

GEORGIAN VITIS GERMLASM: CONSERVATION, RESEARCH AND USAGE

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Abstract:

Context and purpose of the study - Grapevine *Vitis vinifera* L. is a leader perennial crops for the Republic of Georgia, the South Caucasus. This is a region where the first wine making practice was initiated 8.000 years ago (McGovern et al. 2017) and a spot of grape domestication. The country of Georgia holds 525 local and more than 60 breeding varieties - they are preserved in 9 field collections inside the country. The list of recommended wine cultivars contains 34 names, including 27 old autochthonous varieties and covering 94% of the country's vineyards. The wild grapevine *Vitis silvestris* Gmel. is a typical representative of the country's flora. Importance of this genetic resources is essential for selection and breeding dew to new challenges such as climate change, diseases, environmental concerns and market demands. The present study was organized for multidisciplinary research of identification, collection, characterization and conservation for Georgian grapevine germplasm diversity including autochthonous varieties and wild grapevines with the aim to improve local viticulture and wine making.

Material and methods - The research fields of this study contains ampelography, ampelometry, phenology, cytology, ripening profiles, chemo-taxonomy, DNA fingerprinting and screening for disease. Modern techniques of ampelography based on the OIV descriptors, methodology of the European projects GrapeGen06 and COST FA1003, and molecular genetics (SSR, SNPs) were used to investigate Georgian autochthonous varieties from 5 collections (Georgia, Italy, France) and wild grape from the territory of Georgia. This research is in progress since 2003.

Results - This riches of genetic resources of Georgian grapes and assortment of its wines attracts the international interest because of its diversity. As a result several international (Bioversity International, GrapeGen06, COST FA1003) and national projects have run in the last decade, with Georgia as leader or regional coordinator - the latest being the ongoing "Research Project for the Study of Georgian Grapes and Wine Culture" (National Wine Agency) and the "Wild grapevine of Georgia: Research and Preservation" (Shota Rustaveli National Science Foundation). Being multidisciplinary these projects did grate effort for studding of wide aspects of Georgian grapes and wine, stimulated increasing of knowledge about them and promoting Georgian wines on the World market. As a result of these study large number of the local genetic resources have been certified using ampelography (morphology, phenology, anthocyanins), screening for resistances of downy mildew agent *Plasmopara viticola*, molecular fingerprinting, wine characteristics, made them available in the Vitis International Variety Catalogue and European *Vitis* database. The inventory of wild grape was carried out by organization of expeditions, more than 250 wild populations of *Vitis silvestris* Gmel. have been discovered and a field collection were established in 2014. Several books and articles dedicated to local varieties and wild grapevine were published in the last decade. But in the same time more efforts are needed to continue this work using new DNA technologies as well as ampelography technique in cooperation with other institutions.

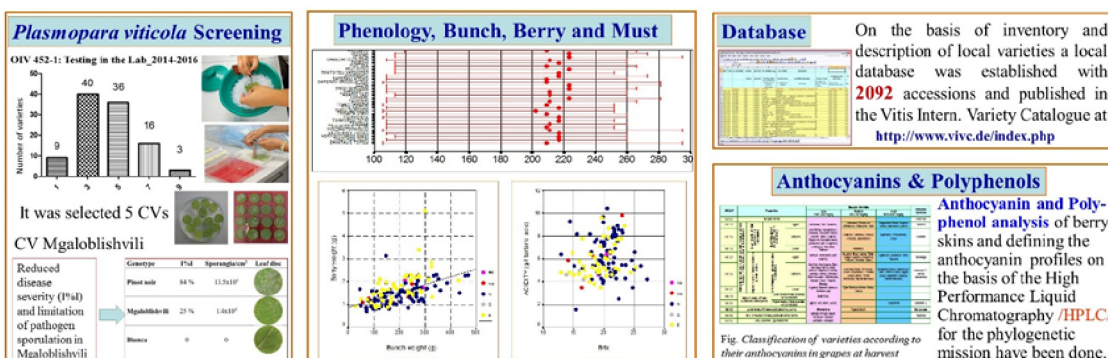
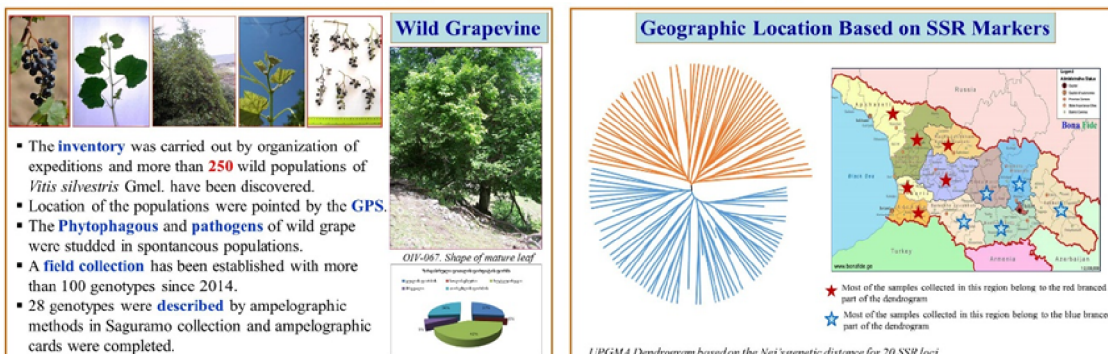
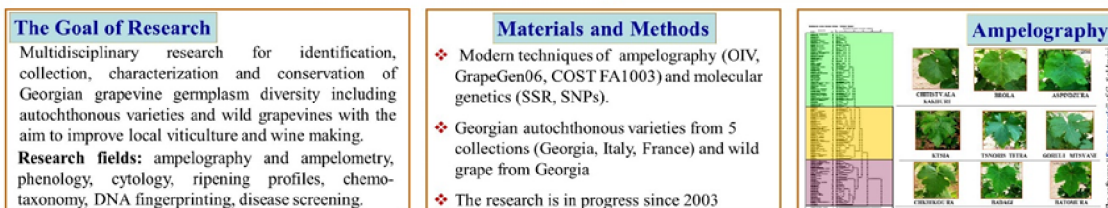
Keywords: Georgia, Grapevine, genetic resources, characterization, ampelography, DNA techniques.

1. Introduction.

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