FISH GELATIN-BASED BIODEGRADABLE PLASTIC: A COMPREHENSIVE REVIEW OF SYNTHESIS METHODS AND ENVIRONMENTAL IMPLICATION

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AUGUST 2024

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SUBMISSION FOR EVALUATION
FINAL YEAR PROJECT 2 - CRITICAL REVIEW

Fish Gelatin-Based Biodegradable Plastics: A Comprehensive Review of Synthesis Methods and Environmental Implications

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Final Year Project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Applied Chemistry
In the Faculty of Applied Sciences
Universiti Teknologi MARA

AUGUST 2024

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ABSTRACT

FISH GELATIN-BASED BIODEGRADABLE PLASTIC: A COMPREHENSIVE REVIEW OF SYNTHESIS METHODS AND ENVIRONMENTAL IMPLICATION

This review aims to delve into the development and implications of fish gelatin-based biodegradable plastics as a sustainable alternative to traditional petrochemical plastics. This study reviews the preparation of fish gelatin films through diverse methods like crosslinking of natural active agents, chemical agents, polymer blending, and addition of nanoparticles for the enhancement of mechanical, thermal, and barrier properties. From the review, the best method is crosslinking of natural active agents using transglutaminase. These techniques demonstrate that the performance enhancement of fish gelatin-based plastics for food packaging and biomedical uses is drastic. The environmental impacts of these biodegradable plastics are assessed, with a particular focus on their biodegradability. Fish gelatin-based plastics exhibit favorable biodegradability under appropriate environmental conditions.