

Emerging technologies in food science

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INTRODUCTION

Food technology is a section of food science that deals with the preservation, production, quality control and research development of the food products. In the early days scientific research into food technology concentrated on food preservation. Evolution in food technology have contributed greatly to the food supply

DISCUSSION

Recent Technologies in Food science

Food technology is a section of food science that deals with the preservation, production, quality control and research development of the food products. In the early days scientific research into food technology concentrated on food preservation. Evolution in food technology has contributed greatly to the food supply.

Instantized Milk Powder is one of the innovated product for a variety of new products that are rehydratable. This powdered product has increased surface area by the process which slightly rehydrates spray-dried milk powder. Powdered milk is a manufactured dairy product made by evaporating milk, also called dried milk or milk powder. The purpose of drying milk is to preserve it for certain time; milk powder does not need to be refrigerated as it has longer shelf life than liquid milk and it has low moisture content. Another purpose is to reduce the economy of transportation when it is bulk. Items such as dry whole milk, nonfat (skimmed) dry milk, dry buttermilk, dry whey products and dry dairy blends are included in Powdered milk and dairy products.

Freeze drying: This technique is also known as lyophilisation or cryodesiccation, This is a low temperature dehydration process which involves freezing of the product, lowering pressure, then removing the ice by sublimation. This is in variance to dehydration by most conventional methods that evaporate water using heat. The quality of the rehydrated product is excellent, and the original shape of the product is retained because of the low temperature used in processing. Biological (e.g., bacteria and yeasts), biomedical (e.g., surgical transplants), food processing are the primary applications of freeze drying.

Ultra-high-temperature processing: This is a type of food processing technology

which sterilizes liquid food which is required to kill many bacterial endospores – for 2 to 5 seconds by heating it above the temperature 135 °C (275 °F). UHT is most commonly used in milk production. The heat used during the UHT process can result in Maillard browning and change the taste and smell of dairy products.

Flash pasteurization is a method of pasteurization of biodegradable beverages like fruit and vegetable juices, beer, wine, and some dairy products such as milk. It maintains color and flavor better when compared with other pasteurization processes. Flash pasteurization is performed prior to filling containers to kill spoilage microorganisms, in order to make the products safer and to improve their shelf life compared to the unpasteurised foodstuff.

Aseptic processing is a processing technique where commercially thermally sterilized liquid products like food or pharmaceuticals are packaged into previously sterilized containers under sterile conditions to produce shelf- stable products that do not need refrigeration. Aseptic processing involves three primary steps: thermal sterilization of the product, sterilization of the packaging material, and preservation of sterility during packaging. To confirm commercial sterility, aseptic processing facilities are required to maintain proper evidence of production operations, indicating that commercially sterile conditions were achieved and maintained in all areas of the facility. Any contravention of a scheduled process for the processing or packaging system means that the affected product must be destroyed, reprocessed or segregated and held for further evaluation. Additionally, the processing and packaging system must be cleaned and re-sterilized before processing and/or packaging operations can restart. Various medium or combination of mediums is used to sterilize the Packaging equipment and packaging materials.

CONCLUSION

With the assistance of various disciplines in food science and technology, raw materials are being converted to edible foods. Lessen diseases, improved safety and quality, variety, low cost, reduced wastage are some of the advancements in the field.

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