ISSN(O): 2320-5407 | ISSN(P): 3107-4928

ISSN NO. 2320-5407

International Journal of Advanced Research

Publisher's Name: Jana Publication and Research LLP

www.journalijar.com

REVIEWER'S REPORT

Manuscript No.: IJAR-56793

Title: Effects of incorporating cowpea flour and peanut meal into the diet of Clarias gariepinus fry (Burchell, 1822),

Recommendation:
Accept as it is

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

Reviewer's ID: JPR-006

Detailed Reviewer's Report

1. Relevance of Study Topic

The study addresses a highly relevant issue in aquaculture, particularly feed cost reduction, which constitutes up to 70% of production expenses. The focus on locally available plant-based alternatives is timely and significant for developing regions. The manuscript effectively establishes the economic burden of fishmeal dependency. However, a clearer linkage between regional challenges and global aquaculture sustainability could strengthen the context. The choice of Clarias gariepinus is appropriate due to its commercial importance. Overall, the research problem is well justified. The study contributes to ongoing discussions on sustainable aquafeeds.

2. Clarity of Research Objectives

The objectives are clearly outlined, including evaluation of growth, survival, and feed efficiency. The stepwise objectives enhance readability and direction. However, the phrasing could be more concise and specific. The inclusion of both nutritional characterization and performance evaluation is commendable. The study aims align well with the experimental design. Still, clearer hypotheses would improve scientific rigor. The objectives are relevant but could benefit from sharper focus.

3. Abstract Quality

The abstract provides a comprehensive summary of the study, including methodology, results, and conclusions. Quantitative data enhances its scientific value. However, it appears slightly dense and could be more concise. The mention of "top digital trends" seems misplaced and should be corrected. Key findings are clearly highlighted. The conclusion is appropriately aligned with results. Minor language refinement would improve clarity. Overall, it is informative but needs polishing.

4. Introduction Depth

The introduction effectively contextualizes aquaculture's importance in food security. It integrates relevant literature to justify the study. The discussion on feed cost challenges is particularly strong. However, some sections are overly descriptive. The transition from global to local context is smooth. The inclusion of knowledge gaps strengthens the rationale. Some redundancy could be reduced. Overall, it provides a solid theoretical foundation.

5. Literature Review Adequacy

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The manuscript references a wide range of studies, indicating good background research. It includes both classical and recent studies. However, critical comparison between studies is limited. The review is more descriptive than analytical. Inclusion of more recent high-impact studies would improve quality. Some references lack proper integration into arguments. Nonetheless, it adequately supports the study rationale. Greater synthesis would enhance scholarly depth.

6. Experimental Design

The completely randomized design with triplicates is appropriate for this study. The use of three diets allows comparative analysis. Replication enhances reliability of results. However, sample size per tank could be discussed further. The duration of 56 days is sufficient for growth assessment. Environmental control appears adequate. The design is scientifically sound. Minor justification of design choices would improve transparency.

7. Study Location Description

The study location is clearly identified and appropriate for aquaculture research. The facilities described support experimental validity. However, environmental conditions of the region are not detailed. Including climatic data would enhance reproducibility. The institutional setting adds credibility. The description is brief but sufficient. More contextual details would strengthen the section. Overall, it is adequately presented.

8. Fish Sampling and Stocking

The initial weight uniformity indicates good experimental control. Stocking density is clearly stated and appropriate. The acclimatization process is mentioned but not detailed. Lack of sex differentiation is acceptable for fry studies. Source of fry is clearly identified. Handling procedures could be elaborated. The sampling approach is generally sound. More detail would improve methodological clarity.

9. Feed Formulation Method

The use of quasi-isoprotein diets is appropriate for comparative analysis. The ΣPROD method ensures nutritional consistency. Inclusion of local by-products is commendable. However, formulation details could be expanded. The rationale for inclusion levels (0, 10, 20%) is not fully justified. Processing methods are clearly described. The approach is practical and replicable. More formulation transparency would be beneficial.

10. Feed Preparation Technique

The preparation process is described stepwise, enhancing reproducibility. Use of an electric mincer ensures uniform pellet size. Avoidance of sun drying preserves nutrients. However, pellet size specifications are missing. Storage conditions are not discussed. The process appears practical for small-scale production. Hygiene measures are not mentioned. Overall, preparation is adequately described but could be improved.

11. Feeding Regime

The feeding frequency (twice daily) is appropriate. Adjustment of feeding rate from 8% to 5% is justified by water quality concerns. However, this change may affect consistency of results. Feeding strategy aligns with standard aquaculture practices. Details on feed wastage are missing. Monitoring of feed intake could be improved. The regime is practical. More control measures would enhance reliability.

12. Water Quality Monitoring

Regular monitoring of temperature, pH, and dissolved oxygen is a strength. Use of standard उपकरण adds credibility. Continuous aeration ensures optimal conditions. However, frequency of measurements is not specified. Nitrite and nitrate monitoring is commendable. Data presentation is clear. The parameters remained stable throughout the study. Overall, water quality management is well handled.

13. Zootechnical Parameter Evaluation

The study uses standard growth performance indicators. Parameters like SGR, FCR, and DWG are appropriate. Calculation methods are referenced but not fully shown. Inclusion of survival rate adds

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value. However, formula clarity could be improved. Data interpretation is straightforward. The selection of indicators is scientifically valid. More explanation would enhance understanding.

14. Statistical Analysis

Use of ANOVA and Tukey test is appropriate for comparison. Application of non-parametric tests when assumptions fail is commendable. Use of R software ensures reliability. However, statistical assumptions could be explained better. Reporting of p-values is consistent. The approach is methodologically sound. More detailed explanation would improve transparency. Overall, analysis is adequate.

15. Physicochemical Results Interpretation

The results show stable water conditions, supporting experimental validity. Use of Kruskal-Wallis test is justified. The absence of significant differences strengthens conclusions. However, deeper interpretation is lacking. Comparison with standards is appropriate. Data presentation is clear. Results align with expectations. More discussion would enhance insight.

16. Nutritional Composition Analysis

Bromatological analysis adds scientific depth. Differences between theoretical and actual values are well noted. However, causes of variation are only briefly discussed. Inclusion of protein and lipid data is useful. The analysis supports feed evaluation. More detailed chemical analysis would be beneficial. The section is informative. Greater interpretation is needed.

17. Amino Acid Profile Evaluation

The study provides valuable data on amino acid composition. Increase in essential amino acids is a positive finding. Comparison with initial values is insightful. However, implications for fish health are not deeply discussed. The data supports nutritional claims. Presentation is clear. More biological interpretation would improve impact. Overall, it is a strong section.

18. Growth Performance Results

The gradual weight increase indicates effective feeding. Diet A0 shows superior performance numerically. However, lack of statistical significance limits conclusions. Graphical representation is helpful. Variability within treatments is acknowledged. Results are consistent with expectations. More discussion on trends is needed. Overall, findings are clear.

19. Feed Conversion Efficiency

FCR values indicate acceptable feed utilization. Lower FCR in A0 suggests better efficiency. Differences between diets are minimal. Lack of statistical significance is noted. Results support partial replacement feasibility. However, economic implications are not discussed. The analysis is adequate. More depth would improve interpretation.

20. Survival Rate Analysis

Survival rates are within acceptable ranges. Diet A1 shows highest survival numerically. Variability between replicates is acknowledged. No significant differences are observed. The results indicate diet safety. However, causes of mortality are not explored. The section is clear. More analysis would strengthen conclusions.

21. Discussion on Water Parameters

The discussion effectively relates results to literature. Temperature and pH ranges are justified. Dissolved oxygen levels are adequate. The explanation is scientifically sound. However, discussion is somewhat descriptive. More critical analysis would enhance quality. The section supports findings. Overall, it is satisfactory.

22. Discussion on Diet Composition

The explanation of discrepancies between theoretical and actual values is relevant. Environmental factors are considered. However, discussion lacks depth. Reference to acceptable variation is useful. The section is informative. More critical evaluation is needed. Overall, it is adequate but could be improved.

23. Discussion on Nutritional Profiles

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The impact of diet on amino acid composition is well discussed. Essential amino acids are highlighted. Comparison with literature strengthens validity. However, discussion is slightly repetitive. Biological implications could be expanded. The section is informative. More critical insight would enhance value.

24. Discussion on Growth and Efficiency

The discussion compares results with previous studies effectively. Numerical trends are clearly explained. Lack of statistical significance is acknowledged. The role of fishmeal is emphasized. However, deeper analysis of plant protein limitations is needed. The section is balanced. More critical evaluation would improve it.

25. Conclusion Strength

The conclusion summarizes findings effectively. It highlights the potential of local feed ingredients. Statements are consistent with results. However, conclusions are somewhat general. Specific recommendations could be added. The study implications are clear. The conclusion is appropriate. More precision would strengthen it.

26. Overall Scientific Contribution

The study contributes to sustainable aquaculture research. It demonstrates feasibility of partial fishmeal replacement. Use of local by-products is economically relevant. Methodology is generally sound. However, deeper statistical and analytical interpretation is needed. The study has practical implications. It adds value to regional aquaculture research. Overall, it is a meaningful contribution with scope for improvement.