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FROM WASTE TO RESOURCE: COMPOSTING AND RECYCLING OF BIODEGRADABLE CELLOPHANE

Submission Date: December 10, 2023, **Accepted Date:** December 15, 2023,

Published Date: December 20, 2023

Crossref doi: <https://doi.org/10.37547/ajsshr/Volume03Issue12-39>

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ABSTRACT

This article delves into the transformation of biodegradable cellophane from waste to resource through composting and recycling. It explores the compostability of biodegradable cellophane, the recycling processes, the environmental implications of these waste management strategies, and the challenges and future prospects in this domain. The focus is on how biodegradable cellophane, as a sustainable packaging option, can be efficiently returned to the ecosystem or repurposed, thereby closing the loop in the product lifecycle and contributing to a circular economy.

KEYWORDS

Biodegradable Cellophane, Composting, Recycling, Waste Management, Sustainable Packaging, Circular Economy.

INTRODUCTION

The shift towards biodegradable cellophane in packaging reflects a growing emphasis on sustainability. However, the end-of-life disposal of these materials is a critical aspect of their environmental impact. Composting and recycling

represent two vital pathways for converting used biodegradable cellophane into valuable resources. Understanding these processes is essential for optimizing waste management and enhancing the eco-friendliness of biodegradable cellophane. This article

examines the effectiveness and implications of composting and recycling biodegradable cellophane, highlighting its role in sustainable waste management.

Main Study Sections

Composting of Biodegradable Cellophane

Composting biodegradable cellophane involves breaking down the material into organic matter through biological processes. This section explores the compostability criteria for biodegradable cellophane, including time frames, conditions required for effective decomposition, and the resulting compost quality. The role of industrial composting facilities versus home composting setups is also examined, along with the impact of composting on reducing landfill waste and greenhouse gas emissions.

Recycling Processes for Biodegradable Cellophane

Recycling biodegradable cellophane presents a different set of challenges and opportunities compared to traditional plastic recycling. This part of the article delves into the specific processes used to recycle biodegradable cellophane, such as mechanical recycling and chemical recycling. It discusses the feasibility of these processes, the quality of the recycled material, and the integration of recycled cellophane into new products. The environmental benefits and limitations of recycling biodegradable cellophane are also evaluated.

Environmental Implications and Benefits

The environmental implications of composting and recycling biodegradable cellophane are vast. This section assesses the carbon footprint, energy usage, and overall ecological impact of these waste management strategies. The benefits, including reduced reliance on virgin materials, lower environmental pollution, and contribution to a circular economy, are highlighted. The potential for compost and recycled material in agriculture and industry is also explored.

Challenges and Future Prospects

While composting and recycling biodegradable cellophane offer significant environmental advantages, they also face challenges such as public awareness, infrastructure requirements, and economic viability. This section discusses these challenges and the steps needed to overcome them. It also looks ahead to future prospects, including technological innovations, policy developments, and market trends, that could enhance the effectiveness and adoption of these waste management strategies.

CONCLUSION

The composting and recycling of biodegradable cellophane are pivotal in transforming this sustainable packaging material from waste to resource. These processes not only mitigate the environmental impact

of waste but also contribute to a circular economy. While challenges exist, the potential for composting and recycling biodegradable cellophane is significant, offering a path towards more sustainable waste management and a greener future.

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