

**ECOLOGICAL, BIOLOGICAL AND GEOGRAPHICAL  
STUDY OF THE RATIONAL USE OF THE RESOURCE  
POTENTIAL AND ENVIRONMENTAL PROTECTION**

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**THE EFFECT OF NICOTINIC ACID ON THE GROWTH  
AND DEVELOPMENT OF POTATO'S  
MICRO GROWTH IN VITRO**

**D. Avramov**

VSU named after P.M. Masherova, Vitebsk, Belarus

To solve the problem in modern economic conditions, it is necessary to improve the methods of reproduction of the healthy seed material and its further reproduction at subsequent stages. To maintain the embedded characteristics of potatoes during breeding processes free from viral, bacterial and other infections, a culture in vitro - or meristem culture. This culture allows you to quickly and unlimitedly propagate planting material, maintain a living "living collection" collection and, thus, have constant access to a healthy source material, as well as reduce the entire period of primary seed production [1].

The aim of the research is to study the effect of increased concentration of nicotinic acid in the nutrient medium Murasige and Skoog on the growth and development of meristem plants of various potato varieties (*Solanum tuberosum* L.).

**Material and methods.** The studies were performed in the laboratory for clonal micropropagation of plants in the Vitebsk Zonal Institute of Agriculture of the National Academy of Sciences of Belarus. He is a leading research institution in the agricultural sector of the Vitebsk region.

In the laboratory Curative carried administering potato varieties *in vitro* culture . To this end, the apical meristem, which is a group of active dividing cells, is isolated from the growth zone of the kidney of a specially selected parent plant under sterile conditions and planted in test tubes on a nutrient medium. This is how the isolation of the healthy part of the plant, genetically identical to the original maternal part, and its subsequent vegetative reproduction occur . When cutting the source material, no more than three cycles are allowed. Cultural Mode in vitro : temperature 18-24 ° C, illumination 5 thousand lux at a 16-hour light period with a relative humidity of 75–85% [2].

Experimental studies were performed with the following potato varieties: Uladar, Skarb, Manifesto, Vector, Breeze .

**Findings and their discussion .** We odifitsirova m th on nutrient media and Moore asige and Skoog medium for the growth of the apical meristem potato. For this Expand wali nicotinic acid concentration to 1mg / liter. Such a modification is very economical.

Experiments were carried out with 20 microplants of each variety. 10 test tubes with a standard nutrient medium (control) and 10 with a modified.

Table – Effect of nicotinic acid on the multiplication factor of potatoes *in vitro*

Sort	Nutrient medium	Initial quantity, pieces	Left Plants for planting in the greenhouse, pc	Coefficient breeding
Uladar	Nicotine acid	ten	2,159	215.9
	Control	ten	1 609	160.9
Breeze	A nicotinic acid	ten	2 195	219.5
	Control	ten	1,546	154.6
Skarb	Nicotine acid	ten	2 197	219.7
	Control	ten	1,573	157.3
Vector	Nicotine acid	ten	2 154	215.4
	Control	ten	1,629	162.9
Manifesto	A nicotinic acid	ten	2,140	214
	Control	ten	1,603	160.3
Total	Nicotine acid	50	10,779	1077.9
	Control	50	7,960	796

Cutting was carried out in 3 cycles (0–12 weeks). After each cutting, microplants were counted, which were placed in a nutrient medium and those that were culled. We found that with each cutting the number of microplants in the nutrient medium increases compared with the control (table). We found that a nutrient medium with nicotinic acid increases the multiplication factor of potatoes *in vitro* on average at 289. In this nutrient medium, micro-plants developed actively. We obtained plants length -  $10.5 \pm 1.8$  cm green bubbled, rounded bubbled, photosynthesizing plants. Varietal affiliation as a whole does not affect the qualitative and quantitative characteristics of microtubers. Nicotinic acid for all varieties increases the multiplication factor from 30-35%. Such data allow us to conclude that the addition of nicotinic acid to the nutrient medium favorably affects the reproduction of potatoes *in vitro*.

As a result of these studies, it becomes possible to increase the yield of test-tube plants 3 months after planting a single source for 200-215 pieces, depending on the varietal accessories. In addition, the addition of nicotinic acid increases the length of internodes, which is convenient when graing micro plants.

The root system of meristem potato plants *in vitro* cultivated on this medium is more powerful, and such plants root better in the soil, as a result, the multiplication factor also increases.

Adding an increased concentration of nicotinic acid to the Murashige and Skoog nutrient media does not significantly affect the number of culled plants. So in control, 144 plants were culled, which amounted to 1.78%. In a nutrient medium with a high concentration of nicotinic acid, this indicator totals 1.55%. In a quantitative ratio, the control is 144, and in a nutrient medium with nicotinic acid 170. The yield of plants is 7,960 and 10 779 correspond to the control and MS + 1 ml nicotinic acid.

**Conclusion.** In modern conditions, it is extremely important to find effective ways to optimize the process of original seed production in the direction of reducing the necessary material, labor, energy resources and reducing production costs, especially at the stage of growing mini-tubers.

Thus, we have established that an increased concentration of nicotinic acid in the nutrient medium Murashige and Skoog has a positive effect on the number of microplants. By The number of plants increased by 2 845 pieces relative to the control, which in percentage was + 15%. The development of microplants is directly dependent on the composition of the nutrient medium.

#### Reference list:

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## **CHANGES IN THE STATE ATMOSPHERIC AIR IN THE TERRITORY OF THE GOMEL REGION UNDER THE INFLUENCE OF STATIONARY SOURCES OF POLLUTION**

**I. Borovtsov**

F. Skorina GSU, Gomel, Belarus

Atmospheric air is the most important component of the natural environment, providing life and having unlimited capacity, tremendous mobility, chemical activity and ability to penetrate various spheres. The release of pollutants alters the composition of atmospheric air, thereby causing respiratory diseases. The purpose of the work is to study the state of atmospheric air under the influence of stationary sources of pollution, as well as to determine how stationary sources affect the health status of the Gomel region.