

Prospects of Biotechnology

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Annotation: This article describes the prospects of biomedical and pharmaceutical trends and the development of the health care system of our country.

Keywords: Antibiotics, immunology, vaccine, mineral resources, molecular biology, biotechnology, genome engineering.

Biotechnology is a focus of attention of experts in various fields. The period of emergence of antibiotics can be considered as the period of formation of biotechnology as a separate science. In the 50s of the 20th century, food environments were developed and their production began, in the 60s, vaccines, in the 70s, a number of new technological processes and equipment and construction projects were created. Many scientists believe that the 21st century will be the century of biotechnology. The great achievements of molecular biology and genetics, as well as the need for fundamental new technologies aimed at the development of health care, environmental protection, and the elimination of food and mineral resource shortages, make it necessary for our century to become the century of biotechnology.

The science of biotechnology is one of the youngest sciences for Uzbekistan, and its history does not go far. This science is being developed mainly at the Institute of Microbiology of the Academy of Sciences of Uzbekistan, the Institute of Genetics and Experimental Biology of Plants, as well as at a number of plants related to the Republican Chemical Union (Yangiyul Biochemical Plant, Andijon Hydrolysis Plant, Kukon Distillery). A.G. Kholmurodov (1939-1996), the first Uzbek academician in the field of biotechnology, created the technology of preparation of NAD-coenzyme and vitamin complex (V vitamins, vitamin RR, Q10, etc.) from fusarium fungi. Academician Abdukarimov A.A. and his students are conducting extensive research in the field of genetic engineering. B.f.d. M.M. Rakhimov is considered the greatest expert in the field of enzyme engineering. Academician Sh.I. Salikhov, B.Sc. Azimova Sh.S., b.f.d. K. D. Davronov is doing it. B.f.d. J. Tashpulatov scientifically substantiated the possibility of using the enzymes of the fungus called "trichoderma kharzianum" in the decomposition of straw and chaff, and published suggestions and comments on the practical application of this technology.

Biotechnology is a process of solving technical and technological problems with the participation of biological systems (biological objects, biological methods and biotechnological processes).

The nature of biological systems can be different. Biological systems can be various organisms and their constituent oxyls, enzymes, genes and various metabolites. Biotechnology is a science based on the achievements of genetic engineering, cell biology, microbiology, biochemistry, molecular biology, genetics, immunology, molecular biotechnology, enzyme engineering, oxidative engineering, genetic engineering, nanotechnology, informatics and other sciences. The main current trends in biotechnology are shown in the diagram. [1]

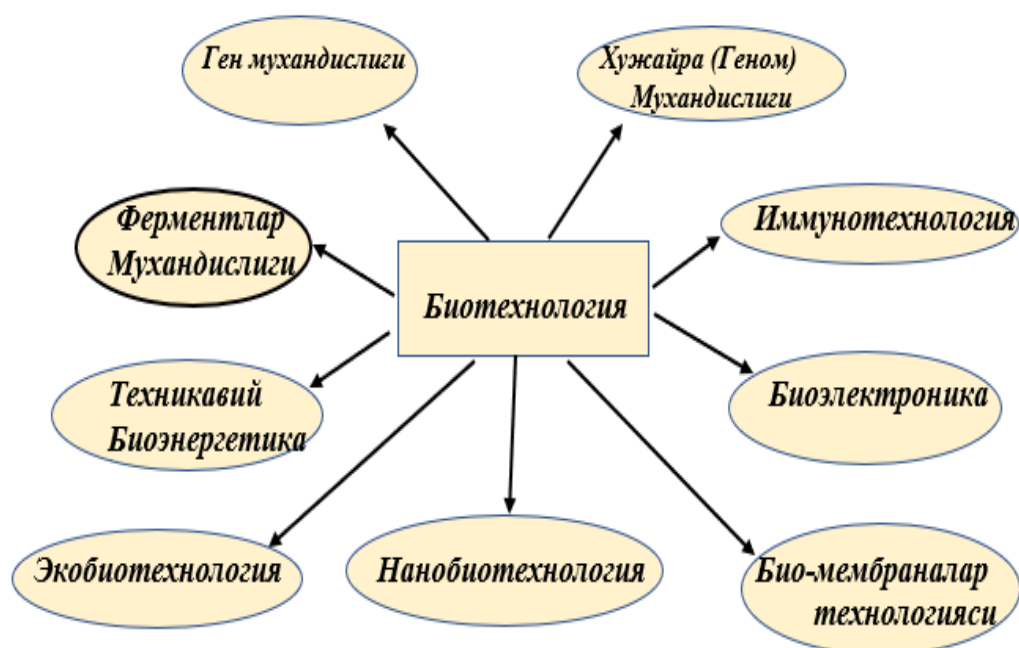


Fig. 1. The main directions of modern biotechnology.

Of course, this scheme represents the situation today. A number of other directions may be formed in the future. The use of biotechnology in the field of traditional technologies in the production of medicines creates new opportunities. A number of genetically engineered products (interferons, interleukins, insulin, anti-hepatitis vaccines, etc.), enzymes, diagnostics, vitamins, antibiotics and others are produced by biotechnological method. The future of biotechnology is bright, it is considered one of the highly profitable fields of production. The largest part of the developments in the field of biotechnology falls on developed countries. More than 1,300 of the nearly 2,500 biotechnological companies in the world operate in AKD1. There are more than 500 biotechnological companies in Europe, and the production capacity is constantly increasing. The Japanese government attaches great importance to biotechnology, which has been declared the most important area. In other countries, there are also molecular-biological, genetic engineering, hepatotherapy, medicine and biotechnology laboratories and a number of other directions, which are equipped with the most modern equipment. Using the unique opportunities of biotechnology to solve serious problems of medicine, including the creation of new, highly effective drugs, is a very promising direction. The pharmaceutical industry is one of the fastest growing branches of our country's economy. Due to many factors, this sector of the economy contributes to ensuring the safety of the Republic in the field of health care, medicine and medical-technical assistance. The development of the healthcare system of our country depends on the effectiveness, affordability and guaranteed quality of medical products. Worldwide, the pharmaceutical industry is one of the most profitable sectors of the economy, and the sales volume and the growth rate of the pharmaceutical market are constantly increasing. Pharmaceutical biotechnology is one of the promising directions. In particular, it is used in targeted therapy and immunoprophylaxis of the population with monoclonal antibodies. Microorganisms are used in the production of important compounds such as antibiotics, hormones, vitamins, enzymes and others. [1,2]

Result: Biotechnology and pharmaceutical industry is one of the most rapidly developing branches of our country's economy. Depending on many factors, this sector of the economy contributes to ensuring the security of the Republic in the field of health care, medicine and medical-technical assistance.

Conclusion: Thanks to the breakthroughs in genetic engineering, significant progress has been made in the development of recombinant drugs, vaccines, selective allergens and reagents for modern diagnostic methods. With the use of pharmaceutical biotechnology, it was possible to obtain highly effective drugs with minimal cost and maximum environmental protection.

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