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researchers and students: theory and
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Innovation, integration and modern problems in the scientific activities of young
researchers and students: theory and practice collection of materials of the
international scientific and practical conference on the topic

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In the collection of materials of the conference, the role and role of Science, Education and production in the era of globalization, the pressing problems of the issues of interaction of these processes, feedback on their solutions were presented by mature specialists of the field.

In addition, research on the scientific and practical topic, carried out in the economics, Exact Sciences, Natural Sciences and socio-humanities during the globalization period, information is presented in the scientific and practical fields, which includes the latest innovative technologies in the fields of production.

It can be argued that this collection is one of the specific intersections of current thoughts and innovative ideas of the world of science. This scientific and practical conference was actively attended by professors and scientific researchers engaged in scientific research in Uzbekistan and foreign countries. In increasing the position of the scientific and practical conference, the professors and teachers of domestic and foreign higher educational institutions made a significant contribution.

Professors and teachers of foreign higher educational institutions who actively participated in the work of the conference made a worthy contribution to the high level of interaction with scientists of our country. The processes of international cooperation with foreign countries and exchange with them in the field of Science in the era of globalization have a positive effect on the development of Higher Education, the fields of Science and production. The materials of this conference are special in that they include a wide range of research, from theoretical developments to practical solutions, demonstrating the diversity of approaches and directions in this area.

In conclusion, it should be noted that this scientific and practical conference will be a very useful collection for everyone who is interested in modern research in the fields of further development of Higher Education, Science, Education and production in the era of globalization. The authors are responsible for the content and quality of the articles and abstracts included in the collection.

ABIOTIK OMILLARGA CHIDAMLI GILOS PAYVANDTAGLARINI MIKROKLONAL KO'PAYTIRISH

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Annotatsiya: Mazkur tezisdagi abiotik omillarga chidamli gilos payvandtaglarini mikroklonal ko'paytirishning metodik jihatlari va amaliy ahamiyati yoritilgan. Tadqiqot natijalari shuni ko'rsatdiki, sifatli explantlarning tanlanishi, gormonal balans va nutrient muhitini optimallashtirish orqali klonlarning vegetativ rivojlanishi va barqarorligini oshirish mumkin. Mikroklonal usul yordamida ko'paytirilgan klonlar qurg'oqchilik, sho'rlanish, past va yuqori harorat kabi stress omillariga nisbatan yuqori chidamlilik ko'rsatadi. Tadqiqot O'zbekiston sharoitida mikroklonal ko'paytirish texnologiyasining seleksiyada, meva sifatini va hosildorligini oshirishdagi amaliy ahamiyatini tasdiqlaydi.

Kalit so'zlar: Mikroklonal ko'paytirish, gilos payvandtagi, abiotik stress, klon, vegetativ rivojlanish, gormonal balans, seleksiya.

Gilosning hosildorligi va sifatini oshirish, shuningdek, stress omillariga chidamli navlarni yaratish zamonaviy agrotexnologiya va seleksiya sohasida dolzarb masalalardan biri hisoblanadi. O'zbekiston sharoitida gilosning ekologik va agrotexnik xususiyatlarini hisobga olgan holda, abiotik stress omillariga, jumladan, qurg'oqchilik, sho'rlanish, past va yuqori harorat kabi sharoitlarga chidamli navlarni yetishtirish ehtiyoji yuqori bo'lib, bu o'simliklarning barqarorligini va hosildorligini oshirish bilan birga, meva sifatini yaxshilash imkonini beradi.

An'anaviy vegetativ ko'paytirish usullari, xususan, urug'dan ko'paytirish, ko'p hollarda sekin va sifat jihatdan barqaror bo'lmagan natijalarni beradi. Shu bois, mikroklonal ko'paytirish texnologiyasi in vitro sharoitida tezkor, sifatli va genetik jihatdan barqaror klonlarni olish imkonini yaratadi. Ushbu metodologiya orqali seleksionerlar yangi, stressga chidamli gilos navlarini tezkor ravishda yaratish, ularning vegetativ rivojlanishini nazorat qilish va hosildorligini oshirish imkoniga ega bo'ladi. Mikroklonal ko'paytirish jarayoni asosan steril explantlar tayyorlash, ularni o'sish va rivojlanishi uchun optimal nutrient muhit va gormonal balans bilan ta'minlash, shuningdek, klonlarning genetik va fenotipik barqarorligini monitoring qilishni o'z ichiga oladi [1; 3]. Shu jihatdan, abiotik omillarga chidamli gilos payvandtaglarini mikroklonal ko'paytirish nafaqat ilmiy jihatdan, balki amaliy ahamiyatga ega bo'lib, zamonaviy agrotexnologik jarayonlarda seleksionerlik ishlarini sezilarli darajada optimallashtiradi.

Bugungi kunda O'zbekiston meva-sabzavot sanoati va ilmiy tadqiqot muassasalarida mikroklonal ko'paytirish texnologiyasini tatbiq etish orqali yangi navlarni yaratish, ularning genetik barqarorligini ta'minlash va abiotik stressga chidamliligini oshirish imkoniyatlari kengaymoqda. Shu nuqtai nazardan, ushbu

tadqiqot gilos payvandtaglarining mikroklonal ko'paytirish metodologiyasini chuqur o'rganish va amaliy natijalarni baholashga qaratilgan. Mikroklonal ko'paytirish orqali olingan gilos payvandtaglari vegetativ rivojlanishda sezilarli darajada samarali bo'lib, ularning barqarorligi va stressga chidamliligi oshadi. Steril explantlardan tayyorlangan klonlar optimal nutrient muhit va gormonal balans ta'minlangan sharoitda tez ildizlanish va shoxlanish jarayonini ko'rsatdi. Ayniqsa, BAP va IAAning muvofiqlashtirilgan kombinatsiyasi shoxlanish va ildizlanish sur'atini oshirib, klonlarning vegetativ rivojlanish barqarorligini ta'minladi.

Eksperimental kuzatuvlarda mikroklonal ko'paytirish jarayonida olingan klonlar qurg'oqchilik, sho'rlanish va past/yuqori harorat kabi abiotik stress omillariga nisbatan yuqori chidamlilik ko'rsatdi. Bu natijalar O'zbekiston sharoitida gilos seleksiyasida ushbu texnologiyaning amaliy ahamiyatini tasdiqlaydi. Shu bilan birga, klonlarning genetik va fenotipik xususiyatlari o'zgarmaganligi, ya'ni mikroklonal ko'paytirish orqali olingan klonlar barqarorligini saqlab qolishi kuzatildi. Mikroklonal ko'paytirish texnologiyasining yana bir afzalligi – seleksionerlar uchun yangi navlarni tezkor yaratish va ularning vegetativ rivojlanishi hamda hosildorligini nazorat qilish imkoniyatidir. Tadqiqot natijalari shuni ko'rsatdiki, steril explantlar, optimallashtirilgan nutrient muhit va gormonal balans kombinatsiyasi orqali olingan klonlar o'sish va rivojlanishning barcha fazalarida yuqori samaradorlikni ta'minlaydi.

Mikroklonal ko'paytirish texnologiyasi gilos payvandtaglarini abiotik stress omillariga chidamli qilishda samarali vosita hisoblanadi. Tadqiqotda asosiy e'tibor steril explantlarning sifatiga, ularni o'sish muhitiga joylashtirish, gormonal balans va nutrient muhitini optimallashtirish orqali klonlarning vegetativ rivojlanishi va barqarorligini ta'minlashga qaratildi [1; 3].

Mikroklonal ko'paytirishning muvaffaqiyati birinchi navbatda ishlatiladigan explantlarning sifatiga bog'liq. Tadqiqotda olingan payvandtaglarning yoshligi, sog'lomligi va epiderma qoplamining holati kuzatildi. Eng optimal natija yosh va faol meristematik hududlardan olingan explantlar bilan erishildi. Sterilizatsiya jarayonida 70% spirt va 0,1% natriy hipoxlorid ishlatilgan bo'lib, bu metod explantlarni patogen mikroorganizmlardan tozalash va o'sish potentsialini saqlashda samarali ekanligi aniqlangan.

Explantlarning vegetativ rivojlanishi va barqaror ko'payishi uchun Murashige & Skoog (MS) muhitidan foydalanildi. Gormonal kompleks sifatida BAP (6-benzilaminopurin) va IAA (Indolil-3-asetat kislota) qo'llanildi. Tadqiqot natijalari shuni ko'rsatdiki, BAP va IAAning optimal kombinatsiyasi klonlarning ildizlanish sur'atini oshirdi va shoxlanish jarayonini tezlashtirdi. Shu bilan birga, vitaminlar, aminokislotalar va makro- va mikroelementlar bilan boyitilgan muhit klonlarning stressga chidamliligini sezilarli darajada oshirdi.

Klonlarning vegetativ rivojlanishi eksperimental sharoitda muntazam kuzatildi. Olingan natijalar shuni ko'rsatdiki, mikroklonal ko'paytirish yordamida olingan klonlar qurg'oqchilik va sho'rlanish kabi abiotik stress omillariga nisbatan yuqori chidamlilik ko'rsatdi. Shu bilan birga, klonlarning fenotipik barqarorligi va genetik xususiyatlari o'zgarmaganligi aniqlangan, bu esa seleksionerlar uchun

muhim ahamiyatga ega. Mikroklonal ko'paytirish texnologiyasi nafaqat ilmiy jihatdan, balki amaliy ahamiyatga ham ega. Ushbu usul yordamida abiotik stressga chidamli gilos navlarini tez va sifatli ko'paytirish mumkin. Shuningdek, bu metod seleksionerlar uchun yangi navlarni yaratish va ularning vegetativ rivojlanishi hamda hosildorligini oshirishda samarali vosita bo'lib xizmat qiladi [2; 7].

O'zbekiston olimlari tomonidan olib borilgan tadqiqotlar natijalari bilan solishtirilganda, ushbu tadqiqot ham mikroklonal ko'paytirish usulining gilos payvandtaglarini abiotik stressga chidamli qilishda samarali ekanligini tasdiqlaydi [3; 4]. Shu bilan birga, u seleksiya jarayonlarini tezlashtirish, yangi navlarni yaratish va meva sifatini yaxshilash imkoniyatlarini kengaytiradi.

Shuni ta'kidlash lozimki, mikroklonal ko'paytirish texnologiyasi nafaqat ilmiy tadqiqotlar uchun, balki amaliy agronomik ishlab chiqarish jarayonlarida ham keng qo'llanilishi mumkin. Bu metod orqali seleksionerlar yuqori sifatli, barqaror va stressga chidamli gilos navlarini tez va samarali yaratish imkoniga ega bo'ladilar. Natijalar shuni ko'rsatdiki, kelajakda mikroklonal ko'paytirish texnologiyasini optimallashtirish va yangi stressga chidamli navlarni yaratish bo'yicha qo'shimcha ilmiy izlanishlar olib borish zarur.

ADABIYOTLAR RO'YXATI:

1. Nazarov A., Hamidov I. *Mikroklonal ko'paytirish texnologiyasi va gilos seleksiyasidagi amaliy qo'llanilishi*. Toshkent: Fan, 2019.
2. Tursunov Sh., Karimov B., Saidov M. *Abiotic stress tolerance in cherry rootstocks: in vitro propagation approaches*. Journal of Horticultural Science, 2020, 15(2), 45–56.
3. Karimov B. *Gilos klonlarini mikroklonal usulda ko'paytirish va vegetativ rivojlanishini optimallashtirish*. Toshkent: O'zbekiston Milliy Universiteti Nashriyoti, 2021.
4. Muradov D., Raxmonov F. *In vitro gilos ko'paytirish metodlari va seleksiyada qo'llanilishi*. Toshkent: Qishloq xo'jaligi nashriyoti, 2018
5. Raxmonov S., Qodirov N. *Abiotic stress and clonal propagation of fruit trees in Uzbekistan*. International Journal of Plant Research, 2020, 8(3), 23–32.
6. FAO. *Micropropagation of fruit trees: technical guidelines*. Rome: Food and Agriculture Organization, 2020.
7. Hartmann H.T., Keste D.E., Davies, F.T., Geneve R.L. *Plant Propagation: Principles and Practices* (8th ed.). Boston: Prentice Hall, 2011.
8. Сагатов Б., Цой М., Гулиев А. Повышение качества продукции предприятий стройиндустрии как фактор конкурентоспособности производства // Архив Научных Публикаций JSPI. – 2020. – Т. 1. – С. 79.
9. Цой М., Камолов Д. ЗНАЧЕНИЕ И РОЛЬ ДЕЯТЕЛЬНОСТИ СУБЪЕКТОВ МАЛОГО ПРЕДПРИНИМАТЕЛЬСТВА В ЭКОНОМИКЕ: МИРОВОЙ ОПЫТ И ПРАКТИКА УЗБЕКИСТАНА // Academic literature. – 2025. – Т. 1. – №. 1. – С. 1-105.
10. Kamolov D. ON THE WAY TO THE DIGITAL EDUCATION SYSTEM OF UZBEKISTAN. – 2023.