

REVIEWER'S REPORT

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Date: 21/06/2025

Title: *Evaluation of Cocos nucifera (Coconut) Starch as an Alternative to Serum Separator Tubes for Alanine Aminotransferase and Fasting Blood Sugar*

Recommendation:

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

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

Reviewer Name: Dr. S. K. Nath

Date: 21/06/2025

Reviewer's Comment for Publication:

The study concludes that coconut starch gel, particularly at a 75% concentration, shows promise as an eco-friendly alternative to synthetic serum separator tubes, capable of effectively separating serum and maintaining ALT stability. However, variability in glucose measurements indicates a need for further refinement before clinical implementation. Future work should focus on enhancing the gel's stability, minimizing interactions with serum analytes, and expanding biochemical testing.

Reviewer's Comment / Report

Strengths of the Study:

- **Innovative Approach:** The study explores a natural, eco-friendly alternative to synthetic serum separator tubes, aligning with sustainability goals.
- **Relevance:** Addresses a crucial need for biodegradable options in clinical laboratories, potentially reducing environmental impact.
- **Methodological Rigor:** Uses multiple concentrations (25%, 50%, 75%, and 100%) of coconut starch gel and compares them to a commercial standard, providing comprehensive data.
- **Ethical Considerations:** Ethical approvals, informed consent, and safety protocols are thoroughly documented, indicating responsible research conduct.
- **Clear Findings on Serum Separation:** Demonstrates that higher concentrations, especially 75%, optimize serum separation with minimal hemolysis.

Weaknesses of the Study:

- **Limited Scope of Biochemical Parameters:** Focuses mainly on ALT and FBS; broader testing on other common biochemical assays (e.g., lipids, renal markers) is necessary.
- **Variability in Blood Sugar Results:** Noted fluctuations in FBS levels suggest potential interactions between the starch gel and glucose measurement, raising questions about assay interference.
- **Sample Size and Study Duration:** The sample size appears limited, and the study is relatively short-term, possibly affecting generalizability.
- **Stability and Long-term Storage:** The perishable nature of coconut starch gel was a challenge; the study suggests more work on preservation and stability.
- **Visually, the clarity of serum at lower concentrations:** Lower starch concentrations may not produce clear serum, limiting practical application.