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A Brief Note on Microbiology

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About the Study

The scientific study of microorganisms, whether unicellular (single cell), multicellular (cell colony), or acellular, is known as microbiology (lacking cells). Microbiology is divided into several subfields, including virology, bacteriology, protistology, mycology, immunology, and parasitology. Fungi and protists are examples of eukaryotic microorganisms that have membrane-bound organelles, whereas Bacteria are examples of prokaryotic microorganisms that do not have membrane-bound organelles. Traditionally, microbiologists depended on culture, staining, and microscopy. However, less than 1% of microbes found in natural habitats can be cultivated in isolation using existing methods. Microbiologists frequently rely on molecular biology methods such as DNA sequence-based identification, such as the 16S rRNA gene sequence used to identify bacteria. Viruses have been categorized as organisms in a variety of ways, as either extremely primitive microbes or highly complicated substances. Microorganisms were predicted to exist, several centuries before they were discovered., for example, by the Jains in India and Marcus Terentius Varro in ancient Rome. Robert Hooke made the first reported microscope observation of mold fruiting structures in 1666, although the Jesuit priest Athanasius Kircher was likely the first to observe microorganisms, which he described observing in milk and putrid stuff in 1658. Antoine van Leeuwenhoek is regarded as the father of microbiology because, in the 1670s, he examined and experimented with tiny creatures using primitive microscopes of his own discovery. Scientific microbiology arose in the nineteenth century as a result of the work of Louis Pasteur and, in medical microbiology, Robert Koch.

Microbiology branches can be categorized as applied sciences or taxonomically, as with bacteriology, mycology, protozoology, virology, phycology, and microbial ecology. There is a lot of overlap between the many areas of microbiology and other fields, and certain features of these branches might go beyond the conventional scope of microbiology. Cellular microbiology is a pure scientific subject of microbiology. While some people are afraid of microbes because they've been associated to a variety of human diseases, many microbes are also involved in beneficial processes like industrial fermentation (e.g., the production of alcohol, vinegar, and dairy products), antibiotic production, and acting as molecular vehicles to transfer DNA to complex organisms such as plants and animals. Scientists have also exploited their knowledge of microbes to develop biotechnologically biochemical pathways such as Taq polymerase, reporter genes for use in other genetic systems, and groundbreaking molecular biology approaches such as the yeast two-hybrid system. Bacteria already have the potential to be used in commercial amino acid production. Corynebacterium glutamic is a significant bacterial species that produces over two million tonnes of amino acids each year, predominantly L-glutamate and L-lysine. Some bacteria, such as Streptomyces, which can make aminoglycoside antibiotics, are used in medicine because they can produce antibiotics. Symbiotic microbial communities promote the health of their humans and other animal's habitats by facilitating digestion, producing essential vitamins and amino acids, and inhibiting harmful microorganisms. Consuming fermented foods, probiotics (bacteria that may be good to the digestive system), or prebiotics may provide some benefit (substances consumed to promote the growth of probioticmicroorganisms).