MICROCLONAL MULTIPLICATION OF GRAPES

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Cover Page Footnote
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Erratum
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УЗУМНИ МИКРОКЛОНАЛЬ КЎПАЙТИРИШ
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Илмий раҳбар: Магай Елена Борисовна, доцент
Тошкент кимё-технология институти

Аннотация: Ушбу мақолада микроклональ кўпайтириш, яъни вируссиз юқори сифатли кўчатларни етиштиришнинг асосий усули ҳақида сўз боради. Озуқа муҳити таркибида узум навларининг эксплантлари реакциясининг юқори сифатли ўзига хос бўлганлигини i vitro кўпайтиришнинг муваффақиятли бўлishi учун муҳит таркибида таркибий қисмларини алоҳида танлашни талаб қилинади. Мақолада микроэлементларнинг кам миқдорда бўлган муҳити, модификацияланган муҳитда i vitro узумининг юқори қисмини етиштириш бўйича тадқиқот натижалари келтирилган.

Калит сўзлар: узум, микро кўпайиш, витро, апекслар, витро етиштириш.

МИКРОКЛОНАЛЬНОЕ РАЗМНОЖЕНИЕ ВИНОГРАДА
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Научный руководитель: Магай Елена Борисовна, доцент
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Аннотация: В данной статье речь идет о микроклональном размножении - это основной метод получения качественного безвирусного посадочного материала. Высокая качественная специфичность реакции эксплантов сортов винограда на состав питательной среды требует индивидуального подбора компонентов среды для наиболее успешного размножения invitro. В статье представлены результаты исследований по выращиванию верхушек винограда invitro на модифицированной среде с пониженным содержанием микроэлементов.

Ключевые слова: виноград, микро размножение, витро, апексы, витро культура.

MICROCLONAL MULTIPLICATION OF GRAPES
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Chemical Technological Institute of Tashkent

Abstract: In this article is about clonal micro-multiplication – is this the basic method of obtaining the qualitative virus-free planting material. The high quality specificity of the explants reaction of the grapes varieties to the composition of nutrient medium requires the individual selection of the medium components for the most successful multiplication in vitro. In the article we present the results of studies on the cultivation of the grapes apexes in vitro the modified medium with the reduced content of microcells.

Keywords: Grape, micro-multiplication, vitro, apexes, vitro culture.
In the success of viticulture, such factors as the survival rate of seedlings, durability, productivity, condition of plants and products quality, which, in turn, rely on the standard of planting material are crucial [1]. Standard grape plants are infected with numerous infectious agent and phytoplasma diseases. It’s familiar that the loss of yield from viruses will reach 50-80%. To stop the unfold of harmful diseases once planting stands, you ought to use certified seedlings. For the assembly of certified seedlings used basic (base) planting material, free from infectious agent, microorganism and different diseases. The most thanks to get high-quality virus-free planting material these days is plant healing by the plant tissue methodology in vitro [2-4].

One in all of the foremost vital options of operating with associate degree in vitro culture is that the varietal specificity of the response of grape explants to the composition of the nutrient medium: for pretty much every selection a private choice of medium elements is needed (macro and microelements, growth stimulants, etc.). The purpose of the study is to see the varietal response of grapes once introducing experimental explants of in vitro explants on a changed nutrient medium.

**Objects and analysis strategies.** To cut back doable soma clonal changes, which regularly occur throughout in vitro replica of explants from lateral buds [5], central apexes were introduced into in vitro culture.

Inexperienced shoots of elevengrape varieties regarding 10 cm long mature by distillation beneath laboratory conditions were used because the beginning material.

**Material preparation and sterilization:** laundry the apexes in running water for 3 hours (as a sterilizing answer, sublimate was used -0.1% for associate degree exposure of 30 seconds), laundry the apex doublein sterile H₂O[6]. Apexes were isolated beneath sterile conditions in stratified boxes of the whole VL-12 and transferred to the nutrient medium. For the introduction into a culture in vitro, the quality medium was elite in line with Murashige and Skoog (1962) and also the changed medium (M1) N.I.Medvedeva. et al., antecedently used on different grape varieties[7]. Within the changed modified medium supply, the content of NH₄NO₃, KNO₃ and MgSO₄·7H₂O salts is 25% not up to within the commonplace, and KH₂PO₄·H₂O binary compound is 38.7% higher. The content of anuran was repeatedly exaggerated, from 0.5 mg/l within the commonplace medium to 10 mg/l in the changed medium, and conjointly alimentationPP from 0.5mg/l to 4 mg/l, mesainositolexaggerated by 25 mg/l, pyridoxal wasn’t introduced into the changed medium. Modified medium supply is distinguished by a softer consistency because of decrease within the quantity of gum by 1 g/l (Table 1).

Expplants were civilized in antibiotictubes at a temperature + 24-25°C and also the illumination of 5000lux with a 16-hour photoperiod.

**Table 1.** Composition of the studied nutrient media

<table>
<thead>
<tr>
<th>Environment elements</th>
<th>Environment composition</th>
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</thead>
<tbody>
<tr>
<td><strong>Macroelements</strong></td>
<td></td>
</tr>
<tr>
<td>NH₄NO₃ – 1650; KNO₃ – 1900; MgSO₄·7H₂O – 370; KH₂PO₄·H₂O – 170; CaCl₂ – 440</td>
<td>NH₄NO₃ – 1237; KNO₃ – 1425; MgSO₄·7H₂O – 277,5; KH₂PO₄·H₂O – 277,5; CaCl₂ – 440</td>
</tr>
</tbody>
</table>

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Microelements

H$_2$BO$_3$ – 6,2; MnSO$_4$·4H$_2$O – 24,1; ZnSO$_4$·7H$_2$O – 8,6; KJ - 0,83; Na$_2$MoO$_4$·2H$_2$O – 0,25; CuSO$_4$·5H$_2$O – 0,025; CoCl$_2$·5H$_2$O – 0,025

MnSO$_4$·4H$_2$O – 22,3; ZnSO$_4$·7H$_2$O – 8,6; KJ - 0,83; Na$_2$MoO$_4$·2H$_2$O – 0,25; CuSO$_4$·5H$_2$O – 0,025; CoCl$_2$·5H$_2$O – 0,025

Fe-chelate

FeSO$_4$·7H$_2$O – 27,8; Na$_2$ – ЭДТА – 37,3

FeSO$_4$·7H$_2$O – 13,9; Na$_2$ – ЭДТА – 16,8

Vitamins

В$_1$, В$_6$, РР – 0,5; glycine – 10; mesoinosite – 75;

В$_1$- 10; PP – 4; glycine – 10; mesoinosite – 100;

Phytohormones

6-БАП – 1,0

6-БАП – 1,0

Sugar

sucrose – 30 g/l

sucrose – 30 g/l

Agar agar

7 g/l

6 g/l

The discussion of the results. Within the course of the analysis, associate degree assessment was product of the effectiveness of the employment of the changed modified medium at the stage of introduction of grape explants into an in vitro culture. Potency was assessed by survival rate and degree of development of explants (Fig. 1, Table 2).

Table 2. - Results of the introduction of apexes of experimental grape varieties into the culture in vitro.

<table>
<thead>
<tr>
<th>№</th>
<th>Sort</th>
<th>МС control</th>
<th>М1</th>
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<tbody>
<tr>
<td></td>
<td>planted, piece.</td>
<td>%</td>
<td>planted, piece.</td>
</tr>
<tr>
<td></td>
<td>engrafted, piece.</td>
<td></td>
<td>engrafted, piece.</td>
</tr>
<tr>
<td>1</td>
<td>Kishmish radiant</td>
<td>36</td>
<td>41,7</td>
</tr>
</tbody>
</table>

Media MCcontrol

Media M1

Figure 1 - The development of Artemis grape plants on the nutrient media being studied.

Table 2. - Results of the introduction of apexes of experimental grape varieties into the culture in vitro.
As a result of the studies, most of the grapes had a high survival rate of explants on a modified M1 medium. Table 2 shows that a high survival rate of explants on the modified medium is discovered in Artemis varieties- a 100%, PtiVerdo- 98.2%, in Trainer Black varieties, Maria Callas, Academic Trubilin, Nazianz, and Gourmet Krajnov- at intervals 80-86.7%. The start of the event of the apex was noted at 5-7 days when the introduction. The range Maria Callas encompasses a high survival rate on each media, on a typical medium- 80%, on modified M1 media- 86.7%. In varieties, Artemis, PtiVerdo, Academic Troublin and Gourmet Krajnov, the survival rate on a typical medium vary from 60 to 75%, that is 20-30% not up to on a changed medium. All timeloshareof live explants on eachcommonplacemedium and modified medium was discovered within the Rochefort, Kishmish radiant and Anniversary of Novocherkassk varieties. At the identical time, the kinds of Kishmish radiant and Anniversary of Novocherkasskhada reduced content survival rate on themodified medium- 37.8% and 26%, severally. It was found that in the modified media M1 explants of all grape varieties, except for varieties of Kishmish radiant and Anniversary of Novocherkassk, developed faster, had a more intense green color, a powerful stem and larger leaves.

**Conclusion.** As a results of the analysis, they came to the conclusion that for the effective introduction into the in vitro culture (80-100% crudeness of apexes) of Artemis, PtiVerdo, TraminerBlack, Maria Callas, Academic Trubilin, Nazianz and Gourmet Krajnov grape varieties - it's necessary to use the changed nutrient medium Murashige and Skoog (1962) with a reduced content of macronutrients (mg/l): NH₄NO₃ - 1237; KNO₃ - 1425; MgSO₄·7H₂O - 227.5; KH₂PO₄·H₂O - 277.5; B - 10.0 mg/l, nicotinic acid - 4 mg/l. For varieties Kishmish radiant and Anniversary of Novocherkassk, each the changed medium and also the common place MC medium failed to show high potency once introducing extract ants into the culture in vitro.

**References:**


