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PHA as Catalyst and Substrate

Polyhydroxyalkanoates modifications in upgrading its potential

Hashim, Norazlina
Polymer Bulletin

Polyhydroxyalkanoates (PHA) have gained significant attention as biodegradable and biocompatible polymers with promising applications in various industries, including packaging, biomedical, and agriculture. The growing demand for sustain...

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Polyhydroxyalkanoates modifications in upgrading its potential

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Source POLYMER BULLETIN
Volume 68 Issue 3
DOI: 10.1007/s00289-025-06213-6
Article Number 133
Published DEC 15 2025
Indexed 2025-12-25
Document Type Review

ชื่อวารสาร

วัน เดือน ปี ที่ตีพิมพ์

ABSTRACT
Polyhydroxyalkanoates (PHA) have gained significant attention as biodegradable and biocompatible polymers with promising applications in various industries, including packaging, biomedical, and agriculture. The growing demand for sustainable alternatives to petrochemical-based plastics has fueled the expansion of the PHA market, with increasing research efforts focused on cost-effective production and improved material properties. This review provides a comprehensive analysis of the global market trends and potential applications of PHA, highlighting the challenges associated with large-scale commercialization. The paper further explores the different types of PHA, detailing their physicochemical and mechanical properties. These properties, such as mechanical strength, biodegradability, and thermal stability, influence their suitability for various applications. To improve the functional properties of PHA, researchers have explored various modification strategies, including biological, chemical, and physical approaches. Biological modifications involve metabolic engineering and microbial strain development to optimize monomer composition and improve polymer yield. Chemical

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ตีพิมพ์ในวารสาร Polymer Bulletin

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