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Microbial Behaviour in Food

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Editorial

Microbiology is the branch of science that studies microorganisms (such as bacteria, fungus, protozoa, and algae) that are engaged in life cycle chains. Cell biology, genetics, taxonomy, epidemiology, biochemistry, pathogenic bacteriology, food, environmental, industrial, and agricultural microbiology, and microbial ecology are among the disciplines covered. Microbes have been discovered in almost every environment, including soil, water, air, animals, plants, rocks, and humans. Microbes have existed for billions of years due to their ability to adapt to constantly changing settings.

Microorganisms, their activity, and metabolites have profound influence on the functioning of humans and the entire biological world, as they are the biosphere's life-support system. Microbiology, the study of interactions between micro- and macro-organisms in health and illness, is an area of the biological sciences that has exploded in popularity since the introduction of genomes, transcriptomics, and proteomics. Applied microbiology is the branch of biology concerned with the use of microorganisms in specific endeavors such as crop improvement, food and supplement production, fermentation-based chemical and biomaterial production, natural resource recovery and energy production, waste treatment and bioremediation of polluted sites, drug development, vaccine development, diagnostic tools, and biosensor systems, and the production of drugs, vaccines, diagnostic tools, and biosensor systems, the discovery of microbial therapeutics for dysbiosis-related disorders, as well as the control of biotechnologically relevant cells and organisms by microbes [1,2].

Microorganisms that contaminate food and cause foodborne diseases are studied in food microbiology. Microbes are present in the foods we eat, and they are rarely sterile. Microbial loads are present in foods, and their composition varies greatly. Microorganisms are found in raw materials' commensal microflora, but they are also introduced during animal slaughter, food harvesting, processing, storage, and distribution. In the vast majority of situations, the food is consumed without causing any problems or adverse health impacts. More than a third of all food intended for human consumption is wasted or spoilt before it reaches its intended recipient. Food loss is linked to challenges that arise throughout the harvesting, storage, packing, and transportation processes, as well as national and international institutional and regulatory structures. The advancement of the food preservation sector aided the development of the food industry. Chilling, canning, and freezing were among the industrial methods that allowed remote farmers to safely import food. The agro-food sector is currently of critical importance to the European and international economy. Food continues to play a dominant role in our lives, and government and producer-imposed safety regulations are critical. Finally, the deployment of sufficiently simple and low-cost solutions for enhancing food standards in the areas of manufacturing, storage, and preservation is required [3].

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The industrial context in which food processing is carried out has a significant impact on the product's quality. The design of sanitary food-processing equipment should be the primary goal. Cleaning methods are also extremely important. Despite the use of extensive sanitary measures, germs are not totally removed from meals by these cleaning procedures alone, necessitating the use of other effective approaches to preserve food quality. Some of the techniques for ensuring food's microbiological quality. This paper discusses investment in mathematic modelling in the food business for assessing microbial inactivation owing to applied environmental stress or preservation barriers in order to create an innovative and long-term profile for the food industry domain. To begin, specific criteria for examining the term "quality," which defines the degree of perfection possessed by a product often and rigorously, must be developed based on the management of microbiological quality of foods.

Controlling products from supply areas to processing plants and then to markets is crucial for efficiency and food quality. This requires considerable study, including the creation of an easily accessible database of trustworthy data on microbial responses to food-processing settings. Given the several factors that influence the food supply chain, such as industrial qualification and food-related dangers, it is clear that the various structures and procedures that allow for technological and structural transformations in the sector must be evaluated. Assume that the food chain's contamination pathway plays a critical role in the preservation of industrial food production. Despite this, the vast majority of food scientists appear to be oblivious of the enormous potential and accessibility of modern modelling tools. The importance of model development as well as the implementation of more research should be recognized by the scientific community, and a multiscientific team comprised of mathematicians, chemists, and biologists should be formed to determine which factors pose the greatest risk to a product's quality [4,5].

Conflicts of Interest

The authors declare no conflict of interest.

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