

OBJECTS AND METHODS OF BIOTECHNOLOGY. SELECTION OF
BIOTECHNOLOGICAL OBJECTS

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ANNOTATION

Objects of biotechnology include viruses, bacteria, fungi-micromycetes and macromycetes, simple organisms, plant, animal, human tissues and cells, as well as substances that are biogenically and functionally similar to them.

Keywords: *microorganisms, animals, plants, prokaryotes, eukaryotes, acariots, cell theory, cytology, viruses, virology, virus types, virion, capsid and nucleocapsid, viroid, bacteria, endocytosis and exocytosis, archeo- and eubacteria, mendocicut, gratsilic, teneric, totipotency, callus, fermenter, roller, asepsis.*

Biotechnological objects can be cells and tissues or their primary and secondary metabolites. Even when a known biomolecule is used as a biotechnological object, a cell corresponding to that biomolecule is used for its initial biosynthesis. Therefore, it is expedient to divide biotechnological objects into 3 large groups: microorganisms plants animals can be characterized as a system that can optimally maintain technological parameters for active biochemical production. By this definition, viruses cannot be considered as organisms, but according to their genetics, adaptability, variability, and other characteristics, they can be considered as living beings. The table below shows that the objects of biotechnology include all living organisms, from viruses to humans.

Viruses are organisms between animate and inanimate nature. Although they contain the genetic material, nucleic acids, they do not have a cell nucleus. Unlike microorganisms with a cellular structure, they never have DNA (deoxyribonucleic acid) and RNA (ribonucleic acid) together, meaning that the virus does not have DNA if it has RNA, or vice versa. Summarizing the above, we can say that the terms "biological technology" and "biochemical technology" are similar. Because the biological processes used in technology and industry are biochemical in nature. Today, the majority of biotechnological objects are microorganisms. Among plants, algae and simple animals can be classified as microorganisms. Eukaryotic microorganisms can include fungi and lichens. In the second half of the XIX century, M. Schleiden, T. Schwann, R. Virkhov laid the foundation of one of the most important generalizations of biology - the cell theory. This theory became the foundation of the science of cytology. Among the objects of biotechnology, only viruses and viroids do not have a cellular structure. However, when viruses enter a cell, they exhibit all the biological characteristics of living organisms.

Improvements in cytological methods in the study of cell structure have allowed scientists to study organisms with and without cellular structure in depth and to divide all living organisms into 3 groups: acariots (non-cellular organisms-viruses, viroids) prokaryotes (true nucleus) instead of a membrane-separated genophore or nucleoid, which consists of a single ring chromosome. Prokaryotes include bacteria and blue-green algae, cyanobacteria.) Eukaryotes (they have a cell nucleus. Except for the organisms named above all organisms — fungi, algae, plants, and h animals — are included in eukaryotes) Although all of the representatives of these three groups have genetic material, acariotes lack some nucleic acids. They cannot reproduce outside the living cell. Bacteria are organisms that have a cellular structure that contains two nucleic acids, DNA and RNA. The DNA is in the form of a ring chromosome. Most of them grow in nutrient media. There are also types of parasites among bacteria. However, the parasitism of bacteria can be called cellular, and that of viruses genetic.

Because in viruses, parasitism develops at the genetic level. Thus, bacteria are organisms that are functionally and genetically interconnected structures. Although the genetic material of a bacterial cell performs all its functions, it is not concentrated in the form of a nucleus. Therefore, bacteria are included in the group of prokaryotic organisms. In the cells of fungi, plants, and animals, there is a real nucleus separated from the cytoplasm. Therefore, they are included in the group of eukaryotic organisms. Viruses are the smallest organisms, measuring between 20 and 300 nm (nanometers) in size. 1 nanometer = 10^{-9} meters i.e. one billionth of a meter.

The structure of a virus refers to its specific "construction" or architecture (Greek archi-primitive, primitive, tecton-master, master) consisting of structural blocks. Outside the body, the virus is in crystalline form and is called a virion. Each virion is composed of pure nucleic acid and protein that are not covalently bound to each other. Virion-intact (Latin intactus- untouched, undamaged), a virus with infectious properties. Nucleic acids are hereditary substances of viruses. Depending on the type of nucleic acid they contain, viruses can be divided into two types: DNA-storing viruses and RNA-storing viruses. RNA-storing viruses include plant viruses, and DNA-storing viruses include bacterial, animal, and human viruses. The protein that forms around the nucleic acid (genome) of a virion is called the shell capsid. The shape of a virion is determined by its capsid. The capsid forms a nucleocapsid along with the nucleic acid. Complex viruses are made up of extra protein or lipoprotein shells. Sometimes certain carbohydrates and enzymes are also found in the shell. Influenza and herpes viruses are examples of complex viruses.

Vertebrate viruses are divided into 17 families, invertebrate viruses into 7 families, and bacterial viruses into 10 families. There are 20 types of plant viruses and 5 types of fungal viruses. These numbers may change later. This is because new viruses (such as AIDS) that are previously unknown to science are being identified. In 1971, T.O. Diner (USA) identified a subvirus pathogen that causes a potato plant tuber to appear scaly, dull. They were later called viroids. In 1984, 10 different diseases caused by viroids in cultivated plants were identified. These include cereals. Viroids do not have a capsid shell. Its molecular structure consists of single-stranded, covalently tight, ring-shaped RNA. The number of nucleotides in RNA is 240-400. Depending on their shape, viroids are ring-shaped and linear. Each type of viroid has only its own type of low molecular weight RNA. The average size of viroids is 15nm. They form a complex with the nucleus in the nucleus of plant-sensitive cells and are replicated by complete cellular enzymes. Viroids are not transmitted because they are structurally similar and do not have codon initiators.

REFERENCES

1. A short guide to Bergey's bacteria. Edited by J. Y TM al • 1 from t. I t l,, 1 S S I, Eukrinskaya A.G. Virology. - M .: 1986. Loban K.M.
2. The most important human rickettsioses, - L .: 1980.
3. TM Medical microbiology, virology and immunology. Edited by Borisov L.B. - M .: 1994. Khaitov P.M. And mmunology. - M .: 1996.
4. Enterobacteri and (manual) edited by P okrovsky P.P. - M .: 1985. I I okrovsky V.I. Medical microbiology. - M .: 1998. Vorobiev A.A. Microbiology. - M .: 1998. I II LEGEL G.
5. General microbiology (nemischadan tarzhiba). - M .: 1987. Roit A. O snovy and munologi (in gl and zch ad ant arzh and ma). - M .: 1991. Korolyuk A.M. Medical microbiology. From ankt - Petersburg, 1999. Karaulov A.V. Clinical immunology. - M .: 1999.

6. Mirtoxirovna, A. M. (2020). THE SCIENTIFIC LEGACY OF ABU JA'FAR MUHAMMAD IBN JARIR IBN YAZID IBNKATHIR IBN GHALIB AT-TABARI AND THE IMPORTANCE OF TARIKH AR-RUSUL VAL-MULUK. *Journal of Critical Reviews*, 7(5), 923-925.
7. Mirtoxirovna, A. M. (2020). About copies, translations and editions of the work " tarikh ar-rusul val-muluk". *ACADEMICIA: An International Multidisciplinary Research Journal*, 10(4), 754-758.
8. Mirtoxirovna, A. M. (2020). About the persian translation of" tarikh ar-rusul val muluk". *ACADEMICIA: An International Multidisciplinary Research Journal*, 10(6), 416-419.

