

The Use of Postbiotic in Food Products: A Review

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Structured Abstract

Background: In recent years, postbiotics are gaining growing attention as functional food ingredients. These non-viable microbial components or metabolites can provide health benefits to the host. Unlike probiotics, postbiotics offer greater stability and safety, making them suitable for incorporation into a wide range of food products. This study explores the use of postbiotics in food applications, focusing on their types, health benefits, metabolic pathways, safety aspects, and their role in enhancing food stability. The objective is to evaluate the potential of postbiotics to improve both human health and food product quality.

Methods: A research review framework was used to conduct this paper. Data sources were taken from specific searches in ScienceDirect, Springer Link, Research Gate, Taylor & Francis and MDPI that were published from 2018 until 2025. All the data were identified, and screening was based on suitable topics given. After screening a total of 72 sources were critically analysed.

Results: This study has identified that postbiotics have great potential in food use because of their antimicrobial, antioxidant and immunomodulatory effect. Compounds like SCFAs, EPSs, and bacteriocins contribute to improved food safety, shelf life, and nutritional value. Postbiotics are also safer and more stable than probiotics and thus they can be used in different food products. Safety evaluations support their low toxicity and regulatory acceptance, highlighting their potential as effective and functional food ingredients.

Conclusion: In conclusion, this study provides a comprehensive overview of the potential of postbiotics in food applications. The findings highlight their health-promoting properties, including antimicrobial and immune-enhancing effects, as well as their ability to improve food stability. Postbiotics show strong promise as functional ingredients that can support human health while enhancing the quality and safety of food products.

Keywords: postbiotic, functional food, food safety, antimicrobial activity, regulatory framework

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