

COST Action FA1003
Workshop

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Status of *Vitis* germplasm conservation in Europe

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Status of *Vitis* germplasm conservation in Europe



30 years ago:

OIV Resolution N° 2/82

Collection and conservation of the genetic resources of *Vitis* ssp.

Working Group on *Vitis* Genetic Resources

Thessaloniki, Greece, 29 April – 1 May 1982

2012

Achievements (public awareness, collection, description, evaluation, genotyping, documentation)

??? years from now

Monitoring of grape germplasm via coordinated maintenance in both, grapevine collections and natural reserves

OIV Resolution N° 2/82

Collection and conservation of the genetic resources of *Vitis* ssp.

The General Assembly recommends:

- the collection of germplasm in the centres of diversity,
- the maintenance of *Vitis* species, cultivars and clones in collections,
- intensification of *in vitro* storage research,
- development of international cooperation between gene banks and the free exchange of genetic material

Status of *Vitis* germplasm conservation in Europe



Working Group on *Vitis* Genetic Resources
Thessaloniki, Greece, 29 April – 1 May 1982

Review on country activities:

Bulgaria: Although there is a national genetic resources programme, fully detailed plans for the collection of old cultivars and wild material have not yet been developed.

Federal Republic of Germany: The Bundesforschungsanstalt für Rebenzüchtung Geilweilerhof has been given national responsibility for the description of all materials in collections in the FRG.

Hungary, Bulgaria, Romania, Yugoslavia: Official cooperation has been agreed upon by governments for the collection and conservation of *V. sylvestris*.

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Italy: There are a number of existing collections and in 1981 a mechanism was established to coordinate the work. The collections do not include many old cultivars and there is a need to collect those that are not commercially propagated.

Portugal: Work at present is uncoordinated, scattered over several institutes and the collection of old cultivars has not been started.

Spain: Material is maintained in several institutes but only the Departamento de Viticultura y Enología, Finca “El Encin”, Madrid describes the samples. Further collection of old cultivars has not been organized nationally.

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Turkey: Collection has been under way for a number of years and there are a number of institutes maintaining material.

Other countries: Coordinated national programmes for systematic collection of old cultivars and wild species were not reported, except for the USSR.

In order to draw TODAY a realistic picture it would be worth knowing:

A: General situation in the country

- Existence (%) of old vineyards (or mixed plantings), with
 - old autochthonous cultivars or not
 - not clonally selected materialthus offering high variable germplasm.
- Number of autochthonous cultivars (estimation: ALB_600; HRV_400; GEO_524; ITA_2300; MLT_120; PRT_350)
- Number of minor cultivars (area below 1-3 ha)
- Number of neglected cultivars (present in repositories only)
- Occurrence of *Vitis sylvestris* in wild habitats
- Realization of prospectings (minor cultivars, clones, *Vitis* species)
- Preservation of clones (particular efforts in FRA)
- National gene banks linking all collections

- National resp. regional programs/projects

In order to draw TODAY a realistic picture it would be worth knowing:

B: Maintenance in the country

- Preservation *ex-situ*
cultivars, species, breeding material – mainly in public collections
- Preservation *in-situ*
Vitis sylvestris – natural habitat
- Preservation on farm
old autochthonous varieties – vinegrower

C: Political aspects

- COMMISSION DIRECTIVE 2008/62/EC of 20 June 2008, providing for certain derogations for acceptance of agricultural landraces and varieties which are naturally adapted to the local and regional conditions and threatened by genetic erosion and for marketing of seed and seed potatoes of those landraces and varieties (but not grapes)

Registration of neglected varieties (possible for all agricultural crops, except fruit trees and grapevine)

(Bekanntmachung Nr. 07/12 des Bundessortenamtes über die Zulassung von Erhaltungssorten landwirtschaftlicher Pflanzenarten und Erhaltungs- und Amateursorten von Gemüsearten vom 15. März 2012)

Reason: almost no availability of certified material

What has been achieved until today:

B: Maintenance in the country

Activities in European countries were enhanced and European wide cooperation was intensified owing to the 4 projects:

Genres081, Black Sea – Project, GrapeGen06, COST FA1003 and the ECPGR *Vitis* Working Group

- Description of accessions with FAO/IPGRI Multi Crop Passport Descriptors
- Characterisation of mainly neglected autochthonous cultivars, according to agreed descriptors
- Genotyping (9 SSR-markers) to assist trueness-to-type assessment
- On-farm evaluation
- Inventory of *Vitis sylvestris* populations
- Registration of all data in the European *Vitis* Database

Status of *Vitis* germplasm conservation in Europe



Institute code	European Vitis		Institute code	European Vitis	
	VIVC - Number of accessions / cultivars	Database - number of accessions_13April12		VIVC - Number of accessions / cultivars	Database - number of accessions_13April12
ARM011	133	133	HRV041	176	100
AUT024	464	940	HUN045	704	1.101
AZE007	399	397	ITA360	270	596
BGR013	1.327	1.673	ITA362	1.078	274?
CHE019	381	381	ITA368	322	390
CHE063	167	167	ITA388	1.807	3.215
CHE101	60	60	MDA004	422	421
CHE104	121	121	PRT051	623	721
CHE109	303	303	ROM 06	19	142
CYP001	48	92	ROM 13		117
CZE041	469	124	ROM 16		136
DEU098	3.433	3.789	ROM044		85
ESP074	1.403	1.577	ROM045	188	255
ESP080	2.035	3.402	ROM047	24	77
FRA139	5.039	7.502	ROM051	14	236
GEO014	147	147	RUS 02	612	500
GEO015	40	40	SVK042	78	151
GEO017	252	251	SVN018	37	69
GEO018	179	178	UKR050	1.298	346
GEO019	253	251	sum accessions:	25.232 (24.993)	32.904 (31.856)
GRC005	260	260	sum collections:	34 (38)	34 (41)
GRC010	738	807			

Status of *Vitis* germplasm conservation in Europe



Number of cultivars/accessions hold in grapevine collections

Institute code	Répertoire mondial OIV (ed. 1987)	European Vitis Database (April 2012)
CHE019	230	381
CYP001	64	92
DEU098	1.001	3.789
ESP074	417	1.577
ESP080	1.926	3.402
FRA139	3.133	7.502
HUN045	875	1.101
ITA360	237	596
ITA388	994	3.215

Pertinent questions with respect to the information to be retrieved from the European Vitis Database in the context of safety duplication:

- How many different cultivars are preserved
- Which are the unique accessions
- Which are neglected cultivars
- Which are the cultivars endangered to disappear
- Which are most valuable accessions for breeding purposes
- etc.

Answer:

For the time being main obstacles are synonyms, homonyms and misnomers

Solutions:

- Enhance efforts to assign the VVC variety number to accessions, tagging different designations (synonyms) with the same number
 - Enhance the assessment to trueness to type in collections
 - Use the SSR-marker data available until now to identify unique fingerprints, with ampelography and bibliography involved
- Employment of the FAO/IPGRI passport descriptor „20 - SAMPSTAT (Biological status of accession)”
 - 340) Local neglected cultivar, officially registered, grown in a very limited extend (Example: Nascetta)
 - 350) Local neglected cultivar under evaluation (Example: Montanera)
 - 360) Local neglected cultivar endangered to disappear (Example: Gouais blanc)

Status of *Vitis* germplasm conservation in Europe



Genetic resources monitoring

Introduction

With regard to the preservation of the grapevine genetic resources, the present search module is using the VIVC cultivar specific data for deeper analysis. The most important issue is the identification of endangered cultivars existing in only one grapevine collection. This module supports the search for precious germplasm, where duplication is needed to prevent loss.

Note: use the list fields to select the search criteria.

Use % as wildcard at the beginning of a keyword for searching for the word with multiple beginnings.

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Varieties registered in Europe

1-Species

2-Country of origin of the variety

3-Utilization

4-Crossing

5-Sex of flowers

6-Formation of seeds

7-Color of berry skin

• A: Maintenance in holding institution

• B: Frequency of occurrence in holding institutions

• C: Bibliography

Search

Reset

Status of *Vitis* germplasm conservation in Europe

Genetic resources monitoring

Search criteria :

1. Country of origin of the variety : AZERBEIJAN
2. Frequency of occurrence in holding institutions : 1

Search result : 241 (1 -- 100)

- Total number of registered cultivars in the VIVC = 23033
- Search result is corresponding to 1,05% of the registered cultivars

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Prime name	Color of berry skin	Variety number VIVC	Country of origin of the variety	Species	Utilization	Number of accessions preserved in holding institutions
ABSHERON GARA UZUMU	NOIR	21841	AZERBEIJAN	VITIS VINIFERA LINNÉ SUBSP. VINIFERA	TABLE GRAPE	1
ABSHERON GELINBARMAGY	BLANC	21842	AZERBEIJAN	VITIS VINIFERA LINNÉ SUBSP. VINIFERA	TABLE GRAPE	1
ABSHERON GYZYL UZUMU	BLANC	21843	AZERBEIJAN	VITIS VINIFERA LINNÉ SUBSP. VINIFERA	TABLE GRAPE	1
ABSHERON KECHIEMJEISI	ROSE	21844	AZERBEIJAN	VITIS VINIFERA LINNÉ SUBSP. VINIFERA	TABLE GRAPE	1
ABSHERON KHATUNISI	BLANC	22232	AZERBEIJAN	VITIS VINIFERA LINNÉ SUBSP. VINIFERA	TABLE GRAPE	1
ABSHERON MERENDISI	BLANC	21845	AZERBEIJAN	VITIS VINIFERA LINNÉ SUBSP. VINIFERA	TABLE GRAPE	1
AG ANGUR	ROUGE	21855	AZERBEIJAN	VITIS VINIFERA LINNÉ SUBSP. VINIFERA	TABLE GRAPE	1
AG ARNA-GRNA	BLANC	22233	AZERBEIJAN	VITIS VINIFERA LINNÉ SUBSP. VINIFERA	WINE GRAPE TABLE GRAPE	1
				VITIS VINIFERA		

Status of *Vitis* germplasm conservation in Europe



Search criteria: trueness to type=yes; variety number not null; no of accessions/cultivar

European Vitis Database (status: April 2012)

Total number of accessions:	31.856
Trueness to type = yes:	9.944
MVC variety number=not NULL:	5.669
Unique accessions:	1.489
Two accessions/cultivar:	842
Three accessions/cultivar:	570
etc.	

Status of *Vitis* germplasm conservation in Europe



European *Vitis* Database

Search criteria: trueness to type=yes; variety number not null; unique accession

0 - TRUENESS_TO_TYPE	2 - ACCENUMB –	11 - ACCENAME (Accession name)	A. Variety Name	B. Berry color	C. Country of origin of the variety	E. Variety number	F. Confirmation by ampelography	G. Confirmation by SSR-markers
yes	FRA139-2363Mtp1	Abbuoto	Abbuoto	BLACK	ITA	7	yes	yes
yes	FRA139-1748Mtp1	Abdjouch	Abdjouch	GREEN	AFG	17	yes	yes
		Gamay d'Orléans						
yes	FRA139-299Mtp1	n°1	Abondance	BLACK	FRA	23	yes	yes
yes	FRA139-1893Mtp1	Adari	Hadari	GREEN	MAR	59	yes	yes
yes	FRA139-2114Mtp1	Adici	Adissi	BLACK	ARM	65	yes	yes
yes	FRA139-57Mtp1	Afarta pobres	Afarta pobres	BLACK-RED	ESP	78	yes	yes
yes	FRA139-2428Mtp1	Agapanthe	Agapanthe	ROSE		90	yes	yes
yes	FRA139-2189Mtp1	Agadaï	Agadaï	GREEN	RUS	95	yes	yes
yes	ITA388-168	AGLIANICONE	AGLIANICONE	BLACK	ITA	103	yes	yes
yes	FRA139-1898Mtp1	Agourane	Agourane	GREEN	DZA	110	yes	yes
yes	FRA139-2981Mtp1	Agrio mavro	Darkaia noir	BLACK		118	yes	yes
yes	FRA139-1997Mtp1	Aguyar	Aguyar	BLACK	MAR	128	yes	yes
yes	FRA139-1713Mtp1	Ahmar Mawardi	Ahmar	ROSE	LBN	134	yes	yes
yes	FRA139-636Mtp1	Ahmed (ou Ali)	Amessasse	GREEN	DZA	135	yes	yes
yes	FRA139-2073Mtp1	Ahmeh Sal 9	Ahmeh Sal à pépin	GREEN	IRN	136	yes	yes
yes	FRA139-422Mtp1	Ahumat	Ahumat	GREEN	FRA	144	yes	yes
yes	FRA139-2896Mtp1	Aïbatly	Aïbatly	GREEN	UKR	145	yes	yes
			Aïda = Pirovano					
yes	FRA139-1010Mtp2	Aïda	233	BLACK	ITA	146	yes	yes
yes	FRA139-1788Mtp1	Aïdani mavro	Aïdani mavro	BLACK	GRC	148	yes	yes

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European *Vitis* Database

Search criteria: trueness to type=yes; variety number not null; 2 accessions/cultivar

0 - TRUENESS_TO_TYPE	2 - ACCENUMB	11 - ACCENAME (Accession name)	A. Variety Name	B. Berry color	C. Country of origin of the variety	E. Variety number	F. Confirmation by ampelography	G. Confirmation by SSR-markers
yes	FRA139-2895Mtp1	Abla aganin isium	Alburla	ROSE	UKR	20	yes	yes
yes	FRA139-2895Mtp2	Stambul ali	Alburla	ROSE	UKR	20	yes	yes
yes	FRA139-1553Mtp2	Abondant blanc	Abondant	GREEN	FRA	24	yes	yes
yes	FRA139-1553Mtp1	Abondant blanc	Abondant	GREEN	FRA	24	yes	yes
yes	FRA139-1992Mtp1	Abouhou	Abouhou	BLACK	MAR	35	yes	yes
yes	FRA139-1992Mtp4	Agayer	Abouhou	BLACK	MAR	35	yes	yes
yes	FRA139-1764Mtp2	Rhazaki rouge	Aetonychi mavro	BLACK	GRC	76	yes	yes
yes	FRA139-1764Mtp4	Siyah Razaki	Aetonychi mavro	BLACK	GRC	76	yes	yes
yes	FRA139-880Mtp2	Agostenga rosa	Pirovano 14	BLACK	ITA	108	yes	yes
yes	DEU098-2002-012	MAEHRISCHE FRUEHBLAUE	AGOSTENGA ROSA	BLACK	ITA	108		yes
yes	FRA139-1663Mtp1	Alb	Alb rominesc	GREEN	ROU	217	yes	yes
yes	FRA139-1663Mtp3	Alb rominèse	Alb rominesc	GREEN	ROU	217	yes	yes
yes	ITA388-190	ALBAROSSA	ALBAROSSA	BLACK	ITA	239	yes	yes
yes	ITA360-608	Albarossa	Albarossa N.	BLACK	ITA	239	yes	

Announcement

ECPGR *Vitis* Working Group
2nd meeting

Julius Kühn-Institut, Institut für Rebenzüchtung Geilweilerhof
September 18-20, 2012

Agenda

National reports

Synonymy, homonymy and misnomers

Vitis sylvestris safeguard

Selection and preservation of **Most Appropriate Accessions (MAAs)**

etc.

Conclusion

- Enormous progress within the last 30 years is stated
- Still much work is still needed



**Thank you for your
attention**