



Cost action FA1003 - GRAPENET
East-West Collaboration for Grapevine Diversity Exploration and
Mobilization of Adaptive Traits for Breeding

FULL PROGRAM & ABSTRACT BOOK

Final Conference

PROGRESS IN *VITIS VINIFERA* DIVERSITY EVALUATION AND USE

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Micropropagation and *in vitro* germplasm conservation of Georgian wild grapevines



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Introduction: Wild grapevine, considered the wild ancestor of the cultivated grapevine, is a typical representative of the Georgian flora (Fig.1). The lack of human selection provoked a highly conserved genetic diversity, so it can play an important role as phylogenetic resource for the improvement of grapevine cultivars.



Figure 1. Georgian wild grapevine population of TEDOTSMINDA

The **objective** is testing the response of five Georgian wild grapevine accessions to micropropagation and comparing it with other commercial and wild grapevines.

Material and Methods: Cuttings from 5 (G1, G6, G10, G17, G21) wild grapevine plants from 2 Georgian populations, (Fig.2) were base-dipped in a sucrose and antifungal solution and placed at 23±2°C, 111 μmol·m⁻²s⁻¹ and 16h photoperiod (Fig.3). From these cuttings, sprouting shoots were disinfected and placed in "VID" medium (Fig.4) at 23±2°C, 30 μmol·m⁻²s⁻¹ and 16h photoperiod, during 60 days. Similar explants from rootstocks, varieties and Andalusian wild grapevines were cultured in identical conditions. 10 rooted plants from each Georgian wild grapevine obtained were adapted to *ex vitro* conditions.

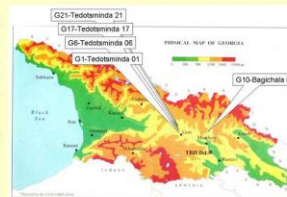


Figure 2. Georgian wild grapevine map

MACRONUTRIENTS			
Potassium nitrate	KNO ₃	800	7.91
Calcium nitrate	Ca(NO ₃) ₂ ·4H ₂ O	300	1.27
Ammonium nitrate	NH ₄ NO ₃	800	10.00
Potassium dihydrogen ortho phosphate	KH ₂ PO ₄	170	1.25
Magnesium sulphate	MgSO ₄ ·7H ₂ O	370	1.50
Ferrous sulphate	FeSO ₄ ·7H ₂ O	27.1	0.097
Ferric sodium EDTA		37.3	0.10

MICRONUTRIENTS			
Manganese sulphate	MnSO ₄ ·H ₂ O	0.85	5.0
Boric acid	H ₃ BO ₃	6.2	100.0
Zinc sulphate	ZnSO ₄ ·7H ₂ O	8.6	30.0
Sodium molybdate	Na ₂ MoO ₄ ·2H ₂ O	0.25	1.03
Copper sulphate	CuSO ₄ ·5H ₂ O	0.025	0.100
Cobalt chloride	CoCl ₂ ·6H ₂ O	0.025	0.105

VITAMINS		GROWTH REGULATORS	
Tiamina	1 mg/l	BAP	0.072 mg/l
Miniositol	100 mg/l	ANA	0.024 mg/l

agar 0.6% pH 5.7 osmosis 3%

Figure 4. Composition of VID culture medium

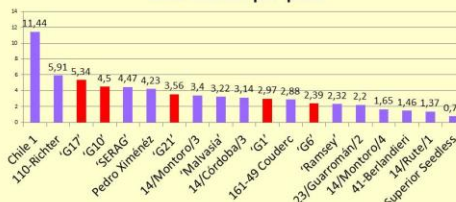
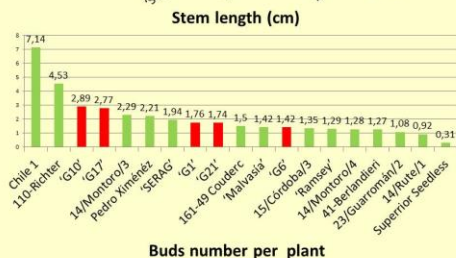
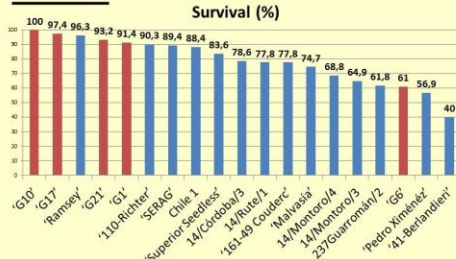


Figure 3. Sprouting of Georgian wild grapevines cuttings



Figure 5. Georgian wild grapes micropropagation. Shoots number per plant

Results



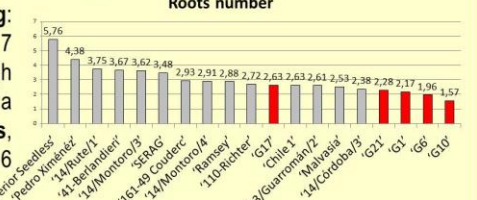
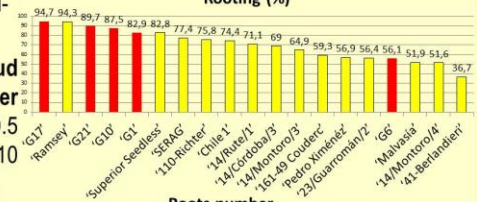
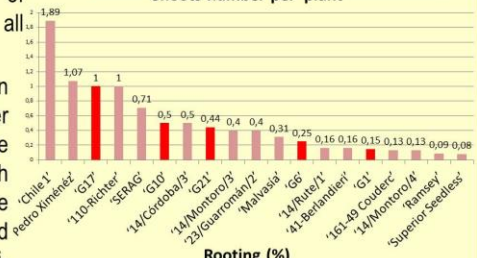
Georgian plants showed in all cases an adaptation to *ex vitro* conditions of 100%.

Georgian accessions, except G6 (61%), are above of survival average of all accessions (78.5%).

Stem length has an average of 2.06 cm. smaller than the recorded for the plant of G10 and G17. Both are much shorter than the values of 110-Richter and Chile 1 (from a saline semi-arid zone in Arica-Chile)

General average of bud number and shoot number per plant: 3.5 and 0.5 respectively. Plants of G10 and G17 are also very high.

Global average of rooting: 70.2%. Plants of G10, G17 and G21 presented very high levels of rooted plants, with a low number of roots, (between 2.6 (G17) and 1.6 (G10)).



Conclusion: There was a good response of the considered Georgian wild grapevines to micropropagation and adaptation to outside conditions, overcoming other wild grapevines and cultivars with great importance in viticulture (Fig.5).

39. *Israeli germplasm: genotyping and phenotyping of native grapevine*, by Denis RUSIAN, Radojko PELENGIĆ, Vladimir MEGLIĆ, Barbara PIPAN, Etti OR, Branka JAVORNIK, Nataša ŠTAJNER
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48. *Allelic variation in the *VvMYBA1* and *VvMYBA2* domestication genes in natural grapevine populations (*Vitis vinifera* ssp. *silvestris*)*, by David CARRASCO, Gabriella DE LORENZIS, David MAGHRADZE, Eugenio REVILLA, Alberto BELLIDO, Osvaldo FAILLA, Rosa ARROYO-GARCIA
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