ISSN: 2320-5407



International Journal of Advanced Research

Publisher's Name: Jana Publication and Research LLP

www.journalijar.com

REVIEWER'S REPORT

Manuscript No.: IJAR-51542

Date: 14-05-2025

Title: Eggshell Food Wraps: A Biodegradable Plastic Alternative

Recommendation:	Rating	Excel.	Good	Fair	Poor
Accept as it isYES	Originality			\checkmark	
Accept after minor revision	Techn. Quality				
Do not accept (<i>Reasons below</i>)	Clarity				
	Significance			\checkmark	

Reviewer's Name: Tahir Ahmad

Reviewer's Decision about Paper: Recommended for Publication.

Comments (Use additional pages, if required)

Reviewer's Comment / Report

Abstract:

The abstract effectively presents the aim, methodology, results, and conclusions of the study in a clear and concise manner. It begins by framing the environmental issue caused by plastic waste and positions the research within the context of sustainability and innovation. The objective is well defined, and the use of eggshells as a base material is both novel and practical. The structure of the abstract—organized into Introduction, Methodology, Results, Discussions, and Conclusion—enhances readability and comprehension. The inclusion of quantitative values for tensile strength and water absorption provides a precise snapshot of performance metrics, while the concluding remarks reinforce the environmental relevance and potential applications.

Keywords:

The keywords are appropriate and reflect the central themes of the study. They assist in indexing the paper within environmental science and materials research domains, especially regarding sustainability and waste-to-resource strategies.

Introduction:

The introduction concisely presents the growing concern over plastic pollution and sets the stage for alternative solutions. The problem is contextualized globally, and the focus on bioplastics is introduced as a relevant and timely solution. The rationale for using eggshells—an abundant, underutilized waste

International Journal of Advanced Research

Publisher's Name: Jana Publication and Research LLP

www.journalijar.com

REVIEWER'S REPORT

product—is logical and environmentally aligned. The introduction provides a strong motivation for the study and sets up the research question clearly.

Methodology:

The research employs a quantitative experimental design, which is suitable for assessing material properties. The selection of performance parameters (tensile strength, water absorption, thermal and bacterial resistance) is appropriate for evaluating food wrap utility. The procedural clarity regarding the creation and testing of the wraps allows for reproducibility. The experimental approach is methodical and matches the study's objectives.

Results:

The presentation of results is clear and supported with relevant numerical data. The tensile strength values (3.53 to 5.1 MPa) and water absorption rates (131.25% to 133.33%) are given with precision, providing insight into mechanical and absorptive characteristics. The mention of heat resistance (up to 250°C) and absence of bacterial growth further reinforces the material's practical feasibility. The results align with the parameters evaluated and offer convincing evidence of the wrap's performance.

Discussion:

The discussion interprets the results in a logical manner, linking observed properties to real-world functionality. The limitations—such as non-suitability for heavy-duty use—are acknowledged, and the suitability for small-scale or domestic applications is emphasized. The environmental implications and potential to replace certain types of plastic are well articulated. The wrap is positioned as both sustainable and safe, which is central to its appeal as a plastic alternative.

Conclusion:

The conclusion reaffirms the study's success in developing a functional, biodegradable wrap from eggshell waste. It emphasizes the environmental benefit and suggests a practical application scope. The concluding remarks are concise yet impactful, reinforcing the study's relevance and achievements.

Recommendations:

The forward-looking recommendations appropriately highlight directions for further research, including scalability, cost optimization, shelf-life analysis, and the use of other waste materials. These suggestions broaden the potential impact of the research and demonstrate awareness of the practical steps toward implementation.

Overall Assessment:

The manuscript presents an innovative and environmentally relevant solution to plastic pollution. The study is well-structured, methodologically sound, and grounded in practical experimentation. The use of waste materials like eggshells in the development of biodegradable packaging demonstrates a sustainable approach to modern environmental challenges. The writing is coherent, the data is well presented, and the conclusions are well supported.