

A Critical Evaluation of Biodegradation Research on Synthetic Polymers: A Thorough Literature Assessment

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Abstract

The proliferation of synthetic polymers in various industries has led to environmental concerns due to their persistence in ecosystems. Biodegradation, the breakdown of these polymers by microorganisms, presents a promising avenue for mitigating their environmental impact. However, the efficacy and mechanisms of biodegradation for different synthetic polymers remain poorly understood. In this paper, we conduct a comprehensive assessment of the existing literature on biodegradation research concerning synthetic polymers. Through a critical analysis of experimental methodologies, results, and interpretations, we aim to elucidate the current state of knowledge in this field. By identifying gaps, inconsistencies, and areas of consensus, this review provides insights into future research directions for enhancing our understanding of synthetic polymer biodegradation and its environmental implications.

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fate, and ecosystem impacts is essential for developing strategies to minimize plastic pollution, conserve natural resources, and promote a more sustainable future.

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Conflict of Interest

None

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