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A Review on Antimicrobial Packaging from Biodegradable Polymer Composites

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Abstract

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Abstract

The development of antimicrobial packaging has been growing rapidly due to an increase in awareness and demands for sustainable active packaging that could preserve the quality and prolong the shelf life of foods and products. The addition of highly efficient antibacterial nanoparticles, antifungals, and antioxidants to biodegradable and environmentally friendly green polymers has become a significant advancement trend for the packaging evolution. Impregnation of antimicrobial agents into the packaging film is essential for impeding or destroying the pathogenic microorganisms causing food illness and deterioration. Higher safety and quality as well as an extended shelf life of sustainable active packaging desired by the industry are further enhanced by applying the different types of antimicrobial packaging systems. Antimicrobial packaging not only can offer a wide range of advantages, but also preserves the environment through usage of renewable and biodegradable polymers instead of common synthetic polymers, thus reducing plastic pollution generated by humankind. This review intended to provide a summary of current trends and applications of antimicrobial , biodegradable films in the packaging industry as well as the innovation of nanotechnology to increase efficiency of novel, bio-based packaging systems. © 2022 by the authors. Licensee MDPI, Basel, Switzerland.

Author keywords

Antimicrobial packaging ; Biodegradable ; Natural fibre; Polymer composite ; Sustainable

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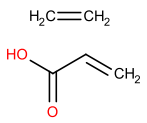

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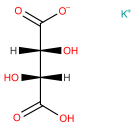

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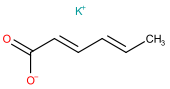

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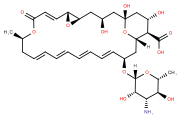

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