

Achievements of Genetic Engineering and Biotechnology in Uzbekistan

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Abstract: In the present conditions, where a democratic and legal society is being established in the Republic of Uzbekistan, the ability of the young generation to think independently and freely allows them to express their personal attitude to the events taking place. The formation of a personal point of view in relation to the changes taking place in the social existence is one of the important aspects showing the activity of the individual, moreover, a person with an independent opinion can freely demonstrate his capabilities and abilities. The main goal of successfully conducted educational reforms is to bring up a mature person with a free, independent opinion and a qualified specialist.

Keywords: cluster, venn diagram, genetics, selection, biotechnology, pedagogical technology.

INTRODUCTION

The application of modern, advanced, high-tech technologies in the fields of material production takes place on the basis of a number of conditions, in particular, the reliance on the latest achievements of science and technology, the availability of large financial resources and qualified specialists with a high level of professional skills.

MATERIALS AND METHODS

The 21st century began in Uzbekistan as a century of culture, economy, science and technology, socio-political innovations, and in such conditions, the training of well-rounded individuals and highly qualified specialists became not only a pedagogical, but also a social necessity. This necessity demanded to pay attention to the issue of "development of spiritual and moral qualities of students" defined in the National Personnel Training Program.

RESULTS AND DISCUSSION

It is considered to study the content and essence of the pedagogical technologies used in the teaching of the subject of "Cell and genetic engineering development" in the field of "Biotechnology" taught in higher educational institutions, as well as its theoretical and practical research.

Based on the specification of "Biotechnology" subject, its purpose is to study the specific features of teaching, to develop conclusions on the use of pedagogical technologies in the conduct of training.

Based on the purpose of the topic, the following tasks were defined:

Firstly, to clarify the study objects, methods, tasks, theoretical and practical importance of the science of —Biotechnologyl;

Secondly, to reveal the place of pedagogical technologies in the teaching of subjects in the biological system;

Thirdly, to analyze the application of pedagogical technologies in the teaching process and draw conclusions on the example of practical lesson developments on the topic of pedagogical technologies used in the teaching of the topic "Development directions of cell and genetic engineering".

From biotechnological processes, proteins, organic acids, amino acids, alcohols, medicinal substances, enzymes, hormones, and other organic substances (for example, biogas) are extracted from microorganisms, plant and animal cells and tissues, cell organelles, and the membranes surrounding them. It is widely used in production (synthesis), metal separation from natural minerals, wastewater treatment, and processing of agricultural or industrial waste.

If we take a deeper look at the history of biotechnology, which began to form as a science in the 60s of the last century, we can see that the processes of "fermentation" and "fermentation" with the help of microorganisms have been widely used by mankind since ancient times. It is not known exactly when the invention of milk-yogurt, grape-wine and vinegar, bread-making with the help of yeasts and several other biotechnological processes is still unknown.

In general, the above-mentioned biotechnological processes carried out with the help of microorganisms are still widely used in the livelihood of mankind.

The basis of biotechnology is modern microbiology. Microbial cells are inconspicuous and very small, so their surface area is very high in relation to the volume, and therefore the diffusion of nutrients into the cell is very high, which is the basis for very fast microbial metabolism.

The main directions of biotechnology can be conditionally described as follows:

- biotechnology of food products;
- biotechnology of preparations used in agriculture;
- biotechnology of industrial products;
- biotechnology of medicinal substances, diagnostics and reagents;
- biotechnology used in biohydrometallurgy;
- biotechnologies necessary for nature protection.

Usually, they try to study microorganisms as useful and harmful. This opinion is absolutely not correct. In our opinion, all microorganisms are useful, because they actively participate in metabolism in nature and synthesize many different vital substances. Therefore, microorganisms are the most powerful productive forces of the world we live in. They are resistant to various physico-chemical environments, adapt quickly, and have the ability to live in different food environments.

The whole organism cannot live without microorganisms, and microorganisms themselves live. For example, if the number of active microorganisms in the digestive system decreases, dysbacteriosis and other related diseases occur. Another example is that if you transfer plants to pots with sterilized soil, i.e. sterilized soil and add all necessary mineral fertilizers, the seedlings will wither in 4-5 days.

CONCLUSION

The information on the topic selected in this study was studied theoretically. A number of necessary scientific methodical literatures were analyzed. Also, necessary scientific-methodological resources related to the use of interactive methods of pedagogical technologies in the teaching of biotechnology were studied and analyzed.

At the end of the research, the following conclusions were reached:

1. It is necessary to regularly get acquainted with and study the news and innovative technologies in the field of education.
2. In the teaching of biological sciences, along with traditional types of education, it is desirable to effectively use new pedagogical technologies, along with natural visual aids.
3. It is necessary to use pedagogical technologies and interactive methods more widely in order to achieve effective results in lectures and practical sessions on the subject of "Biotechnology".
4. We recommend using the pedagogical technologies and methods presented in this study in the teaching of other subjects in the biological system.
5. Work experiences of skilled and experienced teachers should be popularized on a large scale.

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