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THE IMPROVEMENT OF VITICULTURAL ASSORTMENT WITH HIGH-YIELD INTERSPECIFIC GENOTYPES BASED ON MUSCADINIA ROTUNDIFOLIA MICHX

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Summary: In the last decades the frequency of natural disrupting phenomenas amplifies at global level. This affects the normal development of grapevine plants and the quantity and quality of harvest. The existing grapevine varieties of *Vitis Vinifera* cannot totally assure a good and qualitative yield in climate change conditions. A different approach to assure this needs, are the interspecific hybrids with *Muscadinia Rotundifolia* Michx. The interspecific hybrids have a high genetical plasticity and adaptability to climate factors. This hybrids can be grown from cuttings avoiding all the expensive grafting process due to their tolerancy to the main grapevine pest *Phyloxera Vastatrix.*

Keywords: *vitis vinifera, muscadinia rotundifolia, hybrid, interspecifical genotypes, viticulture.*

Introduction. In the last decades we observe more oftenly negative climate changes and a increasing frequency of natural disrupting phenomenas both during the vegetation period of the plants and in the state of vegetative rest. This fact affects the normal develompent of grapevine plants, their vegetation process and as a result the grape harvest. The main goal of modern viticulture is to obtain high quality production with minimal resource consumption. High quality products and wine derivates can be ensured if three main factors are taken into account: the genotype(variety), location of the plantation (soil and climatic conditions) and applied technology (cultivation and processing). The intraspecific genotypes have a wide capacity for use, but at the same time do not ensure the overcoming of climate change barrier. And because of this, there is an urgent need to revive the viticultural assortment and to adapt

it to the changing environmental conditions. With this purpose, after many years of selection and hibridation there where obtained interspecifical hybrids of Vitis Vinifera and Muscadinia Rotundifolia with a very high adaptation capability to abiotical factors and also tolerant to most grapevine pests and diseases. These genotypes are an appropriate response to the ever-increasing needs of modern viticulture and grapevine production.

Materials and method. As object of study served interspecific rhizogenic grapevine genotypes with table grapes "Malena", "Nistreana" and "Algumax", as well as grapes for fresh consumption and processing: "Augustina", ”Alexandrina”, and ”Amethyst”(3). The respective genotypes are planted in the experimental grapevine sector of the institute. The management technique (forming/shaping) of the plants determines the habitus of the stump, in this case was used the unilateral, bilaterally single-tiered horizontal cord system, with one or two stems and the height of 80 cm, with the vertical management of the shoots. Planting scheme: between rows - 3.0 m, and in a row, from plant to plant - 1.5 m. Support type - vertical trellis with erect (vertical) shoot guidance, support (pole) height - 2, 0 m with three levels of conduction (the first level - one wire each, the second and third levels - two parallel wires each, at a distance corresponding to the thickness of the pole) (2)(4).

Results and discussions. Based on the results of monitoring environmental factors, it was found that climate changes are amplifying at global level. The generator of these changes was and is the technical-economic progress of society. Climate changes require the creation of plant varieties that ensure performance in different production conditions. In the process of creating new grapevine genotypes, it is necessary to pay special attention to the functional-technological properties, such as: - cultivation technology; - performance/productivity (in relation to the vegetation period and pedoclimatic zone); - the balance between growth and fruiting; - the histoanatomobiochemical and physiological character; - resistance to diseases and pests; - the relevance of resistance to low temperatures; - ripening of grapes; - the chemical composition of berry, juice and derived products; - the attractive appearance of the grapes; - the crunchiness and consistency of the flesh; - aroma and taste; - resistance to cracking of berries; - transport and storage capacity; - the direction of use of the grapes; - waste recovery, as a

result of grape processing. Based on the functionality of the genotype, the existence of balanced, sustainable and diversified agroecosystems will be ensured in the future, which will guarantee the rational use of natural resources and a beneficial environment for the development of society (1). The current needs of sustainable development are one the one hand the reduction of chemical use for pest combating and on the other hand is the minimization of negative impact on the environment.

The development of wine sector cannot be fulfilled without the creation of new varieties with stable productivity potential, high quality of grapes and wine products. As a result of crossing the genotypes of V. vinifera L. (2n=38) x M. rotundifolia Michx. (2n=40) were obtained and homologated interspecific rhizogenic grapevine genotypes with table grapes: "Malena", "Nistreană" and "Algumax" and with grapes for fresh consumption and for processing: "Augustina" , "Alexandrina", "Sarmis" and "Ametist". These genotypes can be multiplied by the cutting method. The plants obtained are rhizogenic and allow the exclusion of some practical steps from the technological process, which contributes to the reduction of financial resources for the production of planting material and the cultivation of vines.

Grafting is a rather complex, risky and expensive technological process that requires special technical and practical knowledge, which consists in obtaining the plant from the joining of two different plant segments from both a genetic and morpho-anatomophysiological point of view. This represents nothing more than a symbiosis of the two partners (4). This genotypes have a high genetical plasticity and therefore can be grown even in the Northern areas of the republic and also they are tolerant to the main grapevine pest *Phyloxera Vastatrix*. Because of the tolerancy to phylloxera all the complex grafting process can be omitted and the plants can be multiplied by cuttings. The rhizogenic plants obtained have a very high adaptability and the derived products obtained are of high quality, and also rhizogenic vine plants have a longer exploitation life compared to plants obtained through the grafting process.

Conclusions:

1. The implementation of interspecific rhizogenic grapevine genotypes will contribute to the expansion of the grapevine cultivation limit towards the Northern area of the Republic of Moldova.

2. The improvement of viticultural assortment can be achieved more easily with the cultivation of new interspecific, rhizogenic varieties, which show increased resistance to biotic and abiotic factors, including extreme climate factors.

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