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Introduction of Microbiology

Microbiology is the study of microorganisms, which are unicellular or cell-cluster microscopic organisms.[1] This includes eukaryotes such as fungi and protists, and prokaryotes. Viruses, though not strictly classed as living organisms, are also studied.[2] In short, microbiology refers to the study of life and organisms that are too small to be seen with the naked eye. Microbiology typically includes the study of the immune system, or Immunology. Generally, immune systems interact with pathogenic microbes; these two disciplines often intersect which is why many colleges offer a paired degree such as "Microbiology and Immunology".

Microbiology is a broad term which includes virology, mycology, parasitology, bacteriology and other branches. A microbiologist is a specialist in microbiology. Microbiology is researched actively, and the field is advancing continually. It is estimated only about one percent of all of the microbe species on Earth have been studied.[3] Although microbes were directly observed over three hundred years ago, the field of microbiology can be said to be in its infancy relative to older biological disciplines such as zoology and botany

The field of microbiology can be generally divided into several subdisciplines:

- **Microbial physiology:** The study of how the microbial cell functions biochemically. Includes the study of microbial growth, microbial metabolism and microbial cell structure.
- **Microbial genetics:** The study of how genes are organized and regulated in microbes in relation to their cellular functions. Closely related to the field of molecular biology.
- **Cellular microbiology:** A discipline bridging microbiology and cell biology.
- **Medical microbiology:** The study of the pathogenic microbes and the role of microbes in human illness. Includes the study of microbial pathogenesis and epidemiology and is related to the study of disease pathology and immunology.
- **Veterinary microbiology:** The study of the role of microbes in veterinary medicine or animal taxonomy.
- **Environmental microbiology:** The study of the function and diversity of microbes in their natural environments. Includes the study of microbial ecology, microbially-mediated nutrient cycling, geomicrobiology, microbial diversity and bioremediation. Characterisation of key bacterial habitats such as the rhizosphere and phyllosphere, soil and groundwater ecosystems, open oceans or extreme environments (extremophiles).
- **Evolutionary microbiology:** The study of the evolution of microbes. Includes the study of bacterial systematics and taxonomy.
- **Industrial microbiology:** The exploitation of microbes for use in industrial processes. Examples include industrial fermentation and wastewater treatment. Closely linked to the biotechnology industry. This field also includes brewing, an important application of microbiology.
- **Aeromicrobiology:** The study of airborne microorganisms.
- **Food microbiology:** The study of microorganisms causing food spoilage and foodborne illness. Using microorganisms to produce foods, for example by fermentation.
- **Pharmaceutical microbiology:** the study of microorganisms causing pharmaceutical contamination and spoil
- **Agricultural microbiology:** The study of agriculturally important microorganisms.

(Jobs with the Center For Disease Control and Prevention requires a degree in microbiology for most positions)

- **Soil Microbiology:** The study of those microorganisms which are found in soil.
- **Water microbiology:** The study of those microorganisms that are found in water.
- **Generation microbiology:** The study of those microorganisms that have same characters as their parents.
- **Nano microbiology:** The study of those microorganisms at nano level.
- **Inam ur Rehman microbiology:** The study of those microorganisms that are characterized by the microbiologist Rana Inam ur Rehman from sialkot.

Microbiology is the branch of biology that studies m/o and their effects on humans w/c are unicellular, multicellular org. This includes prokaryotes & Eukaryotes.

In broad sense microbiology is a bioscience for the study of the evolution, classification, morphology, physiology, genetics, ecology of microbes under certain definite conditions.

It is present everywhere almost every natural surface is colonized microbes, from body to ocean.