

University module ; Communication Techniques and English Expression (TCE 02)

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Course N° : 02

Types of Microorganisms

Microorganisms, also known as microbes, are diverse microscopic organisms that exist in various forms and inhabit virtually every environment on Earth. They include bacteria, viruses, fungi, protozoa, archaea, and certain algae. Here's a brief scientific definition of each type:

1. **Bacteria:** Single-celled prokaryotic organisms that have a wide range of shapes and sizes. They can be found in soil, water, air, and living organisms. Bacteria play crucial roles in various ecological processes such as nutrient cycling, decomposition, and nitrogen fixation. Some bacteria are beneficial to humans, aiding in digestion and producing antibiotics, while others can cause diseases.

2. **Viruses:** Non-cellular infectious agents consisting of genetic material (DNA or RNA) surrounded by a protein coat. Viruses are obligate intracellular parasites, meaning they can only replicate within a host cell. They infect all types of life forms, including animals, plants, fungi, and bacteria. While some viruses cause diseases such as the common cold, influenza, and COVID-19, others are used in genetic engineering and biotechnology.

3. **Fungi:** Eukaryotic organisms that include yeasts, molds, and mushrooms. Fungi can be unicellular or multicellular and are characterized by their chitin cell walls. They play essential

roles in nutrient recycling and decomposition, and some form mutualistic relationships with plants, while others cause diseases such as athlete's foot and candidiasis in humans.

4. **Protozoa:** Unicellular eukaryotic organisms that are typically motile and exist in various aquatic and terrestrial habitats. They are diverse in shape and function, with some being predators, others being photosynthetic, and some being parasites. Protozoa are essential in nutrient cycling and food webs, and some species can cause diseases like malaria and dysentery.

5. **Archaea:** Prokaryotic microorganisms that are similar to bacteria but differ in cell membrane composition and genetic makeup. Archaea are known for their ability to thrive in extreme environments such as hot springs, salt flats, and deep-sea vents. They play critical roles in biogeochemical cycling and are also found in the guts of animals.

6. **Algae:** Diverse group of photosynthetic eukaryotic organisms that range from unicellular to multicellular forms. Algae are found in aquatic environments such as oceans, lakes, and rivers, as well as in soil, snow, and even on the surface of other organisms. They are important producers in aquatic ecosystems and contribute significantly to global oxygen production through photosynthesis.

Overall, microorganisms play crucial roles in nutrient cycling, ecological processes, and human health, with both beneficial and harmful effects on various aspects of life on Earth.

Question ; analyze the text by extracting the main ideas (using taking notes method) and scientific terminologies.