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USE OF IN VITRO IN GROWING GRAPE SEEDLINGS

ИСПОЛЬЗОВАНИЕ IN VITRO ПРИ ВЫРАЩИВАНИИ САЖЕНЦЕВ ВИНОГРАДА

Абдалова Гулистон Нурановна, *доцент*
Тучибаева Сарбиноз Алишеровна студент 2-курса
Ташкентский государственный аграрный университет

Abdalova Guliston Nuranovna associate *professor*
To'ychiboyeva Sarvinoz Alisherovna 2nd year student at
Tashkent State Agrarian University

Abstract: *Until now, the main method of growing grapes are carriers of various diseases. Viral, bacterial and fungal diseases of grapes became the object of research 40-50 years ago and are still being intensively studied due to the degeneration of valuable industrial vineyards, a significant decrease in yields and financial and economic losses. Therefore, the development of methods for in vitro microcloning of grapes from meristems freed from pathogens and viruses is very relevant.*

Keywords*: Tissue, explant, artificial nutrition, in vitro, vine, micro-decomposition*

Аннотация*: до сих пор основным методом разведения винограда являются переносчики различных заболеваний. Вирусные, бактериальные и грибковые болезни винограда стали объектом исследований 40-50 лет назад и до сих пор интенсивно изучаются в связи с вырождением ценных промышленных виноградников, значительным снижением урожайности и финансово-экономическими потерями. Поэтому разработка методов микроклонирования in vitro винограда из меристем, освобожденных от патогенов и вирусов, очень актуальна.*

Ключевые слова*; ткань, эксплантат, искусственное питание, in vitro, виноградная лоза, микроразмножение*

INTRODUCTION

The viticulture and winemaking sector is one of the priority areas of economic development of the Republic of Uzbekistan, which is designed to develop due to its geographical location, favorable soil and climatic conditions, and a large area of fertile irrigated lands. The development of viticulture allows you to get a good income from this crop. Along with Armenia, Georgia and Moldova, Uzbekistan occupies one of the leading places in viticulture and winemaking. To date, a number of enterprises and factories producing wine and alcoholic beverages operate in the republic. Undoubtedly, in order to further develop the industry and increase the export potential of our country, there are great opportunities for

providing the population of the republic with new grapes and raw materials for processing enterprises. However, the increase in grape cultivation requires not only the expansion of areas, but also the development and improvement of technologies that ensure the rapid reproduction of promising varieties and an increase in the productivity of vine plantations. The largest area of vineyards in the world is in Europe and Asia, particularly in the Mediterranean, Adriatic, Aegean, Black and Azov Sea countries, such as Spain, Italy, France, Portugal, Greece, Bulgaria, Germany, Hungary, Romania, Yugoslavia, and others.[1]

Research methods: The Resolution of the President of the Republic of Uzbekistan No. PQ-3573 dated February 28, 2018 "On measures to radically improve the sale of winemaking and alcoholic products" provides for the introduction of modern technologies for the cultivation of genetically new, well-known varieties. and promising grape varieties that are in great demand in the world market in our republic, including through the micropropagation method, as well as the creation of grape gene pool collections in in vitro conditions, have been launched. In the CIS countries, especially in countries such as Russia and Ukraine, in vitro technology, which is considered an effective and resource-saving method, has been widely developed.[2] France is also among the leading countries in viticulture, and the use of the in vitro method, which is one of the achievements of biotechnology in the smooth development of viticulture, is considered the most effective technology for grape cultivation, and this technology has proven its effectiveness for many years.[3] Thus, in the past 10 years, work has been intensively developing technical methods for working with isolated plant cells and tissues.[4] From the initial meristems to the finished seedling, a series of sequential processes are carried out, interconnected in a chain.[4]

With the right approach, there are great prospects for improving the quality of vineyards and the yield obtained from them in the republic, which is necessary to increase the export potential of wine products, which will allow our country to occupy one of the leading positions in the world.

Research results and their discussion: Until now, the main method of grape propagation has been vectors of various diseases. Viral, bacterial and fungal diseases of grapes became the object of research 40-50 years ago and are still being intensively studied due to the degeneration of valuable industrial vineyards, a significant decrease in yield and financial and economic losses. [3] Therefore, the development of in vitro microcloning of grapes from meristems free from pathogens and viruses is very relevant.

The steps involved in culturing grapevine cuttings in vitro: The four steps involved in culturing plant tissues are a scientific breakthrough in the field, according to Toshio Murashige, a professor at the University of California, Riverside:

 Step 1. Creating an aseptic (sterile) culture.

 Step 2. Propagating explants in an artificial nutrient medium (a propagule is any part of a plant used to create new plants or in any process).

 Step 3. Preparing propagules for successful transplantation into soil (adapting to non-sterile conditions).

 Step 4. Growing in soil (or other suitable medium).

The cultivation of grape seedlings, rootstocks and seedlings of varieties by in vitro clonal micropropagation in a sterile artificial nutrient medium consists of several stages: Collection of materials Selection of the first shoots. Rudimentary shoots (buds) are cut from the spring branches of young trees, wrapped in a plastic bag and placed in a refrigerator. Young shoots are stored at a temperature of 2 - 4 ° C ± 2 ° C for no more than 7 days. Sterilization of explants: sterilization of rudimentary shoots with disinfectants under sterile conditions (sterilization). Planting of explants in an artificial nutrient medium and growing in a climate room with controlled temperature and light conditions to form primary multiple shoots. In a climate room with controlled temperature and light conditions, micropropagation and growth of shoots formed in an artificial nutrient medium are monitored. Rudimentary shoots are planted in jars with a sterile nutrient medium, stickers are signed and glued to the jars. The jars are transferred to a microclimate room. The cultivation of primary explants is carried out in jars with a volume of 720 ml in special culture rooms at a temperature of + 24 ° C and 16-hour illumination with an intensity of 3.5 thousand lux. Jars with explants (8 each) are placed on the shelves of the rack. Monitoring of explant growth and checking the contamination of sterile culture jars is carried out daily. If contaminated jars are found, the contents of the jar are disposed of. Within 3 weeks, sterilized primary shoots form primary shoots, which are used in the next stage of clonal micropropagation. Root formation of explants in an artificial nutrient medium (root formation process). The process of acclimatization of in vitro plants begins by transferring plants from in vitro conditions to ex vivo conditions, to soil. The plants are kept in the laboratory for 7-10 days. Plants that have adapted to non-sterile conditions are taken to a greenhouse, after which the plants adapt and get used to the sun and external condition.

CONCLUSION

Without the use of clonal micropropagation and appropriate virological control in the production system of certified planting materials, it is impossible to achieve rapid production and mass reproduction of high-quality, competitive vineyard planting material that meets the requirements of world standards. The creation and organization of production of planting material for vineyards resistant to the main diseases of new generation varieties, the intensive organization of the cultivation of healthy seedlings that ensure their high and stable productivity, environmental protection, production and safety of the industry as a whole are of particular importance.

Large-scale production of planting material of elite local and foreign grape varieties, free from viral and bacterial infections, adapted to ecological and climatic conditions, by means of micropropagation

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