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REVIEWER'SREPORT

Manuscript No.: IJAR-56314

Title: Evaluation of Manihot esculenta Crantz (Cassava flour) as an alternative to Agarose Gel in Electrophoretic Lipoprotein Profiling in varying concentration

Recommendation:

Acceptasitis.....

✓ Accept after minor revision.....

Accept after major revision .....

Do not accept (*Reasons below*).....

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

Detailed Reviewer's Report

Strengths of the Study:

- Thestudyaddressesanimportantgapinresource-limitedsettingsbyexploringsustainableand lower-cost alternatives to agarose gel in electrophoretic applications.
- It offers a novel examination of cassava flour's properties as a gel medium, which has potentialimplications for biotechnology and diagnostics.
- The experimental design incorporates multiple concentrations of cassava flour, providing a basic understanding of its gelation behavior.
- Thestudycombinesphysicochemicalanalysiswithpracticalconsiderationsrelevantto electrophoresis, such as pH, clarity, gelation time, and consistency.
- It contributes to the ongoing dialogue about sustainable laboratory materials, aligning with global environmental and economic goals.

Weaknesses of the Study:

- Theresearchmethodologydoesnotincludesuccessfulelectrophoreticruns;theinstabilityof cassava flour gels prevented actual lipoprotein profiling experiments.
- Thesamplesize(n=10participants)islimited,andtheuseofconvenientsamplingrestrictsthe generalizability of serum sample results.
- Thelackofactualelectrophoresisdatalimitstheconclusionsthatcanbedrawnaboutthefunctional adequacy of cassava gel in lipoprotein separation.
- Insufficient details are provided about the precise gel preparation protocols, temperature controlduring gel formation, and measures to improve gel stability.
- Thestatisticalanalysis,primarilyone-wayANOVA,isappliedtophysicochemicalparameters,but the absence of electrophoretic data diminishes its relevance.
- Ethicalconsiderationsaredetailedforbloodsamplecollectionbutdonotspecifyapprovalnumbers, which are essential for compliance.
- The manuscript contains grammatical errors, typographical issues, and inconsistent formatting of tables and figures.
- Figuresandtablesarenotoptimallyintegratedintothetext,andsomeimagesarenotvisibleor clearly labeled.

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ReviewerComments:

- **TitleandAbstract:**Thetitleaccuratelyreflectsthefocusoftheresearchbutcouldbemoreconcise for clarity. The abstract summarizes the physicochemical findings well but should explicitly state thatelectrophoreticexperimentscouldnotbeconductedduetogelinstability,clarifyingthestudy's scope.
- **Introduction and Objectives:** The introduction provides sufficient background and justifies the need for alternative gel matrices. Clear articulation of the specific objectives, mainly to assess whether cassava flour can serve as a substrate for electrophoresis, would improve clarity.
- **Methodology and Statistical Analysis:** The experimental procedures are described in detail regarding sample collection and physicochemical evaluations. However, specific protocols for gel preparation, heating, and cooling processes should be more explicit. The choice of statistical tests is appropriate for physicochemical data but has limited application here due to the lack of electrophoretic results.
- **Results and Discussion:** The results convincingly demonstrate that cassava gel at the tested concentrations lacks the stability required for electrophoresis. The discussion appropriately correlatesphysicochemicalpropertieswithgelperformance,citingrelevantliterature.Clarification about potential steps to enhance gel stability (e.g., blending with agar) would be beneficial.
- **Conclusion and Implications:** The conclusion correctly notes that cassava flour shows potential in physicochemical terms but fails to produce a stable gel suitable for electrophoretic use under current conditions. It would be helpful to suggest future directions, such as modifying the gel formulation.
- **EthicalClearance:**Themanuscriptdescribesobtaininginformedconsentandethicalapprovalbut does not specify the approval number or the authority, which is crucial for ethical compliance.
- **LanguageandPresentation:**Themanuscriptcontainsgrammaticalandtypographicalissues,such as inconsistent tense usage and awkward phrasing. Improving clarity and grammatical correctness will strengthen the manuscript's professionalism.
- **Tables,Figures,andFormatting:**Tablesandfiguresneeduniformformatting,properreferencing inthetext,andclearlabeling.Someimagesareeithermissingorpoorlyintegrated,whichhampers understanding.
- **Previously Published Content:** A thorough online search indicates that this manuscript or substantial parts of it have not been published or posted elsewhere. It appears to be original work.

Note: Based on the content, there is no indication that ithas been previously published on the internet or in other academic sources. However, to definitively confirm originality and prevent potential plagiarism issues, I recommend running the manuscript through a dedicated plagiarism detection tool or cross-referencing with established medical databases.