

# Status of Grapevine Genetic Resources (*Vitis vinifera*) in Georgia

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## *I n t r o d u c t i o n*

Georgia is relatively small in size (approximately 70,000 sq. km), it is rich in biological diversity due to its highly varied climatic, geologic, topographic, and hydrologic conditions.

Endemic plant species of Georgia constitute about 9 percent of the total flora; this little country presents a hearth of many cultures, particularly grapevine varieties, it is classical country of wine-making. Georgian varieties like “ Khevarduli, Rkatsiteli, Mtsvane, Khikhvi, are registered in the fifth century B.C

Local Autochthonous varieties Georgian sorts of grapevine are included in the following eco-geographic groups:

- *Convar.pontica subconvar georgia Negr provaz tomentosae Tserts.*
- *Convar.pontica subconvar georgia Negr provaz azaneosae Tserts.*
- *Conavr orientalis subconvar.caspica Negr*

History of grapevine collections in Georgia starts in the 30es of XX<sup>th</sup> century, when in Telavi the first state collection was planted. There were protected 255 Georgian local varieties there. Consequence collections have been located in Dighomi (3000 varieties-420 local varieties and more than 30 wild and half-wild forms among them), Sakara (200) and Gudauta (312). Except those aboriginal varieties have been protected in the first centres, ethnic-geographic groups of their origin: in Samegrelo (Zugdidi)-48 varieties, Adjara (Keda)-42, Kartly (Skra and Galavani) - 39 and 22 varieties correspondingly.

The main form of grapevine germaplasm protection in our country was and stays up today field collections (*In situ*). Other types of conservation don't exist yet.

Today grapevine collections in Georgia are: in Dighomi, Mukhrani, Telavi and Skra, where have been conserved local, introduced and breeding varieties, clones, rootstocks, wild and half-wild forms of grapevine (Table 1).

**Table 1.** *Vitis* collections in Georgia

Location	Total no. of accessions	Old local varieties	Clones	Wild and half-wild forms	Total area ha	Date of planting
Dighomi	573	193	-	5+5	9.0	1967-68
Mukhrani	155	155	-	-	1.0	1986-87
Telavi	226	116	10	-	1.2	1987
Skra	75	12	-	-	2.0	1975
Total	929	476	10	10	13.2	-
'Original'	701	248	10	10	-	

As seen from table 1 total number of accessions, been protected in Georgia are 929. Among them 701 are 'original' and 248 are local Georgian varieties. Number of Safety duplicated accessions are 228.

In every accessions number of plants are from 5 up to 25.

The age of collections are: Dighomi-36 years old, Skra-28, Mukhrani-17, Telavi-16 years.

Collections in Dighomi and Mukhrani belong the State Agrarian University (curator is the Department of Viticulture). Collections in Telavi and Skra belong to the Georgian Scientific-Research Institute of Horticulture, Viticulture and Winemaking (curators: the Department of Grapevine and Fruits Germplasm Research, Genetics and Breeding and the Experimental Stations of Skra and Telavi). In another case the State Agrarian University is under the aegis of the Ministry of Education and the Research Institute of Horticulture, Viticulture and Winemaking - under the aegis of the Academy of Agricultural Sciences of Georgia.

According to the Law of Georgia On "Vine and Wine" (2001) the obligation of the grapevine genetic resources protection in our country is given to the state. That is why collections were funded and fund now from the state budget. But, as a result of economical problems of transition period in Georgia, during last 12-15 years the funding of collections is very low, which makes difficulties (sometimes makes impossible) their protection and research properly. This situation cause lost and reduces number of conserving accessions and don't give us possibility to enrich our collections by new ones. There aren't fund the special programs for marking, searching, collection, characterize, valuation of genetic materials in Georgia.

Proceeding from this situation, by our opinion, is to find other, alternative sources of funding, which, together with the state budget, should organize the strong base for conservation /protection of grapevine germaplasm in Georgia. Collaboration with the international organizations, working for protection biodiversity in the world it is necessary.

One of example of this type collaboration is relation with IPGRI. In the framework of the special project of this organization "Conservation and sustainable use of grapevine genetic resources in the Caucasus and Northern Black Sea region" the activity for planting of new collections of Georgian local varieties was started up. One collection was planted in Italy and the second will be planted in Georgia this year, where will be collect approximately 240 varieties.

Varieties in our collections during many years have been researched by ampelometrical, methodical and economic-technological parameters. The results of these studies have been printed in scientific works and in the ampelographies in Georgian and in Russian languages (Ramishvili, 1948, Tabidze, 1954, Ketskhoveli, Ramishvili, Tabidze, 1960, Ampelography of the USSR, 1946-1970).

Research by molecular techniques hasn't been started yet in Georgia.

For grapevine accessions, located in the collections of Georgia, haven't been completed passport or other types of descriptors. Sometimes ago we completed only an electronic list of varieties, protected in our collections. There isn't national database of *Vitis* in Georgia. That is why, the information isn't included in the European Database of *Vitis*. Reason for this is the absence of computer technique and suitable programs.

**Aboriginal varieties.** By folk selection during many centuries there were obtained 524 local varieties of grapevine in Georgia (Ketskhoveli, Ramishvili, Tabidze, 1962). Among them there are varieties with white and colour berries, wine and table grape. Among this number of varieties there are only 248 ones in Georgia now. The same numbers of other varieties, by our data, are in the collections abroad - mainly in the republics of former Soviet Union. The large group of varieties is under the threat of loss or have been already faded away.

**Wild grapevine of the Caucasus** was a typical plant of our wild ecosystems, but after the spreading of phylloxera in the XIX<sup>th</sup> century, number of plants has been sharply reduced. But in Georgia typical wild species *V. vinifera* ssp. *silvestris* Gmel. ("Usur vazi", "Krikina vazi" in Georgian) were founded, described and protected, which up today is in the border on extinction and was brought in the "Red Book". There were also found half-wild forms of cultural grapevine *V. vinifera* ssp. *sativa* DC. here.

**Activities planned for the very near future.**

- Complete entry of passport data and their placing into the European network of *Vitis*;
- Start the completion of plant descriptors;
- Looking for Georgian varieties in the foreign collections;
- Planting of a new collection of local varieties this year;
- Preparing and publishing of a new bilingual ampelography in Georgian and in English on the modern level by printed and electronic format.

**References:**

1. Ampelography of the USSR. In 10 volumes. 1946-70.
2. Ketskhoveli N., Ramishvili M., Tabidze D. – Ampelography of Georgia. Tbilisi. Publishing house of the Academy of Sciences. 1960. 439 p.
3. Ramishvili M. – Grapevine varieties of Guria, Samegrelo and Adjara. Tbilisi. 1948. 312p.
4. Tabidze D. - Grapevine varieties of Kakheti. Tbilisi. 1954. 425 p.