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The main directions of socio-economic development of New Uzbekistan: problems and solutions

MINISTRY OF HIGHER EDUCATION, SCIENCE AND INNOVATION OF THE REPUBLIC OF UZBEKISTAN

JIZZAKH BRANCH OF THE NATIONAL UNIVERSITY OF UZBEKISTAN NAMED AFTER MIRZO ULUGBEK

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The main directions of socio-economic development of New Uzbekistan: problems and solutions 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.

O‘SIMLIK TO‘QIMALARINI YOKI HUJAYRA KULTURALARNI KRIOKONSERVASIYALASH



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Annotatsiya: Mikroorganizmlar va boshqa biologik ob’ektlardan ajratilgan sof kulturani ifloslanishdan xoli saqlash va mikroorganizmning hayotiyligini saqlab qolish muhimdir. Odatda laboratoriyalarda toza kulturalar mikroorganizmlarning uzluksiz o‘sishi va hayotiyligini ta’minlash uchun vaqti-vaqti bilan yangi muhitga (subkulturatsiya) o‘tkaziladi. Takroriy subkulturalash ko‘p vaqt talab qiladiganligi sababli, ko‘p miqdordagi sof kulturalarni uzoq vaqt davomida muvaffaqiyatli saqlab qolish qiyin bo‘ladi. Bundan tashqari, genetik o‘zgarishlar, shuningdek, ifloslanish xavfi mavjud. Shuning uchun, endi u tez-tez subkulturaga muhtoj bo‘lmagan ba’zi zamonaviy usullar bilan almashtiriladi. Ushbu tezisda ana shu zamonaviy usullardan biri bo‘lgan kriokonservalash usuli haqida qisqacha ma’lumotlar bayon etiladi.

Kalit so‘zlar: Kriokonservalash, kultura, mikoplazma, preimplantatsiya, krioviallar, inkubatsiya, krioprotektor, eksponensial.

Kirish. Kriokonservalash yunoncha *kros* - sovuq va lotincha *konservo* - saqlash – tirik biologik ob’ektlarni eritishdan keyin biologik funksiyalarini tiklash imkoniyati bilan past haroratda saqlash jarayoni. Qoidaga ko‘ra, kultura mikroorganizmlari suyuq azotda -196C da glitserin yoki dimetil sulfoksid (DMSO) kabi barqarorlashtiruvchi moddalar ishtirokida tez muzlatiladi, ular muz kristallari hosil bo‘lishi natijasida hujayra shikastlanishining oldini oladi va hujayraning omon qolishiga yordam beradi. . Kamroq qo‘llaniladigan yuqori haroratlar (-180C dan -130C gacha), ular elektrlashtirilgan muzlatgichlar tomonidan yaratilgan, ammo bu harorat rejimi ishonchli emas va barcha ob’ektlar uchun mos emas. -130C dan yuqori haroratlar samarasiz va kamdan-kam qo‘llaniladi. Tirik ob’ektlarning nol daraja atrofidagi haroratlarda saqlanishi an’anaviy ravishda kriokonservatsiya deb tasniflanmaydi. Past haroratlardan foydalanish hujayralardagi biokimyoviy jarayonlarni, shu jumladan tashqi muhit bilan moddalar va energiya almashinuvini to‘xtatishni ta’minlaydi, buning natijasida tirik ob’ektlar cheksiz saqlanib qolishi mumkin. Hozirgi vaqtda hujayra kulturalarini, to‘qimalarni (qon, sperma) va erta (preimplantatsiya) embrionlarni kriokonservalash usullari ishlab chiqilgan va ular tibbiyot, qishloq xo‘jaligi va ilmiy tajribalarda muvaffaqiyatli qo‘llanilmoqda [1-6].

Hujayrani muzlatish va saqlash muvaffaqiyati kriyokonservatsiya ish jarayonining ko‘plab elementlariga bog‘liq. Kriokonservasiyaning muvaffaqiyati uchun krioprotektorlardan foydalanish muhim ahamiyatga ega – ular hujayralarni

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muzlash paytida shikastlanishdan himoya qiladi. Krioprotektiv xususiyatlarga ega bo‘lgan juda ko‘p miqdordagi moddalar mavjud, ammo amalda ulardan faqat bir nechtasi ishlatiladi. Krioprotektorlarning ikki turi mavjud: hujayra ichiga kiradigan hujayralar ichiga kirmaydigan.. hujayraga kiradigan protektorlar-himoya vositalari (gliserin, propilen-glikol, etilen glikol, dimetil sulfoksid (DMSO), aminokislotalar: prolin, asparagin va boshqalar) suv molekulalari bilan vodorod bog‘lanishini hosil qilib muz kristallari hosil bo‘lishining oldini oladi. Hujayraga kirmaydigan krioprotektorlar (saxaroza, tregaloza, fikoll, albumin, polivinilpirrolidon) hujayralarni muzlash bilan bog‘liq bo‘lgan osmotik o‘zgarishlardan himoya qiladi va muz kristallarining o‘sish tezligini pasaytiradi. Hujayralarni muzlatish paytida steril sharoitlarni saqlash uchun tegishli aseptik usullardan foydalaniladi. Idishlarni ochishdan oldin ularni 70% etanol yoki izopropanol bilan artib tashlash zarur [4-5]. Muzlatishdan oldin hujayralar sog‘lom va har qanday mikrobial ifloslanishdan xoli ekanligiga ishonch hosil qilinadi [8]. Muzlatishdan oldingi ish jarayoniga mikoplazma testini kiritish tavsiya etiladi. Kulturaning ifloslanishi belgilariga muhitning loyqaligi va rangi o‘zgarishi yoki hujayralardagi morfologik o‘zgarishlar kiradi. Eng yaxshi natijalarga erishish uchun hujayralar maksimal o‘sish bosqichida yig‘ib olinishi kerak. Hujayralarni muzlatish uchun optimal konsentratsiya hujayra turiga qarab farq qilishi mumkin [9-12].

Suspenziya bilan o‘stirilgan hujayralarni kriokonservalash. Eksponensial o‘suvchi hujayralar 15 ml li probirkalarga o‘tkazildi va 100×g da 1 minut davomida sentrifuga qilinadi. Hujayra suspenziyalari katta teshikli uchlari bo‘lgan mikropipetlar yordamida ishlov beriladi. Supernatant olib tashlanadi va hujayralar kriyoprotektor eritmasida to‘xtatiladi, hujayra zichligi 10% (v/v) bo‘lgan 0-86,9 mM L -prolin bilan to‘ldiriladi va xona haroratida 120 daqiqa davomida 60 rpm tezlikda va silkitmasdan inkubatsiya qilinadi. Alikvotlar (0,5 ml) hujayra suspenziyalari 1,2 ml krioviallarga tarqatildi. Hujayra suspenziyasini o‘z ichiga olgan krioviallar -0,5, -1 yoki -2C min -1 tezlikda -35C gacha sovutiladi va sovutilgan hujayralar -35C da 60 daqiqa davomida dasturlashtiriladigan muzlatgichda ushlab turiladi. Oldindan muzlatish, shuningdek, muzlatish idishida yoki EPS trubkasi konteynerida ham tekshiriladi. Muzlatish idishi va EPS trubkasi idishlari -30°C yoki -80°C muzlatgichga joylashtiriladi va 1-8 soatga qoldiriladi. Oldindan muzlatilgandan so‘ng, flakonlar darhol suyuq azotga solinadi [12-15].

Kriokonservalangan hujayralarning erishi va qayta o‘sishi. Muzlatilgan hujayralari bo‘lgan krioviallar 35C da 2 daqiqa davomida kuchli silkitib (taxminan 180 rpm) suv hammomiga joylashtiriladi. Eritilgan hujayralar ikki qavatli filtr qog‘ozlariga (diametri 85 mm) tushiriladi. Filtr qog‘oziga deyarli bir xil zichlikka ega bo‘lish uchun eritilgan hujayralarni 20 mm doira ichida yoyib chiqiladi. Hujayralar har bir hujayra turi uchun haroratda 1 kun davomida inkubatsiya qilinadi. Hujayralar bilan yuqori filtr qog‘ozi keyingi o‘sish uchun yangi muhitga o‘tkaziladi [11, 14].

Xulosa. Hozirgi vaqtda odamlarning, boshqa sutemizuvchilarning yoki qushlarning kriosaqlanishini ta’minlaydigan usullar mavjud emas.

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Kriokonservasiyalash jarayonlarini chuqur o‘rganish, hamda yangi metodlarni ishlab chiqish orqali ushbu muommolarni hal etish mumkin. Bu kashfiyotlar fanda, tibbiyotda, sanoatda va boshqa turli sohalarda tub burilishlarga sabab bo‘ladi.

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