World Academy of Science, Engineering and Technology
International Journal of Nutrition and Food Engineering
Vol:17, No:12, 2023

Biosensor System for Escherichia coli and Staphylococcus aureus Detection in Traditional Ice Cream

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Abstract : Ice cream is a nutritious dairy product that, given its constituent materials and high nutritional value, is a suitable growth medium for the growth of various food microorganisms. The contamination of this product with pathogenic microorganisms may cause food poisoning and infections, and so could be harmful to human health. The foremost critical pathogenic microscopic organisms of ice cream incorporate Escherichia coli, Staphylococcus aureus, Bacillus cereus, Enterobacteriaceae, coliforms, Listeria monocytogenes and Enterococcus. Biosensor technology, albeit a recent addition to the dairy industry, has proven its worth in other fields, such as medical devices. Through numerous studies, the advantages of employing biosensors have consistently emerged. These incredible tools present expeditious and straightforward means while specifically targeting analytes. Thus, they bring forth unparalleled solutions that bolster ongoing advancements within dairy products and processes. This review delves into the latest developments in the realm of biosensors and evaluates the diverse techniques of bio-recognition and transduction in terms of their benefits, drawbacks, and relevance to traditional ice cream. Furthermore, the obstacles that impede the progress of these approaches in meeting the growing need for swift and real-time quality control of milk products, particularly ice cream, are also expounded upon.

Keywords : traditional ice cream, Escherichia coli, Staphylococcus aureus, biosensors
Conference Title : ICFGFS 2023 : International Conference on Food Grading and Food Safety
Conference Location : Amsterdam, Netherlands
Conference Dates : December 04-05, 2023