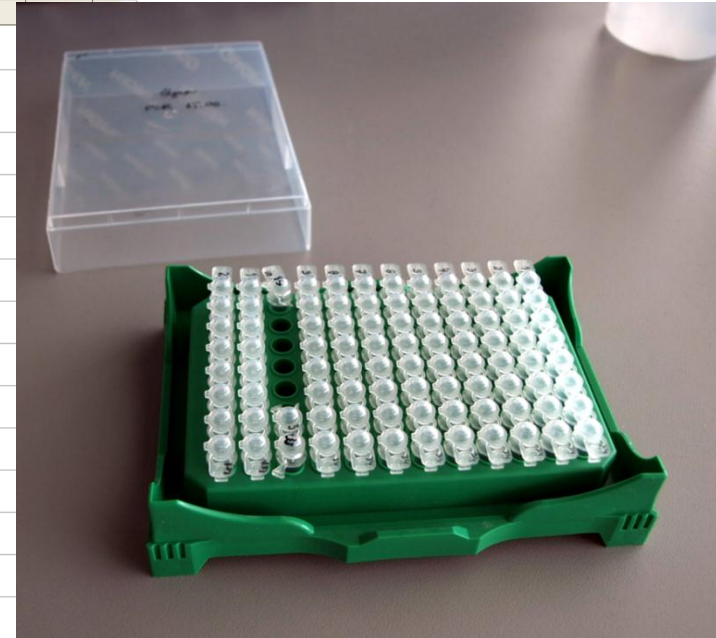
Microsoft Excel - PCR protocols

Datoteka Uređivanje Pogled Umetanje Oblikovanje Alati Podaci Prozor Pomoć

Calibri 12

	A	B	C	D	E	F	G
1	OLD PROTOCOL			NEW PROTOCOL			
2	LOCI 2,7,27,62,79	LOCUS MD 5	LOCI 25,28,32	LOCI 2,5,7	LOCI 27,62,79	LOCI 25,28,32	
3	annealing 50°C	annealing 50°C	annealing 50°C	annealing 50°C	annealing 60°C	annealing 50°C	
4	H ₂ O ∅	H ₂ O 1,35	H ₂ O ∅	H ₂ O ∅	H ₂ O ∅	H ₂ O ∅	
5	PCR puffer 2,0	PCR puffer 0,75	PCR puffer 2,0	PCR puffer 2,0	PCR puffer 2,0	PCR puffer 2,0	
6	Q solution 2,0	Q solution 1,5	Q solution 2,0	BETAINE 2,0	BETAINE 2,0	BETAINE 2,0	
7	MgCl ₂ 0,45	MgCl ₂ 0,45	MgCl ₂ 0,4	MgCl ₂ 0,4	MgCl ₂ 0,4	MgCl ₂ 0,4	
8	dNTP 1,2	dNTP 1,0	dNTP 1,0	dNTP 1,0	dNTP 1,0	dNTP 1,0	
9	PRIM ^{+(2,62)} 0,4	PRIM+ 0,4	PRIM ^{+(25,28)} 0,6	PRIM ^{+(2,5,7)} 0,6	PRIM ^{+(27,62,79)} 0,6	PRIM ^{+(25,28)} 0,6	
10	PRIM ^{+(7,27,79)} 0,6	PRIM- 0,4	PRIM ⁺⁽³²⁾ 0,7	PRIM ^{-(2,5,7)} 0,6	PRIM ^{-(27,62,79)} 0,6	PRIM ⁺⁽³²⁾ 0,7	
11	PRIM ^{-(2,62)} 0,4		PRIM ^{-(25,28)} 0,6			PRIM ^{-(25,28)} 0,6	
12	PRIM ^{-(7,27,79)} 0,6		PRIM ⁻⁽³²⁾ 0,7			PRIM ⁻⁽³²⁾ 0,7	
13	TAQ 0,4	TAQ 0,35	TAQ 0,4	TAQ 0,4	TAQ 0,4	TAQ 0,4	
14	DNA 1,0	DNA 1,0	DNA 1,0	DNA 1,0	DNA 1,0	DNA 1,0	
15							
16							
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31							

Sheet1 / Sheet2 / Sheet3



D09 & D10 – FAZ: SSR profiles

Microsoft Excel - virusi i genotipovi																										
Za pomoć upišite pitanje																										
Calibri 11																										
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
LAB CODE	CODE ON THE ENVELOPE	VARIETY/ SORTA	VIRUS	SAMPLING LOCATION	poslano na analizu u Geisenheim	dna/rezerva lisnog materijala																				
Poništi																										
		MAGROVINA																								
2	LAB CODE	CODE ON THE ENVELOPE	VARIETY/ SORTA	VIRUS	SAMPLING LOCATION	poslano na analizu u Geisenheim	dna/rezerva lisnog materijala																			
3			MAGROVINA					vvs2	vvs2	md7	md7	md27	md27	zag62	zag62	zag79	zag79	md5	md5	md25	md25	md28	md28	md32	md32	
4	SEE 1	HR1-1		AMV,GFV	ISLAND OF CRES - FERLORA VINEYAR	de		131	151	237	241	185	190	187	187	242	246	232	234	237	239	226	244	250	252	
5	SEE 2	HR2-2				de		131	151	237	241	185	190	187	187	242	246	232	234	237	239	226	244	250	252	
6	SEE 3	HR1-3		GFV		de		131	151	237	241	185	190	187	187	242	246	232	234	237	239	226	244	250	252	
7	SEE 4	HR1-4		LRV3		de		131	151	237	241	185	190	187	187	242	246	232	234	237	239	226	244	250	252	
8	SEE 5	HR1-5		LRV3		de		131	151	237	241	185	190	187	187	242	246	232	234	237	239	226	244	250	252	
9	SEE 6	HR1-6		GFV		de		131	151	237	241	185	190	187	187	242	246	232	234	237	239	226	244	250	252	
10	SEE 7	HR1-7		LRV3	ISLAND OF CRES - SILVIO VELČIĆ VINI	de		131	151	237	241	185	190	187	187	242	246	232	234	237	239	226	244	250	252	
11	SEE 8	HR1-8		LRV3		de		131	151	237	241	185	190	187	187	242	246	232	234	237	239	226	244	250	252	
12	SEE 9	HR1-9		LRV3		de		131	151	237	241	185	190	187	187	242	246	232	234	237	239	226	244	250	252	
13	SEE 10	HR1-10		LRV3		de		131	151	237	241	185	190	187	187	242	246	232	234	237	239	226	244	250	252	
14	SEE 11	HR1-11		LRV3		de		131	151	237	241	185	190	187	187	242	246	232	234	237	239	226	244	250	252	
15	SEE 12	HR1-12		LRV3		de		131	151	237	241	185	190	187	187	242	246	232	234	237	239	226	244	250	252	
16	SEE 13	HR1-13		LRV3		de		131	151	237	241	185	190	187	187	242	246	232	234	237	239	226	244	250	252	
17	SEE 14	HR1-14		LRV3		de		131	151	237	241	185	190	187	187	242	246	232	234	237	239	226	244	250	252	
18	SEE 15	HR1-15				de		131	151	237	241	185	190	187	187	242	246	232	234	237	239	226	244	250	252	
19	ukupno bezvirusnih genotipova:Magrovina - 2																									
20	ukupno genotipova bez GFV virusa: Magrovina - 12																									
21																										
22			DRAGANELA					vvs2	vvs2	md7	md7	md27	md27	zag62	zag62	zag79	zag79	md5	md5	md25	md25	md28	md28	md32	md32	
23	SEE 16	HR2-1		GFV,LRV3	ISLAND OF CRES - FERLORA VINEYAR	de		131	143	237	245	175	177	187	203	234	256	222	224	237	239	256	276	272	272	
24	SEE 17	HR2-2				de		131	143	237	245	175	177	187	203	234	256	222	224	237	239	256	276	272	272	
25	SEE 18	HR2-3		LRV3		de		131	143	237	245	175	177	187	203	234	256	222	224	237	239	256	276	272	272	
26	SEE 19	HR2-4				de		131	143	237	245	175	177	187	203	234	256	222	224	237	239	256	276	272	272	
27	SEE 20	HR2-5		GFV		de		131	143	237	245	175	177	187	203	234	256	222	224	237	239	256	276	272	272	
28	SEE 21	HR2-6		GFV		de		131	143	237	245	175	177	187	203	234	256	222	224	237	239	256	276	272	272	
29	SEE 22	HR2-7		GFV		de		131	143	237	245	175	177	187	203	234	256	222	224	237	239	256	276	272	272	
30	SEE 23	HR2-8		LRV1,LRV3	ISLAND OF CRES - DARIO TOJIĆ VINI	de		131	143	237	245	175	177	187	203	234	256	222	224	237	239	256	276	272	272	
31	SEE 24	HR2-9				de		131	143	237	245	175	177	187	203	234	256	222	224	237	239	256	276	272	272	
32	SEE 25	HR2-10		LRV3		de		131	143	237	245	175	177	187	203	234	256	222	224	237	239	256	276	272	272	
33	SEE 26	HR2-11				de		131	143	237	245	175	177	187	203	234	256	222	224	237	239	256	276	272	272	
34	SEE 27	HR2-12		GFV		de		131	143	237	245	175	177	187	203	234	256	222	224	237	239	256	276	272	272	
35	SEE 28	HR2-13				de		131	143	237	245	175	177	187	203	234	256	222	224	237	239	256	276	272	272	
36	SEE 29	HR2-14		GFV		de		131	143	237	245	175	177	187	203	234	256	222	224	237	239	256	276	272	272	
37	SEE 30	HR2-15				de		131	143	237	245	175	177	187	203	234	256	222	224	237	239	256	276	272	272	
38	ukupno bezvirusnih genotipova: Draganela - 6																									
39	ukupno genotipova bez GFV virusa: Draganela - 9																									
40																										
41			SANSIGOT					vvs2	vvs2	md7	md7	md27	md27	zag62	zag62	zag79	zag79	md5	md5	md25	md25	md28	md28	md32	md32	
42	SEE 31	HR3-1			ISLAND OF KRK - OLD VINEYARD (A)	de		141	141	237	247	175	175	187	199	234	252	222	222	237	253	252	256	252	264	
43	SEE 32	HR3-3		LRV1,LRV3		de		141	141	237	247	175	175	187	199	234	252	222	222	237	253	252	256	252	264	
44	SEE 33	HR3-4		GFV		de		141	141	237	247	175	175	187	199	234	252	222	222	237	253	252	256	252	264	
45	SEE 34	HR3-5				de		141	141	237	247	175	175	187	199	234	252	222	222	237	253	252	256	252	264	
46	SEE 35	HR3-6		AMV,LRV3		de		141	141	237	247	175	175	187	199	234	252	222	222	237	253	252	256	252	264	
47	SEE 36	HR3-7				de		141	141	237	247	175	175	187	199	234	252	222	222	237	253	252	256	252	264	
48	SEE 37	HR3-8				de		141	141	237	247	175	175	187	199	234	252	222	222	237	253	252	256	252	264	
49	SEE 38	HR3-9				de		141	141	237	247	175	175	187	199	234	252	222	222	237	253	252	256	252	264	
50	SEE 39	HR3-10		GFV		de		141	141	237	247	175	175	187	199	234	252	222	222	237	253	252	256	252	264	
51	ukupno bezvirusnih genotipova: Sansigot - 5																									
52	ukupno genotipova bez GFV virusa: Sansigot - 7																									

WP2

- **Aim 5:** To check the inter- and intra-variety variation in order to estimate the potential for clonal selection and propose the strategy for biodiversity preservation;

Methodology:

- Multiple samples (vines) per variety population analyzed by S-SAP markers in order to estimate the level of intravariety variation and search for dominant ecotype.

D11- BOKU: S-SAP protocol

Universität für Bodenkultur Wien
University of Natural Resources and Applied Life Sciences, Vienna



Department of Crop Sciences, Division of Viticulture and Pomology
Konrad Lorenz-Strasse 24, 3430 Tulln, Austria

Tulln, 01/25/2012

ERA 91/01 (HRV & MNE Endangered Grapes)
Progress of Project at BOKU Vienna

Introduction:

A modified S-SAP (sequence-specific amplified polymorphism) method by Wegscheider et al. 2009 with universal primers for retrotransposons was used to study the diversity of the grape from Croatia and Montenegro. Included in the study were 214 clones from Croatia and Montenegro.

Method:

Transposon display after the protocol of Wegscheider et al. 2009.

DNA (13.5 μ L) was digested with *MseI* (Fermentas, St. Leon-Rot, Germany) in a total volume of 25 μ L. The digestion was incubated for 2 hr at 65°C. Restricted DNA was further purified using the E.Z.N.A MicroElute DNA Clean-Up Kit (Omega Bio-Tek, USA). After purification, template DNA (25 μ L) was prepared by adding 5 μ L of a ligation mix (50 pmol *MseI* adapter, 100 mM ATP, 10x T4 ligase buffer, and 1 U T4 Ligase (Fermentas, St. Leon-Rot, Germany), and was incubated overnight at room temperature (20°C). T4 ligase was inactivated by heating up to 65°C for 10 min. In the preamplification step, the primer M(0), homologous to the adapter sequence, was combined with one of six labeled (IRD700 and IRD800) universal retrotransposon primers: F0100, F0103, F0104, F0105, F0113, and F0117 (Table 1). The PCR reaction mixture contained 2.25 μ L template DNA, 1.5 μ M M(0), 1.5 μ M transposon primer, 1x PCR buffer, 3 mM MgCl₂, 0.2 mM dNTPs, and 1 U Taq DNA polymerase recombinant (Fermentas, St. Leon-Rot, Germany) in a final volume of 15 μ L. The unselective PCR was conducted using the following program: 94°C · 60 s + 26 x (94°C · 30 s, 56°C · 60 s, 72°C · 60 s) + 72°C · 6 min. The selective amplification was carried out in a total volume of 10 μ L containing 1 μ L preamplified DNA (diluted 1:10), 0.5 μ M selective *MseI* primer (M22, M23, M24, M25, M27) (Table 1), 0.5 μ M transposon primer, 1x PCR buffer, 2.5 mM MgCl₂, 0.2 mM dNTPs, and 0.75 U Taq DNA polymerase recombinant (Fermentas, St. Leon-Rot, Germany) using the following cycle profile: 94°C · 60 s + 12 x (94°C · 30 s, 65°C · 30 s, 72°C · 60 s) [annealing temperature was reduced by 0.7°C in each of the 12 cycles] + 26 x (94°C · 30 s, 56°C · 30 s, 72°C · 60 s) + 72°C · 6 min.

Bands were detected in a 6% polyacrylamide gel and visualized by the automated LI-COR NEN 4300 DNA analyzer (LI-COR Biosciences, Bad Homburg, Germany).

Results so far:

Protocol was established for the analysis of the clone DNAs from Croatia and Montenegro and primers were tested. After the primer test four primer combinations F0105a-M27, F0104a-M27, F0103a-M27, and F0100a-F27 were chosen (Table 1). Each primer combination approximately produced around 70 marker bands (poly- and monomorphic bands). The laboratory work on the LI-COR NEN 4300 DNA analyzer (LI-COR Biosciences, Bad Homburg, Germany) could be successfully completed and all clones were analyzed. The data analysis and statistics of the inter- and intra- variation is ongoing but will be completed by the end of January 2012.

Table 1: *Mse*I primers and universal retrotransposon-based primers (Wegscheider et al. 2009) used in the S-SAP analyses

Primer code	DNA sequence
M(0)	5' GATGAGTCCTGAGTAA 3'
M22	5' GATGAGTCCTGAGTAACAA 3'
M23	5' GATGAGTCCTGAGTAACTT 3'
M24	5' GATGAGTCCTGAGTAACAC 3'
M25	5' GATGAGTCCTGAGTAACAT 3'
M27	5' GATGAGTCCTGAGTAACTG 3'
F0100a	5' TAGGTCGGAACAGGCTCTGATACCA 3'
F0103a	5' ACCGAGCAACTTGAGCTCTGATACCA 3'
F0104a	5' CTAGGGTCAAGGGGGCTCTGATACCA 3'
F0105a	5' GGGAAATGGTCCGCTCTGATACCA 3'
F0113a	5' AGTTCATCGTAGGTGGGCGCCA 3'
F0117a	5' ATCCCAGCGGAGTCGCCA 3'

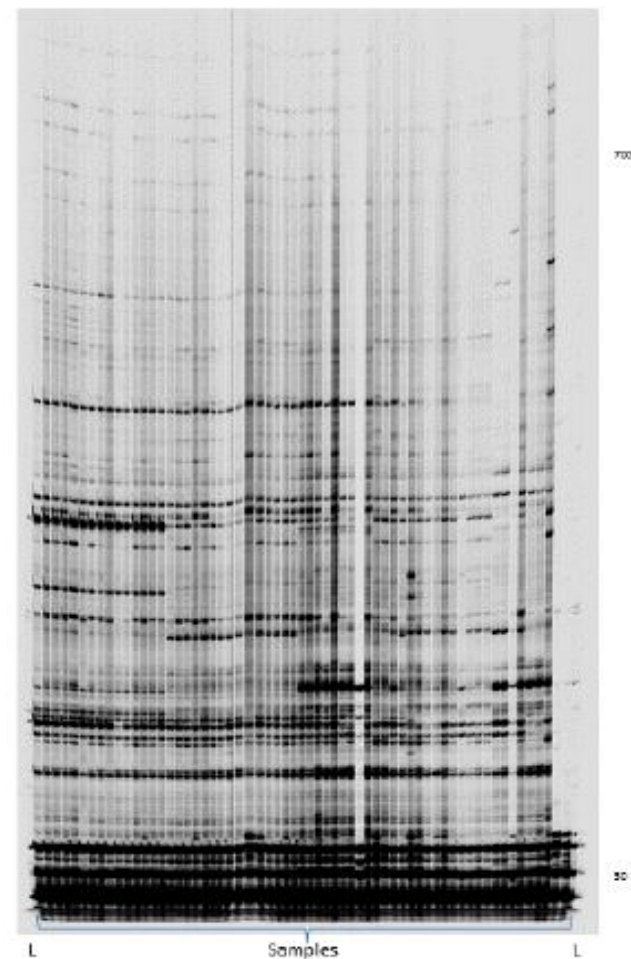


Figure 1: Figure displays the primer amplification F0103-M27 in a 6% Acrylamid gel detected by the LI-COR NEN 4300 DNA analyzer (LI-COR Biosciences, Bad Homburg, Germany).

References:

Wegscheider E, Benjak A, Forneck A. (2009) Clonal Variation in Pinot noir Revealed by S-SAP Involving Universal Retrotransposon-Based Sequences *Am. J. Enol. Vitic.* 60(1):104-109

WP3

- **Aim 6:** Assess presence of plant viruses within collected material and do sanitary selection using accurate laboratory tests;

Methodology:

- According to the results of ampelographic, SSR and S-SAP analyzes (determination of true-to-type genotype) the cuttings (buds) for propagation have been selected and all verified samples were shipped to Partner 2 to perform ELISA and other required (PCR) tests.

D06 – FAZ: Cuttings for grafting (propagation)

Croatian grapevine samples for SEE-ERA.NET project 2011															
cuttings for grafting		samples for Elisa test		cuttings for grafting		samples for Elisa test		cuttings for grafting		samples for Elisa test					
No.	Code	Cultivar name	No.	Code	No.	Code	Cultivar name	No.	Code	No.	Code	Cultivar name	No.	Code	
9	1	HR1-1	Magrovina	1	HR1-1	56	HR4-17	Dišeća ranina	56	HR4-17	111	DOB11	Dobričić	111	DOB11
10	2	HR1-2	Magrovina	2	HR1-2	57	HR4-18	Dišeća ranina	57	HR4-18	112	DOB12	Dobričić	112	DOB12
11	3	HR1-3	Magrovina	3	HR1-3	58	HR4-19	Dišeća ranina	58	HR4-19	113	DOB13	Dobričić	113	DOB13
12	4	HR1-4	Magrovina	4	HR1-4	59	HR5	NN	59	HR5	114	DOB14	Dobričić	114	DOB14
13	5	HR1-5	Magrovina	5	HR1-5	60	HR6	NN	60	HR6	115	DOB15	Dobričić	115	DOB15
14	6	HR1-6	Magrovina	6	HR1-6	61	HR7	NN	61	HR7	116	ZLA 1	Zlatarica blatska	116	ZLA 1
15	7	HR1-7	Magrovina	7	HR1-7	62	HR8	NN	62	HR8	117	ZLA 2	Zlatarica blatska	117	ZLA 2
16	8	HR1-8	Magrovina	8	HR1-8	63	HR9	NN	63	HR9	118	ZLA 3	Zlatarica blatska	118	ZLA 3
17	9	HR1-9	Magrovina	9	HR1-9	64	HR10	Stara Belina aromati	64	HR10	119	ZLA 5	Zlatarica blatska	119	ZLA 5
18	10	HR1-10	Magrovina	10	HR1-10	65	HR11	Belina	65	HR11	120	ZLA 6	Zlatarica blatska	120	ZLA 6
19	11	HR1-11	Magrovina	11	HR1-11	66	HR12-1	Jarbola	66	HR12-1	121	ZLA 7	Zlatarica blatska	121	ZLA 7
20	12	HR1-12	Magrovina	12	HR1-12	67	HR12-2	Jarbola	67	HR12-2	122	ZLA 9	Zlatarica blatska	122	ZLA 9
21	13	HR1-13	Magrovina	13	HR1-13	68	HR12-3	Jarbola	68	HR12-3	123	ZLA 10	Zlatarica blatska	123	ZLA 10
22	14	HR1-14	Magrovina	14	HR1-14	69	HR12-4	Jarbola	69	HR12-4	124	ZLA 12	Zlatarica blatska	124	ZLA 12
23	15	HR1-15	Magrovina	15	HR1-15	70	HR12-5	Jarbola	70	HR12-5	125	ZLA 13	Zlatarica blatska	125	ZLA 13
24	16	HR2-1	Draganela	16	HR2-1	71	HR12-6	Jarbola	71	HR12-6	126	ZLA 14	Zlatarica blatska	126	ZLA 14
25	17	HR2-2	Draganela	17	HR2-2	72	HR12-7	Jarbola	72	HR12-7	127	ZLA 15	Zlatarica blatska	127	ZLA 15
26	18	HR2-3	Draganela	18	HR2-3	73	HR12-8	Jarbola	73	HR12-8	128	ZLA 18	Zlatarica blatska	128	ZLA 18
27	19	HR2-4	Draganela	19	HR2-4	74	HR12-9	Jarbola	74	HR12-9	129	ZLA 19	Zlatarica blatska	129	ZLA 19
28	20	HR2-5	Draganela	20	HR2-5	75	HR12-10	Jarbola	75	HR12-10	130	ZLA 23	Zlatarica blatska	130	ZLA 23
29	21	HR2-6	Draganela	21	HR2-6	76	HR12-11	Jarbola	76	HR12-11	131	ZLA 24	Zlatarica blatska	131	ZLA 24
30	22	HR2-7	Draganela	22	HR2-7	77	HR12-12	Jarbola	77	HR12-12	132	ZLA 26	Zlatarica blatska	132	ZLA 26
31	23	HR2-8	Draganela	23	HR2-8	78	HR12-13	Jarbola	78	HR12-13	133	ZLA 27	Zlatarica blatska	133	ZLA 27
32	24	HR2-9	Draganela	24	HR2-9	79	HR12-14	Jarbola	79	HR12-14	134	ZLA 29	Zlatarica blatska	134	ZLA 29
33	25	HR2-10	Draganela	25	HR2-10	80	HR12-15	Jarbola	80	HR12-15	135	ZLA 30	Zlatarica blatska	135	ZLA 30
34	26	HR2-11	Draganela	26	HR2-11	81	HR13-1	Rebula	81	HR13-1	136	ZLA 31	Zlatarica blatska	136	ZLA 31
35	27	HR2-12	Draganela	27	HR2-12	82	HR13-2	Rebula	82	HR13-2	137	ZLA 32	Zlatarica blatska	137	ZLA 32
36	28	HR2-13	Draganela	28	HR2-13	83	HR 14	Stara Ranina	83	HR 14	138	ZLA 33	Zlatarica blatska	138	ZLA 33
37	29	HR2-14	Draganela	29	HR2-14	84	SOK1	Sokol	84	SOK1	139	ZLA 34	Zlatarica blatska	139	ZLA 34
38	30	HR2-15	Draganela	30	HR2-15	85	SOK2	Sokol	85	SOK2	140	ZLA 36	Zlatarica blatska	140	ZLA 36
39	31	HR3-1	Sansigot	31	HR3-1	86	SOK3	Sokol	86	SOK3	141	ZLA 37	Zlatarica blatska	141	ZLA 37
40	32	HR3-3	Sansigot	32	HR3-3	87	SOK4	Sokol	87	SOK4	142	ZLA 38	Zlatarica blatska	142	ZLA 38
41	33	HR3-4	Sansigot	33	HR3-4	88	SOK5	Sokol	88	SOK5	143	ZLA 42	Zlatarica blatska	143	ZLA 42
42	34	HR3-5	Sansigot	34	HR3-5	89	SOK6	Sokol	89	SOK6	144	ZLA 43	Zlatarica blatska	144	ZLA 43
43	35	HR3-6	Sansigot	35	HR3-6	90	SOK7	Sokol	90	SOK7	145	ZLA 44	Zlatarica blatska	145	ZLA 44
44	36	HR3-7	Sansigot	36	HR3-7	91	SOK8	Sokol	91	SOK8	146	ZLA 45	Zlatarica blatska	146	ZLA 45
45	37	HR3-8	Sansigot	37	HR3-8	92	SOK9	Sokol	92	SOK9	147	ZLA 47	Zlatarica blatska	147	ZLA 47
46	38	HR3-9	Sansigot	38	HR3-9	93	SOK11	Sokol	93	SOK11	148	ZLA 48	Zlatarica blatska	148	ZLA 48
47	39	HR3-10	Sansigot	39	HR3-10	94	SOK12	Sokol	94	SOK12	149	ZLA 49	Zlatarica blatska	149	ZLA 49
48	40	HR4-1	Dišeća ranina	40	HR4-1	95	SOK13	Sokol	95	SOK13	150	ZLA 50	Zlatarica blatska	150	ZLA 50
49	41	HR4-2	Dišeća ranina	41	HR4-2	96	SOK14	Sokol	96	SOK14	151	ZLA 51	Zlatarica blatska	151	ZLA 51
50	42	HR4-3	Dišeća ranina	42	HR4-3	97	SOK15	Sokol	97	SOK15	152	ZLA 52	Zlatarica blatska	152	ZLA 52
51	43	HR4-4	Dišeća ranina	43	HR4-4	98	SOK16	Sokol	98	SOK16	153	ZLA 55	Zlatarica blatska	153	ZLA 55
52	44	HR4-5	Dišeća ranina	44	HR4-5	99	IP 161	NN	99	IP 161	154	ZLA 56	Zlatarica blatska	154	ZLA 56
53	45	HR4-6	Dišeća ranina	45	HR4-6	100	IP 165	NN	100	IP 165	155	ZLA 58	Zlatarica blatska	155	ZLA 58
54	46	HR4-7	Dišeća ranina	46	HR4-7	101	DOB1	Dobričić	101	DOB1	156	ZLA 59	Zlatarica blatska	156	ZLA 59
55	47	HR4-8	Dišeća ranina	47	HR4-8	102	DOB2	Dobričić	102	DOB2	157	ZLA 60	Zlatarica blatska	157	ZLA 60
56	48	HR4-9	Dišeća ranina	48	HR4-9	103	DOB3	Dobričić	103	DOB3	158	ZLA 62	Zlatarica blatska	158	ZLA 62




D06 – BTF: Cuttings for grafting (propagation)

Legend of sent samples (cuttings - Vitis vinifera),

Code	Locality	Owner	Number of cuttings
MNE 1	Račica, Doljani-Podgošica	Dragiša Vujošević	50
MNE 2	Markovina – Danilovgrad	Spasoje Vujović	49
MNE 7	Račica, Doljani-Podgošica	Saša Vujošević	50
MNE 12	Boljevići, Crmnica Bar	Jovan P. Plamenac	21
MNE 13	Beri-Podgošica	Ljubo Perović	4
MNE 15	Beri-Podgošica	Ljubo Perović	19
MNE 16	Beri-Podgošica	Veselin Perović	5
MNE 17	Godinje, Crmnica Bar	Krsto Leković	25
MNE 20	Otočići, Crmnica Bar	Božo Vujačić	13
MNE 21	Donji Medun, Podgošica	Mihailo Laković	23
Total number of cuttings (<u>Vitis vinifera</u>)			259

January, 2011




765-317

Datum računa: 07.02.2011
 Način plaćanja: N/iman
 Rok plaćanja: ODMAH
 PIB: 02657970
 PDV: 30/31-06290-9
 tel. +382 20 643 425
 Vojislavljevića 66, Podgorica

RAČUN R/1 broj 209/11
 BIOTEHNIČKI FAKULTET
 UL. MIHAILA LALICA 1
 PODGORICA

br./AWB	Opis	Popust %	kol.	Cijena	PDV %	Cijena bez PDV-a	Iznos PDV	Iznos s PDV-om
1. 871356513786	Međunarodni prevoz - PODGORICA- BUEVARCA 5.5 KG PO VOLUMETRIJI		1	111		111.00	0.00	111.00
2.	DFS		15			0.00	0.00	0.00
Ukupno EUR						0.00	0.00	15.65

SLOVIMA: STODVADESETSEDAM EURA I 65/100
 Plaćanje kod NIB MONTENEGRO BANKA
 Broj računa: 530-13899-26
 NAPOMENA: Oslobođeno plaćanja PDV-a prema članu 21.stav 4. b Pravilnika

FAKTURISAO
 Danijela Simulović

DIREKTOR
 Amela Krpijević

WP3

- **Aim 7:** Ensure proper maintaining of material for future use in research and production

Methodology:

- It is expected that up to 15 different cultivars/genotypes will be necessary to propagate with 3 – 4 clones per cultivar in average leads to between 45 and 60 stock vines to be thoroughly tested and propagated. Those ones to be approved as virus-tested will be propagated into 15-20 grafts.



D12 – FAG: Virus testing

Microsoft Excel - Croatia-31-03-2011

Datoteka Uređivanje Pogled Umetanje Oblikovanje Alati Podaci Prozor Pomoć

Za pomoć upišite pitanje

J10 Arial 10 B I U

	A	B	C	D	E	F	G	H	I	J	K
1	HESSEN				 FAG FORSCHUNGSANSTALT GEISENHEIM						
2					Fachgebiet Rebenzüchtung und Rebenveredlung Eibinger Weg 1 - D-65366 Geisenheim						
3											
4											
5	Probenentnahmeprotokoll							Landwirtschaftskammer Rheinland-Pfalz			
6	der amtlichen Prüfung							Burgenlandstraße 7			
7	gemäß §4 RebenpflanzgutVO							55543 Bad Kreuznach			
8	i.d. Fassung vom 6. Juli 2006							Telefon 0671-793-0			
9								Telefax 0671-793 1199			
10											
29	<i>Rebsorte/Klon/Kategorie</i>				<i>Standort</i>		<i>Plan Nr.</i>	<i>Datum</i>			
30					Kroatien_2011---						
31	<i>Anerkennungs-Serien-Nr</i>				<i>Blatt</i>						
32											
33	Weinbau						Labor				
34	<i>Pr.Nr.</i>	<i>Virus</i>	<i>Reihe</i>	<i>Stock Nr.</i>	<i>Bemerkung / Fehlstellen</i>		<i>Lab. Nr.</i>	<i>U-Ergebnis</i>			
35	2011-00418	AMV		HR 3-5			Gm-Rz	Negativ			
36	2011-00418	AMV		HR 3-5			Gm-Rz	Negativ			
37	2011-00418	AMV		HR 3-5			Gm-Rz	Negativ			
38	2011-00418	AMV		HR 3-5			Gm-Rz	Negativ			
39	2011-00418	AMV		HR 3-5			Gm-Rz	Negativ			
40	2011-00418	AMV		HR 3-5			Gm-Rz	Negativ			
41	2011-00418	GFV		HR 3-5			Gm-Rz	Negativ			
42	2011-00418	GFV		HR 3-5			Gm-Rz	Negativ			
43	2011-00418	GFV		HR 3-5			Gm-Rz	Negativ			
44	2011-00418	GFV		HR 3-5			Gm-Rz	Negativ			
45	2011-00418	GFV		HR 3-5			Gm-Rz	Negativ			
46	2011-00418	GFV		HR 3-5			Gm-Rz	Negativ			
47	2011-00418	LRV1		HR 3-5			Gm-Rz	Negativ			
48	2011-00418	LRV1		HR 3-5			Gm-Rz	Negativ			
49	2011-00418	LRV1		HR 3-5			Gm-Rz	Negativ			
50	2011-00418	LRV1		HR 3-5			Gm-Rz	Negativ			
51	2011-00418	LRV1		HR 3-5			Gm-Rz	Negativ			
52	2011-00418	LRV1		HR 3-5			Gm-Rz	Negativ			
53	2011-00418	LRV3		HR 3-5			Gm-Rz	Negativ			
54	2011-00418	LRV3		HR 3-5			Gm-Rz	Negativ			
55	2011-00418	LRV3		HR 3-5			Gm-Rz	Negativ			
56	2011-00418	LRV3		HR 3-5			Gm-Rz	Negativ			
57	2011-00418	LRV3		HR 3-5			Gm-Rz	Negativ			
58	2011-00418	LRV3		HR 3-5			Gm-Rz	Negativ			
59	2011-00418	RRSV		HR 3-5			Gm-Rz	Negativ			
60	2011-00418	RRSV		HR 3-5			Gm-Rz	Negativ			
61	2011-00418	RRSV		HR 3-5			Gm-Rz	Negativ			
62	2011-00418	RRSV		HR 3-5			Gm-Rz	Negativ			
63	2011-00418	RRSV		HR 3-5			Gm-Rz	Negativ			
64	2011-00418	RRSV		HR 3-5			Gm-Rz	Negativ			

VirusProtokoll / Tabelle1 /

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12:24 24.1.2012.

D13 – FAG: Grafting

Microsoft Excel - Grafted vines Croatia 2011

Datoteka Uređivanje Pogled Umetanje Oblikovanje Alati Podaci Prozor Pomoć

Za pomoć upišite pitanje

Times New Roman 12

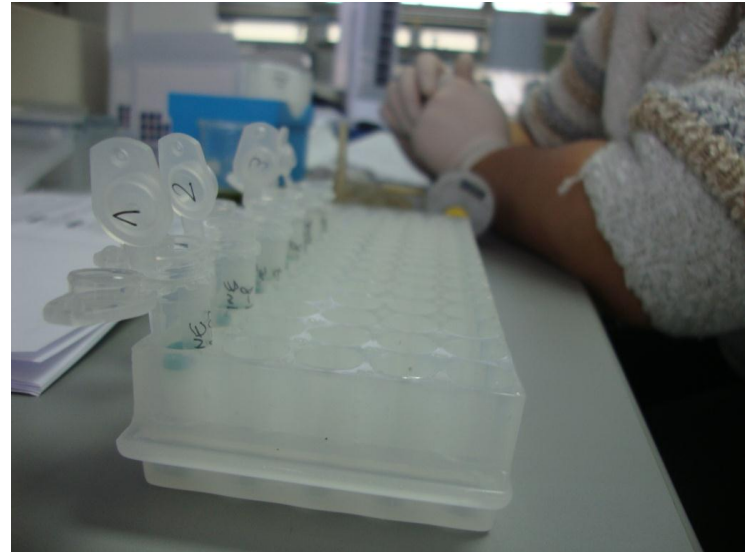
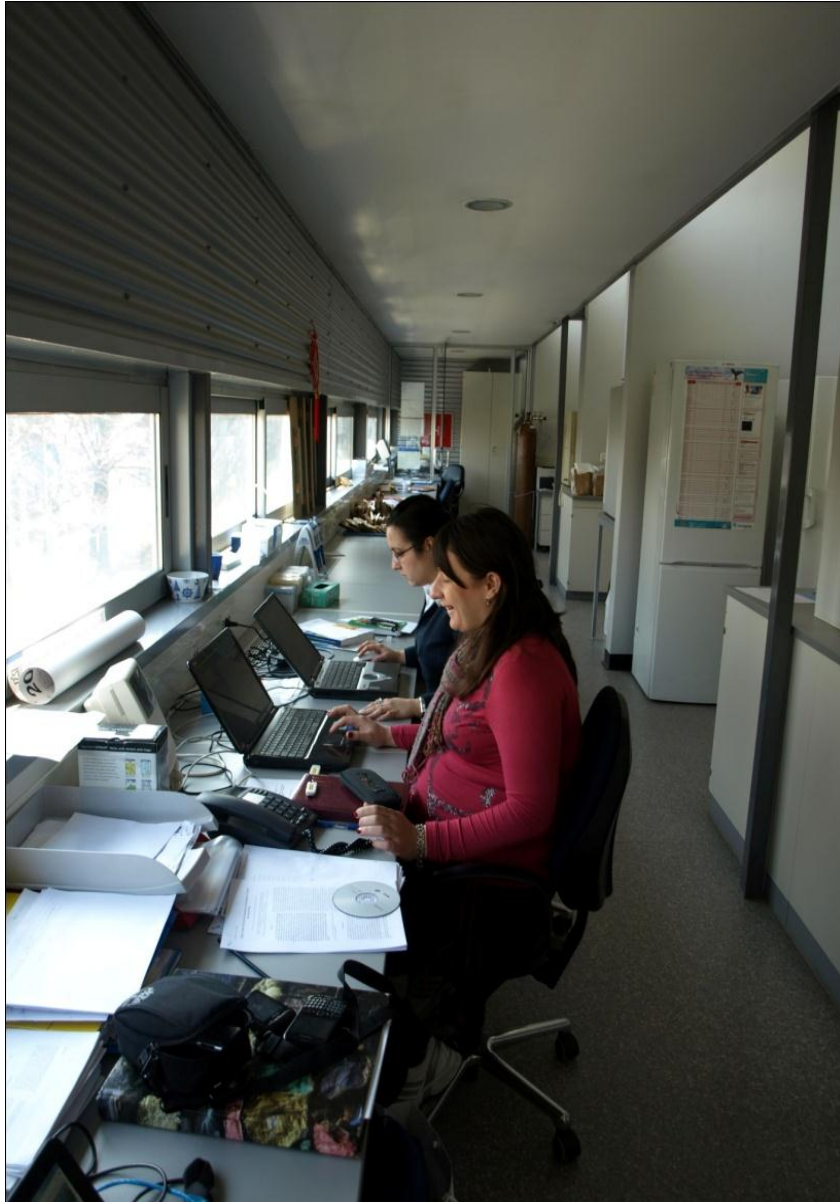
	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Veredlung für Kroatien												
2	Sorte	Klon	Unterlage	veredelt	eingeschult	ausgeschult							
3	Magorvina	HR 1-2	5 BB Kl. 13-3 Gm	12	0	0							
4	Magorvina	HR 1-15	5 BB Kl. 13-3 Gm	20	7	5							
5	Draganella	HR 2-2	5 BB Kl. 13-3 Gm	20	0	0							
6	Draganella	HR 2-4	5 BB Kl. 13-3 Gm	15	0	0							
7	Draganella	HR 2-9	5 BB Kl. 13-3 Gm	20	0	0							
8	Draganella	HR 2-11	5 BB Kl. 13-3 Gm	15	1	0							
9	Draganella	HR 2-13	5 BB Kl. 13-3 Gm	16	0	0							
10	Draganella	HR 2-15	5 BB Kl. 13-3 Gm	20	0	0							
11	Sansigot	HR 3-1	5 BB Kl. 13-3 Gm	20	17	7	7						
12	Sansigot	HR 3-5	5 BB Kl. 13-3 Gm	20	0	0							
13	Sansigot	HR 3-7	5 BB Kl. 13-3 Gm	20	0	0							
14	Sansigot	HR 3-8	5 BB Kl. 13-3 Gm	17	0	0							
15	Sansigot	HR 3-9	5 BB Kl. 13-3 Gm	6	0	0							
16	Diseca ranina	HR 4-7	5 BB Kl. 13-3 Gm	20	17	3	43						
17	Diseca ranina	HR 4-10	5 BB Kl. 13-3 Gm	36	25	9							
18	Diseca ranina	HR 4-11	5 BB Kl. 13-3 Gm	41	27	11							
19	Diseca ranina	HR 4-12	5 BB Kl. 13-3 Gm	25	14	4							
20	Diseca ranina	HR 4-13	5 BB Kl. 13-3 Gm	30	16	5							
21	Diseca ranina	HR 4-17	5 BB Kl. 13-21 Gm	20	18	5							
22	Diseca ranina	HR 4-18	5 BB Kl. 13-3 Gm	22	16	3							
23	Diseca ranina	HR 4-19	5 BB Kl. 13-3 Gm	31	6	3							
24	N.N.	HR 7	5 BB Kl. 13-3 Gm	23	20	5							
25	Jarbola	HR 12-1	5 BB Kl. 13-3 Gm	20	0	0	23						
26	Jarbola	HR 12-2	5 BB Kl. 13-3 Gm	25	1	1							
27	Jarbola	HR 12-3	5 BB Kl. 13-3 Gm	25	0	0							
28	Jarbola	HR 12-5	5 BB Kl. 13-3 Gm	25	4	2							
29	Jarbola	HR 12-6	5 BB Kl. 13-3 Gm	26	1	1							
30	Jarbola	HR 12-7	5 BB Kl. 13-3 Gm	23	0	0							
31	Jarbola	HR 12-8	5 BB Kl. 13-3 Gm	30	2	2							
32	Jarbola	HR 12-9	5 BB Kl. 13-3 Gm	22	0	0							
33	Jarbola	HR 12-10	5 BB Kl. 13-3 Gm	10	1	1							
34	Jarbola	HR 12-11	5 BB Kl. 13-3 Gm	26	1	1							
35	Jarbola	HR 12-12	5 BB Kl. 13-3 Gm	32	5	3							
36	Jarbola	HR 12-13	5 BB Kl. 13-3 Gm	25	2	1							
37	Jarbola	HR 12-14	5 BB Kl. 13-3 Gm	30	13	3							
38	Jarbola	HR 12-15	5 BB Kl. 13-3 Gm	30	16	8							
39	Rebula	HR 13-1	5 BB Kl. 13-3 Gm	32	1	0							
40	Rebula	HR 13-2	5 BB Kl. 13-3 Gm	35	0	0							
41	N.N.	IP 161	5 BB Kl. 13-3 Gm	30	5	4							

Tabelle1 / Tabelle2 / Tabelle3 / Tabelle4 / Tabelle5

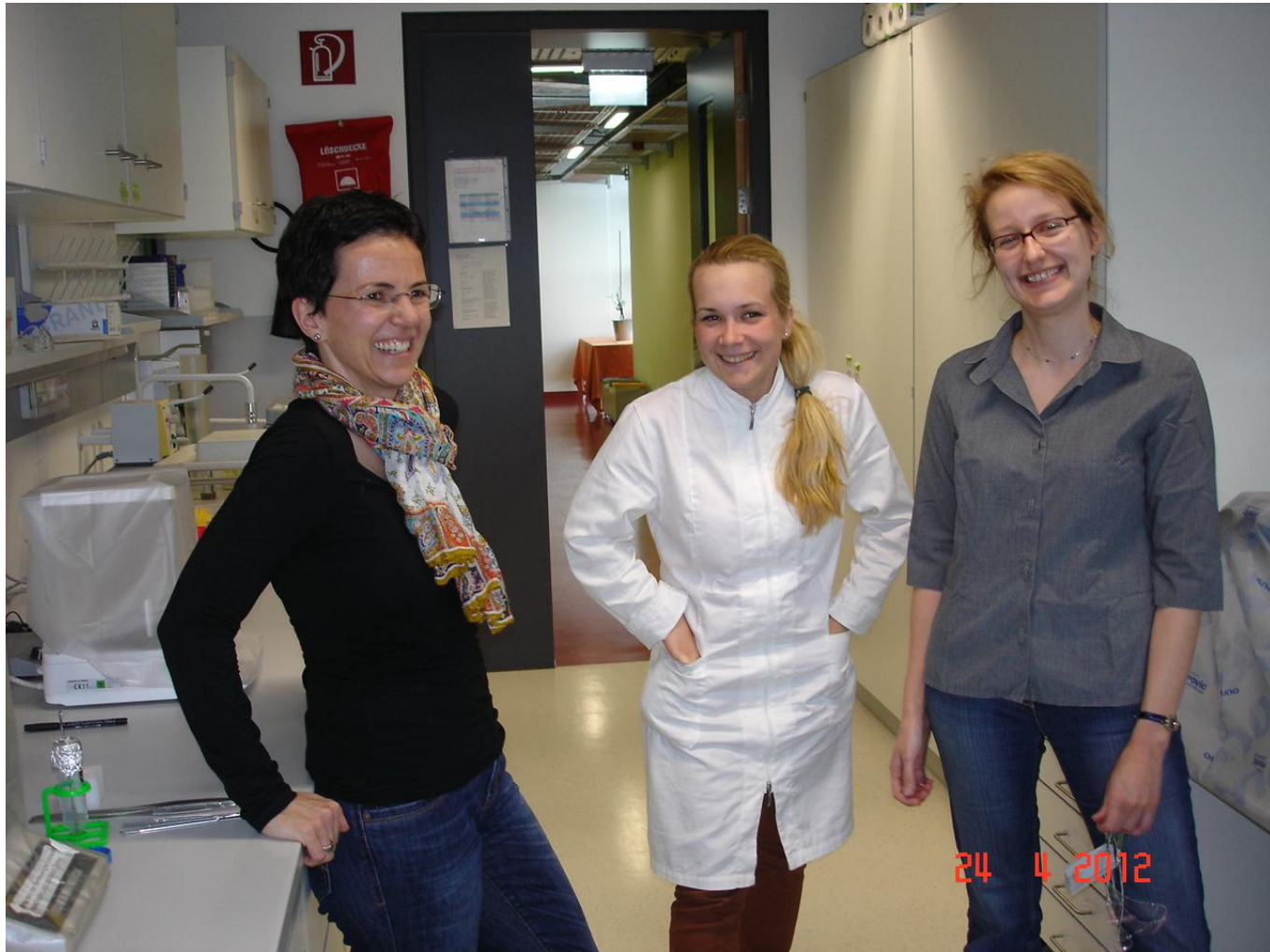
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12:12 24.1.2012.

Milena Mugoša has been on FAZ for one month training (lab work)



Maja Žulj Mihaljević has been on BOKU for one month training (lab work)



Project at the end: results' dissemination

- Professional and scientific papers (data analysis)
- Dissemination through scientific meetings (two papers accepted)
- **This workshop – to make familiar professional community and all relevant stakeholders with project results**
- **Thank you for coming and your interest in our work!**

Workshop: Advanced management with autochthonous grapevine varieties

Topics:

- **Field identification, collection and evaluation of grapevine autochthonous cultivars** (D. Periner & M. Mugoša)
- **Genetic identification of cultivars by SSR markers and its practical applications** (M. Žulj Mihaljević)
- **Clonal variation – consequences and methods of detection** (U. Anhalt)
- **Cultivars' propagation (virus testing, grafting & certification scheme)** - E. Rühl
- **Autochthonous cultivars' quality assessment** (E. Maletić and V. Maraš)
- Discussion on strategy of autochthonous cultivars' revitalization including administrative steps (moderators: I. Pejić and E. Rühl)