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Role of Microorganisms in Food Preservation

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Editorial

For many years, the food industry has used a variety of chemicals to prevent the growth of bacteria that cause food to spoil. Their use, in combination with high-temperature processing, helps to extend the useful life of foods by inhibiting pathogenic and spoilage microorganisms' activity; yet, they may have a negative impact on some foods' organoleptic and sensory features. Bio-preservatives have been developed to lessen the use of these preservation and processing processes. Bio-preservatives are naturally occurring substances derived from plants, animals, and microbes that extend the shelf life of food. These substances suppress pathogenic organisms in food to a bare minimum or even eradicate them entirely, while also improving food functioning and quality. Many of these substances are antimicrobials that also serve as antioxidants, tear down cell membranes, and impair biosynthetic bacteria' pathways. However, as a result of the negative effects of synthetic food additives on consumers' health and the environment, consumers' interest in natural preservative chemicals is increasing. Consumer awareness of the serious health dangers connected with eating meals made with synthetic additives has risen, as has demand for safe food products made with natural components. These bioactive compounds produced from plants, animals, and beneficial microbes have been hailed as promising alternatives to synthetic food additives. Many of these chemicals are antimicrobials as well as antioxidants, and they tear down cell membranes and disrupt biosynthetic bacteria' pathways. However, as a result of the negative effects of synthetic food additives on consumers' health and the environment, consumers' interest in natural preservative chemicals is expanding. Consumer awareness of the serious health concerns connected with foods made with synthetic additives has risen, as has demand for safe food products made with natural components. Bioactive compounds produced from plants, animals, and beneficial microorganisms have been suggested as possible alternatives to synthetic food additives [1-3].

Microorganisms can be found in a wide range of food products and can have an impact on food quality and quantity. Food products provide an ideal habitat for microbes to thrive. Food deterioration or breakdown can be caused by microorganism development. Furthermore, when bacteria are present in food, they might induce food poisoning. Microorganisms are also employed in the manufacturing of some foods. Microorganisms are utilised in the manufacturing of foods such as yoghurt, pickles, and cheese.

Plastics are a cause of concern in today's culture. Recycling plastics is the most difficult component of its use. Plastics are neither recyclable nor biodegradable, posing a severe environmental danger. Due to their high potential, biodegradable materials are currently being studied for use in FP. These materials can be used to replace biodegradable plastics and lessen the environmental damage they create. Biodegradable materials, on the other hand, are less resistant to water and gas penetration and have poor mechanical qualities. One option to address these challenges is to combine biodegradable polymers with other valuable components. Packaging is one of the most important factors of food safety. Food safety can be improved by using nanotechnology to increase the efficiency and quality of packaging materials. Nanoparticle packages can intelligently respond to environmental circumstances or alert consumers about dangerous compounds or air pollution. Plastics are frequently employed in the FP sector. Their ability to restrict the passage of oxygen, water, and carbon dioxide is, however, limited. The permeability of food containers can be improved by using plastics containing nanoparticles. Packages incorporating clay nanoparticles, for example, have superior mechanical, thermal, and barrier qualities, preventing oxygen, carbon dioxide, and moisture from passing through. They also help to increase the shelf life of food, retain its colour and flavour, and prevent microbe growth [4,5].

Because meat demand has increased, livestock industrial farming has been formed to improve animal productivity. As a result, intensive livestock husbandry and animal growth enhancement were required to boost productivity. Antibiotics in animal feed were used to meet the requirements. Despite the fact that antibiotics effectively prevent the spread of infectious diseases, the misuse of in-feed antibiotics has resulted in a slew of issues, including antibiotic resistance, antibiotic residues in livestock products, ecosystem pollution from livestock manure, and weak disease resistance in livestock. As a result, the development of natural antibacterial compounds is required to address the issues produced by in-feed antibiotic overuse.

Conflicts of Interest

The authors declare no conflict of interest.

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