



 Editorial

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Microbiology

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DESCRIPTION

Microbiology (from Greek μικρός, *mīkros*, "small"; βίος, *bios*, "life"; and -λογία, *-logia*) is that the scientific study of microorganisms, those being unicellular (single cell), multicellular (cell colony), or acellular (lacking cells). Microbiology encompasses numerous sub-disciplines including virology, bacteriology, protistology, mycology, immunology and parasitology. The existence of microorganisms was predicted many centuries before they were first observed, as an example by the Jains in India and by Marcus Terentius Varro in ancient Rome. the first recorded microscope observation was of the fruiting bodies of moulds, by Hooke in 1666, but the Jesuit priest Athanasius Kircher was likely the first to figure out microbes, which he mentioned observing in milk and putrid material in 1658. Antonie van Leeuwenhoek is taken under consideration a father of microbiology as he observed and experimented with microscopic organisms within the 1670s, using simple microscopes of his own design. Scientific microbiology developed within the 19th century through the work of Pasteur and in medical microbiology Koch.

Branches

The branches of microbiology could even be classified into applied sciences, or divided in step with taxonomy, as is that the case with bacteriology, mycology, protozoology, virology, phycology, and microbial ecology. There's considerable overlap between the actual branches of microbiology with each other and with other disciplines, and certain aspects of these branches can extend beyond the quality scope of microbiology. A pure research branch of microbiology is termed cellular microbiology. Applications While some fear microbes due to the association of some microbes with various human diseases, many microbes are up to the mark of assorted beneficial processes like industrial fermentation (e.g. the assembly of alcohol, vinegar and dairy products), antibiotic production and act as molecular vehicles to transfer DNA to complex

organisms like plants and animals. Scientists have also exploited their knowledge of microbes to provide biotechnologically important enzymes like Taq polymerase, reporter genes for use in other genetic systems and novel biology techniques rather like the yeast two-hybrid system. Bacteria is additionally used for the commercial production of amino acids. *Corynebacterium glutamicum* is one in every of the foremost important bacterial species with an annual production of quite two million many amino acids, mainly L-glutamate and L-lysine. Since some bacteria have the ability to synthesize antibiotics, they're used for medicinal purposes, like *Streptomyces* to make aminoglycoside antibiotics. A variety of biopolymers, like polysaccharides, polyesters, and polyamides, are produced by microorganisms. Microorganisms are used for the biotechnological production of biopolymers with tailored properties suitable for high-value medical application like tissue engineering and drug delivery. Microorganisms are as an example used for the biosynthesis of xanthan, alginate, cellulose, cyanophycin, poly(γ -glutamic acid), levan, mucopolysaccharide, organic acids, oligosaccharides polysaccharide and polyhydroxyalkanoates