

## The Influence of Microorganisms on the Contemporary Society

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### Editorial

As everyone knows, there will be a lot of people becoming sick all the time; thus, many drugs are needed. However, a lot of drugs such as all kinds of antibiotics, insulin, influenza vaccine, hepatitis vaccine, and so on, cannot meet the need of human beings. Fortunately, some excellent professors, who study microbiology, found that microorganisms could be used to produce drugs. In addition, we need to eat some fermented food, in order to be healthy. In most cases, the effective ingredients are secondary metabolites. Beyond that, microorganisms are very useful in other scopes. For example, saccharomycetes could be used to make white spirit and wine; acetic bacteria are the main microbes in industrial production of vinegar; nitrogen-fixing bacteria are important in the growth of leguminous plants. Therefore, microorganisms play an irreplaceable role in the life of human beings and animals.

There are a variety of problems to be solved in the application of microorganisms, although the function of microorganisms is very crucial. Microorganisms, which are used to produce something useful, are likely to mutate because of temperature, time, culture medium, concentration of the microorganisms, and so on. The variation of microorganisms may be useful or harmful to the production. Microorganisms used in the production are easy to be contaminated by other bacteria, which always result in the inhibition of fermentation, so we cannot continue to produce food and other useful things. Stable period of fermentation is too short to obtain enough outcomes, which undoubtedly will increase the cost of production.

Producers should consider how to solve these problems in order to make the best use of microorganisms. The microorganisms can produce more useful things steadily if the conditions of production,

such as temperature, time, and culture medium are optimized according to the characteristics of the microorganisms. For example, the method of continuous cultivation has been used widely in the modern fermentation, which provides enough nutrition for the growth of microorganisms. This method also leads to the lower concentration of secondary metabolites which usually inhibit the growth of microorganisms. When make the most use of microorganisms, the producers should follow the specified and standardized procedures. Only in this way, microorganisms used for production will not be contaminated by other bacteria.

Nowadays, microorganisms play more and more important roles in the human beings' life. However, we should notice that they can bring different troublesome to us. For example, when we cultivate cells in the laboratory, they will die quickly if the culture medium is contaminated by bacteria; so, microorganisms can cause a loss to our research. Influenza virus, Ebola virus, smallpox virus, and so on, can bring unimaginable disaster to human beings if we cannot inhibit and control them. Our food, which is placed for a long time, will go bad because of the effect of microorganisms. Human beings will have loose bowels when they are infected by harmful bacteria. Bacteria could bring a series of troublesome by contaminating microorganisms in the production. At the same time, factories, which use microorganisms to produce some useful things, can suffer major economic losses to some extent. In a word, microorganisms are harmful to human beings under certain circumstances.

In summary, microorganisms have advantages and disadvantages to the human beings' life. We should make the best use of the advantages of microorganisms to service the human beings well, and avoid disadvantages caused by the microorganisms.