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

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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.

TOZALANMAGAN KOMPLEKS FERMENT PREPARATLARINI OLINISHI



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Annotatsiya: Ushbu tezisda tozalanmagan ferment preparatlari, ularning xususiyatlari, ferment preparatlarini ajratib olish usullari, fermentlarni ajratib olishda qo‘llaniladigan filtr turlari va samaradorligi yuqori filtrlardan foydalanish haqida ma’lumotlar berib o‘tilgan

Kalit so‘zlar: mikroorganizm kulturasi, oziqa muhit, quritgichlar, sentrifuga, separator, vakuum filtrlar, ramali filtr.

Kirish: Tozalanmagan ferment preparati - mikroorganizm kulturasini mo‘tadil sharoitda namligi 8-12% ga olib kelingan va butun oziqa muhiti qoldiqlari bilan birgalikdagi massasidir. Tozalanmagan ferment preparati kulturani qattiq yoki suyuq oziqa muhitida o‘stirish yo‘li bilan olinishi mumkin. Suyuq muhitda o‘sgan kultura quritishdan oldin biomassasi va oziqa muhiti qoldiqlaridan qisman tozalangan yoki shundayligicha quritilgan bo‘ladi. Qattiq oziqa muhitida o‘stirilgan mikroorganizm kulturasi, odatda, 35% dan 58% gacha namlikka ega bo‘ladi. Bunday mahsulot chidamsiz bo‘lganligi sababli, uni tezda ishlab chiqarishga joriy qilish yoki namlik darajasi 10-12% gacha bo‘lgan holgacha quritib olish kerak [1].

Quritish jarayonidan oldin o‘stirish xonasidan olingan mikroorganizm maydalanadi va keyin quritiladi. Mikroorganizm kulturalarini quritish uchun tasmali, tonnelli, shaxtali, barabanli, javon (shkafli) va tebranuvchan quritgichlardan foydalanish mumkin. Ishlab chiqarishda, yuqorida qayd qilinganlarga nisbatan ko‘proq, to‘g‘ri yo‘naltirilgan baraban tipidagi quritgichlar ishlatiladi. Bunday nam kultura issiqlik beruvchi qurilma bilan birgalikda 80-85°C da quritgichga tushadi. Bunday yuqori haroratda quritiluvchi nam mikroorganizmlarning mayda bo‘laklaridagi namning bug‘lanishi hisobiga qattiq qizib ketish holati kuzatilmaydi va undagi fermentlaming faolligi deyarli to‘liq saqlanadi. Ko‘pchilik barabanli quritgichlarning ichki tomonida parraksimon kurakchalar mavjud bo‘lib, baraban 6-8 min tezlikda aylanishi hisobiga quritilayotgan materialning bir tekisda tarqalishini va quritilishini ta’minlaydi [3].

Shuning uchun bunday tipdagi quritgichda quritilgan mahsulot butun massasi bo‘ylab bir xil namlikka ega bo‘ladi. Ushbu quritgichda mikroorganizm bo‘lakchalari 3-7 min davomida quritiladi, berilayotgan issiqlik tezligi 2-3 m/s, kirishdagi harorat 80-85°C, chiqishdagi esa 60-65°C va quritilayotgan material harorati 40°C ga teng bo‘ladi. Quritish jarayonida atigi 3-10% gacha ferment faolligi yo‘qotilishi mumkin. Mikroorganizmlarni quritishda ishlatiladigan quritgichlarning

yana bir turi - germetik berk bo‘lgan lentali bug‘ konveyerli quritgichdir. Bunday qurilmalarda fermentning faolligi ko‘p yo‘qotiladi, lekin ular ixcham va yuqori samaradorlikka ega [4].

Asosiy qism: Qattiq oziqa muhitida o‘stirilgan mikroorganizmlarni quritish uchun turli konstruksiyali quritgichlardan foydalanish mumkin, qaysiki mahsulotning faolligini minimumgacha tushirishni, uning quritgichda 5-8 min davomida bo‘lishi va chiqishida harorat 40-42 C dan past bo‘lishini ta’minlaydi. Tayyor quruq mikroorganizmlar maxsus qoplash mashinalarida 25-40 kg qilib qoplanadi va tayyor mahsulotlar omboriga yuboriladi. Ko‘pchilik produtsentlar sintez qilgan fermentlarning asosiy qismini suyuq oziqa muhitiga chiqaradilar va to‘playdilar. Toza ferment preparatlarini produtsentning biomassasi bilan birgalikda filtrlarda, sentrifugalarda yoki separatorlarda ajratiladi. Mikrobiologiya sanoatida asosan tashqi tomoni bilan filtrlovchi yacheykali-barabanli to‘xtovsiz ishlovchi vakuum filtrlar ishlatiladi. Bu filtrlar yuqori darajada mexanizatsiyalashtirilgan bo‘lib, har xil suspenziyalami bir xil tezlikda filtrlash imkonini beradi. Barabanning sirti to‘rsimon bo‘lib, bo‘z yoki filtrlovchi sun’iy gazlama bilan o‘ralgan va u filtrlanuvchi suyuqlikka cho‘ktirilgan bo‘ladi. Filtrlovchi sirtda to‘plangan turli erimagan komponent va biomassa maxsus pichoq yordamida tozalanadi. Baraban filtrlar biomassani ajratish uchun juda qulay, lekin ular past samaradorligi, qo‘polligi va aseptika sharoitlarini ta’minlay olmasligi bilan ajralib turadi [2].

Ferment sanoatida ko‘pincha ramali filtr-press ham ishlatiladi. Mahsulot qo‘l ishiga asoslangan holda olinadi. Ramah filtr-presslarning filtrlovchi hajmi kichik bo‘lganligi sababli barabanli vakuum- filtrga nisbatan ham kam samaralidir. Ramali filtrda filtrlash jarayoni 0,6-0,4 Mpa bosim ostida olib boriladi. Odatda, filtratning birinchi qismi tiniq bo‘lmaydi va u qayta filtrlanadi. Filtr-pressning kamchiliklari gorizontal kamerali tipdagi FPAKM da birmuncha bartaraf etilgan. U ustma-ust joylashgan filtrlovchi plitalar va filtrlovchi gazlamadan iborat. Ushbu uskunaning ishi avtomatlashtirilgan va ish yuzasi 2,5 dan 50 hajmga ega. Nisbiy samaradorligi boshqalariga nisbatan 6-8 marta yuqori va ferment faolligi 4-5% atrofida yo‘qotiladi. Ularni ishlab chiqarishga joriy qilish juda istiqbolli va bakteriyalar kultural suyuqligini flltrlashda juda qo‘l keladi. Ferment sanoatida 8CM tipidagi separatorlar ham keng qo‘llaniladi. Ular ichiga baraban o‘rnatilgan idish ko‘rinishida bo‘ladi. Barabanlarning ichida silindrik to‘siqlar o‘rnatilgan bo‘lib, yuqori tezlikdagi markazdan qochma kuch hisobiga ining tagida cho‘kma holda biomassa va boshqa komponentlar cho‘kadi. Separatorning samaradorligi yuqori bo‘lib, 2000-50001/s gacha yetadi. Ko‘proq АСЭ-3, АСИ, АСЭ-Б tipidagi separatorlar hamda «Alfa-Laval» (Shvetsiya) firmasining soplo separatorlaridan foydalaniladi. Biomassani filtrlash samarali ishlatilayotgan uskuna turiga, oziqa muhit tarkibiga, ajratilayotgan bo‘lakchalarning katta-kichikligiga, erimagan fraksiyalar miqdoriga, filtrlovchi materialning fizik-kimyoviy xususiyatlariga, harorat rejimiga va boshqa omillarga uzviy bog‘liqdir. Filtrlash jarayonini yaxshilash maqsadida kultural muhit kimyoviy qayta ishlanadi, ya’ni ishqoriyligi pH 8-8,5 ga keltirilib, 0,l%li CaCl eritmasi va turli kizelgurlar (diatomit, radionit, mikrozil, klargel va h.k.) qo‘shiladi. Bu

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to‘ldiruvchilar filtrlash samarasini oshiradi, lekin ba’zi ferment faolligiga salbiy ta’sir qiladi. Olingan biomassa sterilizatsiya qilinadi va quritilib, chorva mollariga yem sifatida ishlatiladi: Kultural suyuqlik filtrati esa toza ferment preparati olish uchun qayta ishlashga yuboriladi [4-8].

Xulosa: Tozalanmagan kompleks ferment preparatlarini olish jarayoni biologik xomashyo (bakteriyalar, zamburug‘lar, o‘simliklar yoki hayvonlarning to‘qimalari)dan fermentlarni ajratib olish va ulardan foydali komplekslar tayyorlashni o‘z ichiga oladi. Ushbu preparatlar odatda biotexnologiya, oziq-ovqat sanoati, tibbiyot va ekologik tozalash sohalarida qo‘llaniladi. Xomashyo maxsus ozuqa muhitida ko‘paytirilib, fermentlarning ishlab chiqarilishi rag‘batlantiriladi. Fermentlarni tozalanmagan holatda ajratib olish uchun filtratsiya, sentrifugatsiya yoki yog‘och ko‘mir kabi adsorbentlardan foydalaniladi. Ajratilgan fermentlar stabilizatorlar yordamida uzoqroq muddat saqlanishi uchun qayta ishlanadi. Tozalanmagan ferment preparatlari arzon, ekologik xavfsiz va ko‘p funksiyali bo‘lib, sanoatda keng qo‘llaniladi. Ularning to‘liq tozalanmaganligi ularni muayyan sohalarda (masalan, yirik miqyosli jarayonlarda) afzal qiladi. Shunday qilib, bu usul iqtisodiy jihatdan tejamkor bo‘lib, keng ko‘lamli qo‘llanmalarga ega. Shu bilan birga, ulardan foydalanish jarayonida nojo‘ya ta’sirlarni oldini olish uchun maxsus tahlil va sinovlar talab etiladi.

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