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Opinion Article

Biological Significance of Microbes in Pharmaceutical Industry

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ABOUT THE STUDY

Microbial biotechnology is the use of microorganisms in the field of pharmaceutical products, including fungi, bacteria and viruses. Farmers and researchers are working to make microbes a pest control agent that destroys their crops. Soil microorganisms, including bacteria and fungi, are needed to decompose organic matter and recycle dead plant material. In microbial biotechnology and biomanufacturing, these tiny microbes and living cells are like miniature chemical factories that produce the vital products such as amino acids, enzymes, drugs and food additives. Naturally, microorganisms are used to carry out fermentation processes and for thousands of years man has been using yeasts, molds and bacteria to produce many food products, such as bread, vinegar, beer, wine, cheese and yogurt, Fermented fish, meat and vegetables using microorganisms. Microbes are used to ferment different types of food to produce different types of Oriental food products. Through the use of large amounts of microorganisms, many biological preparations of great importance in the field of medicine and pharmacy have been made.

The role of microorganisms can be justified on the basis of the great association between specific diseases and microbial activity. Due to microbiology, many discoveries and innovations as well as many advances in both the pharmaceutical and medical industries have led to great results. However, many microorganisms cause various microbial infections and infections such as HIV, but are also of great importance in the immune system and digestive system. Microbiologists and pharmacists are working to develop drug therapies that target opportunistic infections that are caused by microorganisms rather than the host cell in the human body. Many important pharmaceutical products obtained by the use of microorganisms such as bacteria are high in protein in nature, for example, the protein of the Holobacterium salinarum plasma membrane, i.e. bacteriohodopsin.

Vaccine production consists entirely of a biological product from a disease-causing microorganism or an agent similar to the pathogen that causes the disease, and the biological preparation is capable of providing immunity against a specific disease from the causative organism actually made. These biological preparations are mostly derived from the killed or weevil form of microorganisms or from the surface protein or toxins of the disease-causing organism. Vaccination is largely free of any adverse reactions and by ensuring a regular vaccination program, the Department of Health has protected millions of children from opportunistic infections and diseases, resulting in many deaths in the past.

From the killed microorganisms of this type of vaccine, the microorganisms are first killed by various chemicals, antibiotics, radiation or heat. These are vaccines used against rabies, polio, hepatitis A and influenza. Vaccines from live microorganisms Many vaccines contain virus-free biological microorganisms that destroy their virility by culturing them under specific conditions that disable the new culture of pathogenic microorganisms. Most attenuated vaccines are made from viruses and bacteria. These are mainly vaccines used against typhoid, mumps, measles, yellow fever and rubella. Other vaccines may be derived from microbial toxoid compounds, such as diphtheria and tetanus toxoid-based vaccines, from protein subunits, i.e. from vaccines against hepatitis B virus, and from compounds against high-influenza type B (Hemophilia).

Antibiotics are antimicrobial agents that can inhibit the growth of microorganisms or kill microorganisms, such as bacteria and fungi. Probiotics are the components produced by microorganisms and have antifungal activity against microbial growth. With advances in medicine, many antibiotics today are natural compounds derived from microorganisms, such as penicillin and some fungi Penicillium. Direct bacterial or other microbial supplements may also be used that have beneficial effects on the host by improving the microbial balance of the gut. They stimulate substances and other microorganisms secreted by a microbe. Lactic acid bacteria and bio-fidobacteria are the most common microorganisms used as probiotics. In the case of yogurt, soy yogurt and foods, an active live culture of probiotic is added.

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