



Biodegradable and Edible Food Packaging

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Chapter Eleven - Active packaging materials

[Sameer Ahmad](#)^{1,2}, [Bammidi Madhuri](#)³, [Muskan Kumari Gupta](#)⁴, [Mehvish Habib](#)¹

¹ Department of Food Technology, Jamia Hamdard, New Delhi, India

² Department of Bioengineering, Integral University, Lucknow, Uttar Pradesh, India

³ Department of Food Technology, Vignan University, Guntur, Andhra Pradesh, India

⁴ Department of Food and Nutrition and Food Technology, Lady Irwin College, University of Delhi, New Delhi, India

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Abstract

Interest in the development of smart and active biodegradable packaging materials is increasing as food manufacturers try to improve the sustainability and environmental impact of their products, while still maintaining their quality and safety. Active packaging materials contain components that enhance their functionality, such as antimicrobials, antioxidants, light blockers, or oxygen barriers. Smart packaging materials contain sensing components that provide an indication of changes in food attributes, such as alterations in their quality, maturity, or safety. For instance, a smart sensor may give a measurable color change in response to a deterioration in food quality. This chapter reviews recent advances in the development of active and smart biodegradable packaging materials in the food industry. Moreover, studies on the application of these packaging materials to monitor the freshness and safety of food products are reviewed, including dairy, meat, fish, fruit and vegetable products. Finally, the potential challenges associated with the application of these eco-friendly packaging materials in the food industry are discussed, as well as potential future directions.

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