

REVIEWER'S REPORT

Manuscript No.: IJAR-51396

Date: 05-05-2025

Title: Removal of Methylene Blue by Activated Carbon beads and Agricultural waste: A Review

Recommendation:

Accept as it is.....**YES**.....
 Accept after minor revision.....
 Accept after major revision
 Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality	√			
Techn. Quality		√		
Clarity		√		
Significance			√	

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 outlines the dual focus of the review on activated carbon beads and agricultural waste as adsorbents for methylene blue (MB) removal. It clearly states the environmental concerns associated with MB, highlights the comparative performance metrics of both adsorbent types, and summarizes key findings. The data presented on removal efficiency and adsorption capacity is informative, and the abstract concludes with a concise overview of research gaps and future directions. Overall, the abstract is well-balanced and sets the stage for the rest of the manuscript.

Keywords:

The keywords—*Methylene blue, activated carbon beads, mangosteen peels, alginate*—are suitable, relevant, and concise. They capture the core topics and materials of the study effectively.

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Introduction:

The introduction provides a comprehensive overview of the environmental impact of MB and the urgency of addressing its presence in industrial effluents. It contextualizes the widespread use of MB across multiple industries and highlights the limitations of conventional treatment techniques. The rationale for focusing on adsorption methods, especially using activated carbon and agricultural waste, is clearly established. The references to specific percentages of dye discharge and consequences on aquatic ecosystems strengthen the environmental urgency and relevance of the review.

Scientific Relevance and Scope:

The manuscript addresses a significant environmental challenge with practical implications. It bridges materials science, environmental engineering, and sustainability by comparing conventional activated carbon with low-cost agricultural waste materials. The emphasis on adsorption performance, preparation techniques, and operational parameters demonstrates strong scientific grounding and relevance for industrial applications.

Comparative Analysis:

The comparison between activated carbon beads and agricultural waste-derived adsorbents is articulated effectively in the abstract and introduction. The manuscript outlines both performance metrics (e.g., adsorption capacity, efficiency) and contextual factors such as cost and sustainability. This dual analysis highlights trade-offs between economic feasibility and adsorption performance, offering a balanced perspective.

Language and Clarity:

The language throughout the manuscript is clear, informative, and objective. Technical terms are appropriately used, and explanations are accessible for readers with a background in environmental sciences or chemical engineering.

Figures and Data (if applicable):

Although no figures are included in this excerpt, the manuscript references data values and efficiencies that support its conclusions. Visual elements such as comparative tables or schematic diagrams would likely complement the discussion if included in the full paper.

Conclusion

The review concludes with actionable insights, calling for enhancement of adsorbent properties, bridging research gaps, and emphasizing industrial scalability. This aligns with the practical orientation of the review and reinforces its potential utility for environmental practitioners and researchers alike.

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Overall Assessment:

This is a well-structured and impactful review paper that offers valuable insights into environmentally sustainable and cost-effective methods for dye removal. The comparative approach between activated carbon and agricultural waste adsorbents is timely and relevant, contributing to the broader field of green wastewater treatment technologies.
