



AEG-VIT-IS
Enhancing quality and quantity of *Vitis* genetic resources in AEGIS
Virtual meeting - 5 November 2020

MEETING REPORT

By Gregorio Muñoz

WORKPLAN REVIEW

An overview of the Activity was summarized by the coordinator, G. Muñoz: frame, participants, background, and expected results. Among the expected results:

1. Establishment of guidelines for selecting candidate *Vitis* accessions to be flagged as AEGIS resources. A proposal was sent to all partners on 24 April 2020. It was suggested to discuss in the general meeting all the feedback received (comments, suggestions, modifications...)
2. List of unique genotypes' candidates to AEGIS by country. An Excel table was sent to all partners on 24 April 2020 to be filled in, keeping into account the proposed guidelines. Some countries like Portugal, Serbia and Slovenia have already worked with this template. One important field included in this Excel template is about the presence of safety duplications in other collections.

In progress, to be discussed in the virtual meeting of 5 November 2020:

3. Unsolved identities: review of the way to proceed
4. Operational manual of repositories: review of the way to proceed in the virtual meeting of 5 November 2020.

Some considerations:

909 candidate accessions from 10 countries are proposed for AEGIS in the European *Vitis* Database.

Only AEGIS members can officially flag AEGIS accessions in EURISCO. It must be done by the National Coordinators.

GUIDELINES FOR SELECTING VITIS AEGIS CANDIDATES

Firstly, overall requirements agreed for other crops were reviewed, based on documents published by ECPGR (also included in the Guidelines). However, the main focus of the discussion was on the requirements advisable for *Vitis* candidates:

Name validated

It is important that the identification of the material as true-to-type is made, using the VIVC number when it exists, as well as known synonyms.

Legal status

Priority should be given to minor varieties and to neglected, endangered and non-registered material, because it needs special support to be conserved. Each country should pay particular attention to the national and autochthonous plant material.

Safety duplications

It was discussed whether the repository conserving the safety-duplicates should be inside or outside the country. It was recommended to have the safety duplications in a repository from another European country when possible. It is also advisable to preserve different clones.

Biological category

Among the different categories: landrace (traditional) and wild material should be prioritized over breeding (new) material.

Passport data

Additionally to the Multicrop passport descriptors, specific descriptors for grapevine are published in the European Vitis Database and are recommended to be taken into account.

Ampelographical and molecular characteristic

At least a minimal list of morphological characters (GenRes081) and the 9 molecular markers of GRAPEGEN06 should be used.

The selected primary descriptors show a good discriminating power between varieties. Most of them are easy to score:

OIV Code N° Descriptor

OIV001	Young shoot: aperture of tip
OIV004	Young shoot: density of prostrate hairs on tip
OIV016	Shoot: number of consecutive tendrils
OIV051	Young leaf: color of upper side of blade (4th leaf)
OIV067	Mature leaf: shape of blade
OIV 068	Mature leaf: number of lobes
OIV 070	Mature leaf: area of anthocyanin coloration of main veins on upper side of blade
OIV076	Mature leaf: shape of teeth

- OIV079 Mature leaf: degree of opening / overlapping of petiole sinus
- OIV081 - 2 Mature leaf: petiole sinus base limited by veins
- OIV084 Mature leaf: density of prostrate hairs between main veins on lower side of blade
- OIV087 Mature leaf: density of erect hairs on main veins on lower side of blade
- OIV223 Berry: shape
- OIV225 Berry: color of skin

GrapeGen06 SSR-markers:

VVS2, VVMD5, VVMD7, VVMD25, VVMD27, VVMD28, VVMD32, VrZag62, VrZAG79

Pictures of the main organs

Pictures of young shoot, mature leaves and bunches help in the identification and characterization of the material and they are suggested to be considered.

Agronomical, oenological and other characters of value

These characters are not easy to know in a short term and they should not be compulsory. However, the knowledge of agronomical, oenological and other characters is important for using these genetic resources in breeding programs, research, wine or fruit production, and others. Their use should be evaluated in the medium/long-term.

Sanitary status for main viruses

It is difficult to have all the plant material virus free in the repositories, and the sanitary status in the field also can change over time. However, it is recommended to know the sanitary status of the material, in order to avoid spreading viruses when multiplying the material.

SITUATION BY COUNTRIES

Presentations by country were displayed giving a summarized information about the situation in some countries: Albania, Austria, Croatia, Cyprus, France, Germany, Italy, Latvia, Montenegro, North Macedonia, Portugal, Serbia, Slovenia and Spain. Participants from Georgia, Greece and Czech Republic were not able to attend the meeting.

Presentations were uploaded into the ECPGR website and they are available for consultation. All countries are doing a great effort to conserve their grapevine genetic resources and they are on the way to select the most appropriate candidates for AEGIS.

OPERATIONAL MANUALS

The indications to prepare the operational genebank manual according to the ECPGR template were reviewed. It can be downloaded from the website: <https://www.ecpgr.cgiar.org/aegis/aquas/genebank-manuals>. Some manuals from AEGIS Associate Members can be consulted on the website and serve as a guide or example. The ECPGR Secretariat can offer a help desk to help filling in the template.

Each AEGIS Associate Member institution should prepare a manual that contains descriptions of current routine genebank management procedures and practices in each given institution holding *ex situ* collections. This is the first step to ensure transparency of operation among the AEGIS partners and to start identifying quality management aspects that may need improvement. It is recommended by the AEGIS Quality System (AQUAS) to assure an appropriate quality of the activities in AEGIS, the virtual European genebank system.

The three protocols for germplasm sustainable conservation of *Vitis* should also be taken into account to improve the genebank management operations:

- Field genebank standards for grapevines (*Vitis vinifera* L.)
- *Vitis* spp. operational field genebank collections manual
- Phytosanitary rules for grapevine (*Vitis vinifera* L.) propagation material introduction into EU for germplasm conservation and scientific purposes

These protocols are part of the results of the COST Action FA1003 (2015) and were formally endorsed by the *Vitis* WG.

UNSOLVED IDENTITIES

In grapevine collections, the assessment of trueness to type is a long-lasting challenge.

The objectives of this task are:

- Determination of the true identity of misnomers (i.e. material with a name that is incorrectly applied)
- Identification of synonymy and homonymy

Within the scope of the EC-funded project GrapeGen06 (WP5) and of the COST Action FA1003 (WP1), procedures to identify questionable accessions were developed.

Selection of varieties

Vitis vinifera accessions that are supposed to be traditional varieties of the country deserve highest priority towards correct identification.

Other questionable *Vitis vinifera* accessions from other countries can also be considered.

A maximum number of 20 questionable accessions to be verified per partner is suggested (this number is not an absolute limit, but the intention is to be able complete the task in a relatively short time).

Procedure

A common file format will be provided to the partners to fill in with accession data and coded alleles (alleles have to be coded to ensure compatibility). See example below:

Passport Data									
Workpackage	1-INSTCODE	2-ACCENUMB	11-ACCENAME	B-BERRY COLOR	VVMD5:1	VVMD5:2	VVMD7:1	VVMD7:2	VVMD25:1
AEG-VIT-IS	FRA139	FRA139-64Mtp2	Mourvèdre N	Black	N+4	N+18	N+18	N+18	N+6
AEG-VIT-IS	FRA139	FRA139-25Mtp1	Furmint B	White	N+4	N+18	N+8	N+18	N+4
AEG-VIT-IS	FRA139	FRA139-74Mtp11	Trebbiano toscano B	White	N+4	N+10	N+18	N+22	N+6
AEG-VIT-IS	FRA139	FRA139-284Mtp4	Veltliner rot RG	Red	N+18	N+24	N+8	N+22	N+4

A coding table with a macro will allow to convert own data to coded data using control varieties (example below):

Enter the size of the alleles (Columns in yellow) obtained in you lab (ex. 122, 124) in front of the code in the red columns.
Do not modify the red columns.

For the correspondance between the sizes and the codes, please refer to reference cultivars data (raw and coded)
http://www.montpellier.inra.fr/grapegen06/extranet/menu_activities_room_index/page_wpl/wpl.html

Your data	Inra data	CODE	Your data	Inra data	CODE	Your data	Inra data	CODE
VVS2	VVS2	VVS2	VVMD5	VVMD5	VVMD5	VVMD7	VVMD7	VVMD7
	33C1	N		AL1	N		FE1	N
	VIA1	N+2		CF1	N+4		MU1	N+2
	4MG1	N+4		MU1	N+6		VIA1	N+4
	RO1	N+6		MAU1	N+8		JA1	N+6
	VE1	N+8		TR1	N+10		CF1	N+8
	BA1	N+10		CH1	N+12		TR1	N+12
	BA2	N+12		MU2	N+14		33C1	N+14
	CH1	N+14		CH2	N+16		ME2	N+16
	CF1	N+16		CF2	N+18		MU2	N+18
	16C02	N+18		JA2	N+22		FE2	N+20
	CH2	N+20		VE2	N+24		SU2	N+22
	SU1	N+22		33C1	N+30		PO2	N+24
	CF2	N+24		1MG1	N+34		TR2	N+26
	99R2	N+26		GO1	N+40		33C2	N+28
	SI1	N+28		33C2	N+42		99R2	N+30
	SI2	N+30		1MG2	N+44		CF2	N+32
	MAR2	N+32		11R2	N+46		5C2	N+34
	MAN2	N+34						
	33C2	N+38						

Genetic profiles encompass the 9 GrapeGen06 SSR markers: VVS2, VVMD5, VVMD7, VVMD25, VVMD27, VVMD28, VVMD32, VrZag62, VrZAG79 (and others are welcome if available).

Step 1: (deadline 31January 2021)

- Preparation of the excel sheet with questionable genotypes according to the requested file format
- Coded alleles are required (if necessary, the macro from Patrice This will be provided)
- Filled excel sheets will be sent to Gregorio (gregorio.munoz@madrid.org)

Step 2: (deadline 15 February 2021)

- Gregorio will copy all data in one excel file.
- He will send this table to all partners.

Step 3: (deadline 15 March 2021)

- Partners will search for matching genetic profiles in their own SSR-marker-databases.
- If corresponding profiles were detected, partners will search for any available information, e.g. descriptions, photos, bibliographic references.
- The partners send the identification results plus documentation material to Gregorio and to the concerned partners for ampelographic verification of the discovered identities.

Step 4: (deadline 15 April 2021)

- Compilation of the results by Gregorio, according to WP5-table of GrapeGen06, see below.

Questionable ACCENAME	Institute code	2-ACCENUMB	Berry color	Proposed identities	Remarks on identity	True name	Cultivars' origin or presumed origin	References for morphological profile (bibliography, photos, descriptions)	MD5	MD5	MD7
Bonarda di Chieri (faux)	FRA139	FRA139-0Mtp143	blue black		known misnomer	Durasa (ITA cat.)	Italy	none			
	ITA360	ITA360-526	blue black	Durasa	true name local				N+4	N+18	N+22
	ITA361	ITA360-060	blue black	Erbaluce nero	synonym						

- Gregorio will send this table to the partners and await the partners' statements to the discovered identities.
- Exchange of findings and opinions between concerned partners, proposition of the true variety name.

Step 5: (deadline 30 April 2021)

- Gregorio will collect all data and establish two final lists:
 - o (1) identified varieties
 - o (2) still questionable varieties.

Step 6:

- New genotypes will be registered in VIVC.
- MCPDdata, genetic profiles, etc. will be uploaded on the European Vitis Database

ANNEX I

AGENDA

15:00 Connecting participants and welcome (ECPGR Secretariat and T. Lacombe)

15:15 Reviewing the workplan of AEG-VIT-IS activity: tasks performed and tasks in progress. (G. Muñoz)

15:30 Guidelines for selecting Vitis AEGIS candidates. (Introduced by T. Lacombe / G. Muñoz)

15:45 Unique genotypes candidates for AEGIS. Safety duplications. Unsolved identities. (Short 5 minutes presentation by country)

Albania (by F. Carka)

Austria (by F. Regner)

Croatia (by E. Maletic / G. Zdunic)

Cyprus (by S. Savvides)

Czech Republic (by P. Pavloušek)

France (by T. Lacombe)

Georgia (by D. Maghradze)

Germany (by E. Maul)

Greece (by G. Merkouropoulos)

16:30 – 16:45 BREAK

Italy (by M. Gardiman)

Latvia (by G. Lacis)

Montenegro (by V. Maras)

North Macedonia (by K. Beleski)

Portugal (by J. Cunha / J.E. Eiras-Dias)

Serbia (by D. Nikolic / D. Ivanisevic)

Slovenia (by S. Vrsic)

Spain (by G. Muñoz)

17:30 Review of standards and implementation of operational manuals
(Introduced by G. Muñoz).

18:00 Selection and clarification of unsolved identities (Introduced by E. Maul).

18:30 Closure.

ANNEX II

LIST OF PARTICIPANTS

Name and Surname	Institute	Country	Email address
Frida Carka	University of Tirana. Institute of Plant Genetic Resources	Albania	fcarka@yahoo.com
Ferdinand Regner	HBLA und BA für Wein und Obstbau Klosterneuburg	Austria	Ferdinand.Regner@weinobst.at
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