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Recent Advances in Halal Bioactive Materials for Intelligent Food Packaging Indicator

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Abstract

Food safety and security are top priorities for consumers and the food industry alike. Despite strict standards and criteria for food production processes, the potential for food-borne diseases due to improper handling and processing is always present. This has led to an urgent need for solutions that can ensure the safety of packaged foods. Therefore, this paper reviews intelligent packaging, which employs non-toxic and environmentally friendly packaging with superior bioactive materials that has emerged as a promising solution. This review was prepared based on several online libraries and databases from 2008 to 2022. By incorporating halal bioactive materials into the packaging system, it becomes possible to interact with the contents and surrounding environment of halal food products, helping preserve them for longer periods. One particularly promising avenue of research is the use of natural colourants as halal bioactive materials. These colourants possess excellent chemical, thermal, and physical stabilities, along with antioxidant and antimicrobial properties, making them ideal candidates for use in intelligent indicators that can detect food blemishes and prevent pathogenic spoilage. However, despite the potential of this technology, further research and development are needed to promote commercial applications and market development. With continued efforts to explore the full potential of natural colourants as halal bioactive materials, we can meet the increasing demand for food safety and security, helping to ensure that consumers have access to high-quality, safe, and nutritious foods. © 2023 by the authors.

Author Keywords

active materials; bioactive compound; food packaging; food safety and security; halal; intelligent indicator

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