

THE ROLE OF AMPELOGRAPHIC COLLECTION IN GENETIC IMPROVEMENT OF NATIVE VARIETIES AND THE CREATION NEW VARIETIES

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Abstract:

The available plant diversity is maintained in global genetic collections and germplasm banks. One of the main objectives of the study of the genetic material of vine still conducting research to characterize the genotypes and the creation of new varieties. The main ampelographic collection of the country, the largest in the Balkans, is located at the Athens Vine Institute in Lykovrysi, Attica, in an area of 70 acres. It contains more than 800 varieties, most of which are indigenous. The Institute is conducting research on the genetic improvement of native varieties and the creation new winemaking and table grape varieties of high productivity, grape quality, resistance to fungal diseases and their adaptability to stresses using the hybridization method using European high-quality varieties. The genetic improvement, using the hybridization method, was made with traditional recognized methods. As a motherly were selected indigenous varieties and as fatherly were selected Western European varieties. The ampelographic description made in accordance with the instructions of the OIV 2013. They created the grape varieties for growing in all production areas of high quality white and red wines of different categories be used for genetic improvement of white and red vines. To determine the effect of different environmental conditions on growth, yield and quality of the product of each variety is necessary to do research.

Keywords: Hybridization, variety, shoots, leaves, inflorescence, cluster, berry.

1. Introduction.

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Introduction

The available plant diversity is maintained in global genetic collections and germplasm banks. One of the main objectives of the study of the genetic material of vine still conducting research to characterize the genotypes and the creation of new varieties. The main ampelographic collection of the country, the largest in the Balkans, is located at the Athens Vine Institute in Lykovrysi, Attica, in an area of 70 acres. It contains more than 800 varieties, most of which are indigenous. The Institute is conducting research on the genetic improvement of native varieties and the creation new winemaking and table grape varieties of high productivity, grape quality, resistance to fungal diseases and their adaptability to stresses using the hybridization method using European high-quality varieties. The genetic improvement, using the hybridization method, was made with traditional recognized methods. As a motherly were selected indigenous varieties and as fatherly were selected Western European varieties. In the EL.G.O Vine Institute "Dimitra" at Lykovrysi Attica, a program conducted for the genetic improvement of vine varieties. The objectives of this program is to increase the efficiency of vine varieties, high quality grape, their adaptability to cold, drought and fungal diseases. The present work presents the role of the national collection in the selection of productive varieties adapted to the local conditions by which the hybridization method created new white and colored winemaking varieties such as Artemis, 'Eryomin', Krimpas, 'Macedonas' and 'Davidis'.

Material and methods

With this program, from 2001 to 2018, more than 9000 seedlings were created, which came from more than 60 controlled crosses of Greek native varieties with Western European varieties to combine desirable traits of various genotypes. The study and experimental part was carried out at the vineyard located in Lykovrysi on the northeastern side of Attica (37° 58' north latitude) and at an altitude of about 200 meters above sea level. The climate of the area is subtropical, Mediterranean, with warm and dry summer and mild winter. The rainfall varies from 250-600 mm per year and the rains prevail during the winter months. The absolute high temperatures reach 46°C (2007), while the critical temperatures for the vine (40°C and above) are recorded in this zone almost every year with strong winds (Kifissia Meteorological Station). The multiannual study of Greek genetic material has contributed to the selection of productive varieties, adapted to local conditions, from which high quality wine is produced. From this program new winemaking varieties have been created with white berry and black berry, such as the varieties Artemis, Eryomin, Krimpas, Macedonas and Davidis. The present work describes the morphological and physiological traits of some of these varieties. The ampelographic description made in accordance with the instructions of the OIV 2013.



Fig.1, Variety " Eryomin ", " Ntavidis "

Results – Discussion

The result of the long and laborious work was the creation of more than 60 new white and colored winemaking varieties. Since the program created new varieties winemaking white and black berries have been created, such as "Krimpas", "Macedonas", "Artemis", "Eryomin" and "Ntavidis".

Table 1 presents some morphological features. It is noted that the new winemaking varied retained the best characteristics with indicators OIV.

Variety	Parental Variety	Production cycle	Size of the cluster	Size of the berry	Color of the berry	Content of sugar
Krimpas	Agovrikis and Moschato of Alexandria	146-155 days (6/24-6)	Medium to large (203,-5,-7)	Medium (503-5)	Blue-black (225-4)	Very high (505-9)
Artemis	Koutokladi and Thymiet cover.	146-155 days (6/23-6)	Medium to small (203,-5,-3)	Small (503-3)	green-yellow (225-1)	Very high (505-9)
Eryomin	Thrapssa and Aikate Uthie	146-155 days (6/23-6)	Medium (203,-5)	Small (503-3)	Blue-black (225-5)	Very high (505-9)
Macedonas	Nicomero and Cabernet sauvignon.	146-155 days (6/24-6)	Medium (203,-5)	Small (503-3)	Blue-black (225-5)	Very high (505-9)
Ntavidis	Mandilera and Aikate Uthie	156-165 days (6/29-6)	Medium (203,-5)	Small (503-3)	Blue-black (225-6)	Very high (505-9)

They created the grape varieties for growing in all production areas of high quality white and red wines of different categories be used for genetic improvement of white and red vines. To determine the effect of different environmental conditions on growth, yield and quality of the product of each variety is necessary to do research.

The new varieties, in addition to their high productivity and quality, are also characterized by their resistance to adverse environmental conditions such as cold, drought, fungal diseases in relation to *Vitis vinifera* and intended for the production of superior quality white, red wines and juice.



Fig. 2 Variety " Krimpas ", " Artemis " and " Macedonas "

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