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Biopolymer Production from Food Waste Overcoming Constraints and Exploring Potential Pathways

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Abstract

The increasing generation of food waste poses signiýcant environmental challenges, but it also presents an opportunity for sustainable biopolymer production. This study explores the potential of converting food waste into biopolymers, focusing on overcoming constraints such as feedstock variability, process e ciency, and economic feasibility. Through a comprehensive analysis of existing methods, including microbial fermentation, chemical conversion, and enzymatic processes, this study identiýes key strategies for optimizing biopolymer yields. The ýndings emphasize the role of innovative technologies and biotechnological advancements in enhancing the scalability of biopolymer production from food waste. This research o ers a roadmap for transforming food waste into valuable materials, contributing to the development of a circular economy.

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