

https://rsucon.rsu.ac.th/proceedings



Application of Shrimp Shell Waste in Bioplastics Production

Hazza Roshada Ramli^{1,*}, Azhar Ambo¹, Mohd Farhan Jamaludin¹, Norsyafiqa' Suhaimi² and Asmahani Asmara¹

¹Department of Agrotechnology and Bio Industry, Polytechnic Sandakan Sabah, Sabah, Malaysia ²Department of Mathematics, Science and Computer, Polytechnic Sandakan Sabah, Sabah, Malaysia *Corresponding author, E-mail: hazza.roshada@pss.edu.my

Abstract

Concerns about the environmental pollution caused by conventional plastics have led to a growing demand for sustainable alternatives. One promising approach is the production of bioplastics from waste materials. This research focuses on utilizing shrimp shell waste, a byproduct of the shrimp processing industry, as a raw material for bioplastic production. The objective of this research is to develop a process for converting shrimp shell waste into bioplastics, thus providing an environmentally friendly solution to plastic pollution and waste management issues. The extraction of chitin from shrimp shells plays a crucial role in producing a thin, clear bioplastic derived from chitosan. Results indicate that the bioplastics produced from shrimp shells demonstrated suitable tensile strength and biodegradability, making them a viable eco-friendly plastic. In conclusion, the transformation of shrimp shells into bioplastic indicates a sustainable method for reducing both plastic pollution and shrimp processing waste. Investigation into the optimization of bioplastic formulation, along with practical testing, will provide us with insights into real-world applications.

Keywords: Shrimp Shell, Waste, Bioplastics

Proceedings of RSU International Research Conference (RSUCON-2025) Published online: Copyright © 2016-2025 Rangsit University