



## General Characteristics of Microorganisms: Distribution and Morphology

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**Abstract:** In this article, we talk about the distribution of microorganisms on the earth, their morphological characteristics, and disease-spreading species. We explain that microorganisms are distributed in the atmosphere, water, soil, and deep layers of the earth, and their relationship with the whole organic and inorganic world is very complicated, and we know that it is of great importance in the organic and inorganic world.

**Keywords:** colony, spores, ecosystem, mycelium, anthropogenic, microbiota.

The subject of study of microbiology is their morphology, physiology, genetics, taxonomy, ecology and their relationship with other life forms. Taxonomically, microorganisms are very diverse, and microorganisms appeared on earth 3-4 billion years ago, long before the appearance of higher plants and animals. Microbes represent the most numerous and diverse group of living organisms. Microorganisms are very common in nature and are the only form of living matter that lives in any, the most diverse substrates (habitats), including highly organized organisms of the animal and plant world. Due to simplicity and high adaptability, microbes can live in almost any conditions – at very high and very low temperatures (+70, +90°C to -5, -8 °C).

Distribution of microorganisms in nature is also influenced by geographical and climatic conditions. Therefore, the amount and composition of soil and water microflora are different in polar and tropical countries. It was found that there are more microbes in hot and humid climates and their composition is different. Microorganisms are all organisms that are made up of one cell and cannot be seen with the naked eye, but can only be seen with a microscope.

Under the name microorganism, for example, we can say organisms belonging to the most diverse groups, such as viruses, bacteria, unicellular fungi and protists. The field that studies these tiny organisms is called microbiology. This term is often associated with the spread of disease. However, not all microorganisms are pathogenic, there are even those that are beneficial for human health, for example, intestinal flora bacteria are among them. Physiological-morphological characteristics and life cycle of microorganism are different, many microorganisms are unicellular, some, mold fungi have multicellular threads (mycelium). Microorganisms usually lack chlorophyll, but some bacteria have chlorophyll.

Microorganisms reproduce by dividing, some by budding, and forming colonies and spores. Among them there is also a disease-causing microorganism. Microorganisms are very resistant to the influence of various factors of the external environment, they play a big role in the circulation of substances in nature. Microorganisms break down plant and animal remains into mineral compounds (eg, carbon dioxide, ammonia, etc.) that green plants can absorb. Nitrogen-fixing microorganisms and nodule bacteria have the property of collecting molecular nitrogen. Microorganisms live in

diverse ecosystems and are part of the normal microbiota of life. There are millions of species among humans, animals, and plants, among which organisms live with varying degrees of parasitism. Most microorganisms are unicellular and can only be seen with a microscope. Among the microorganisms, mold fungi, yeasts and protozoa are much better studied. However, the role of bacteria is still unclear, some of them can be compared to single-celled algae, but some lack chlorophyll, and they differ greatly from microscopic fungi (mainly in motility and body development). After all, most fungi have mycelia, bacteria do not have mycelia. Therefore, the connection between the origin of bacteria and other organisms is still not fully understood, but their role in the organic world is great.

Microorganisms and moisture, the life activity of every living organism is closely connected with the external factors of the surrounding environment. Various microorganisms are no exception. We know that microorganisms are the source of life, as long as the external conditions are favorable. Microorganisms are involved in important production processes in agriculture, and they are mainly used in baking, winemaking and brewing, production of organic acids, enzymes, food proteins, hormones, antibiotics and other drugs. Microorganisms, like other forms of life, are affected by various natural and anthropogenic (related to human activity) factors, which, given their short life span and high reproduction rate, contribute to their rapid development.

The most famous are pathogenic microorganisms (microbe-pathogens) – the causative agents of human, animal, plant, and insect diseases.

### References:

1. Program for deepening economic reforms in the agricultural sector of Uzbekistan (1999-2000). T., "Uzbekistan" 1988.
2. G.D. Mustakimov "Fundamentals of plant physiology and microbiology". T, 1995.
3. Toshtemirova, M. (2022). AVAILABILITY OF PRIMARY CLASS STUDENTS TO DETERMINE THE METHODS AND FORMS OF FORMING THEIR IMAGES ABOUT THE ENVIRONMENT. Pedagogy and psychology in the modern world: Theoretical and practical research, 1(24), 146-149.
4. Toshtemirova, M. A. (2021). A MODEL FOR THE FORMATION OF STUDENTS' RESPONSIBLE ATTITUDES TOWARDS THE ENVIRONMENT FOR FUTURE PRIMARY SCHOOL TEACHERS. CURRENT RESEARCH JOURNAL OF PEDAGOGICS, 2(10), 158-162.
5. Toshtemirova, M. A. (2021). A MODEL FOR THE FORMATION OF STUDENTS' RESPONSIBLE ATTITUDES TOWARDS THE ENVIRONMENT FOR FUTURE PRIMARY SCHOOL TEACHERS.
6. Abdullaeva, B., & Toshtemirova, M. (2020). Improving the methodological preparation of future primary school teachers to form their attitude to the environment. Journal of Advanced Research in Dynamical and Control Systems, 12(6), 1159-1162.
7. G.D. Mustakimov "Practical exercises on the basics of plant physiology and microbiology". T. 1967.
8. M.F. Fyodorov. "Microbiology", T. 1966.
9. N. Valker (V.V. Navinov's experience) "Soil microbiology", M, 1979.
10. A. Ya. Pankratov "Microbiology", M. 1962.
11. Y.N. Mishustin; V.T. Emsov "Microbiology", M.198.
12. K. Khasanov "Microbiology", M.199