

**ReviewForm3**

JournalName:	<b>JournalofAdvancesinBiology&amp;Biotechnology</b>
ManuscriptNumber:	<b>Ms_JABB_123228</b>
Titleof theManuscript:	<b>AssessmentofnutritionalqualityparametersofgreengramexposedtoelevatedlevelsofcarbondioxideformanagingCallosobruchuschinensis(L.)</b>
Typeof the Article	<b>ResearchArticleorReviewArticle</b>

**PART1: ReviewComments**

<b>Compulsory</b> REVISIONcomments	<b>Reviewer'scomment</b>	<b>Author'sFeedback(Pleasecorrectthemanuscriptandhighlightthatpartinthemanuscript.Itismandatorythatauthorsshouldwritehis/herfeedbackhere)</b>
<b>Pleasewriteafew sentencesregardingtheimportance ofthismanuscriptfor thescientificcommunity.Whydo youlike(ordislike)thismanuscript?Aminimumof3-4 sentencesmayberequiredforthispart.</b>	This manuscriptis significantfor the scientific communityas it addresses the pressingneedfor sustainablepestmanagementsolutionsinagriculture,particularlyinthestorageofvitalcropslike greengram.ByexploringtheimpactofelevatedCO2levelsonthenutritionalqualityofgreengramit contributesvaluable insights intoalternativepreservationmethodsthatminimizethereliance on chemicalpesticides.Thestudy'sfindingsareparticularlyrelevantinthecontextofglobaleffortsto enhancefoodsecuritywhilemaintaininggrainqualityoverextendedstorageperiods.I appreciatehis manuscriptforitspractical approach toaddressingagriculturalchallengesanditspotentialtoinfluence futureresearch onsustainable cropstorage practices.	
<b>Isthetitleofthearticlesuitable? (Ifnotpleasesuggestanalternativetitle)</b>	Thecurrenttitle,"AssessmentofNutritionalQualityParametersofGreenGramExposedtoElevated LevelsofCarbonDioxideforManaging <i>Callosobruchuschinensis</i> (L.)",isinformativebutcouldbe mademore conciseandfocused. Amore streamlinedtitle mightbe:  "EvaluatingtheNutritionalImpactofElevatedCO2onGreenGramfor <i>Callosobruchuschinensis</i> Management."	

**ReviewForm3**

<p><b>Istheabstractofthearticlecomprehensive?Doyousuggesttheaddition(ordeletion)ofsomepointsinthissection?Pleasewriteyoursuggestionshere.</b></p>	<p>The abstract is generally comprehensive but could benefit from a few adjustments for clarity, conciseness and completeness. Here are some suggestions:</p> <p><b>Suggestions for Improvement:</b></p> <ol style="list-style-type: none"> <li>1. <b>Clarify the Objective:</b> <ol style="list-style-type: none"> <li>a. The objective of the study could be stated more clearly at the beginning of the abstract.</li> <li>b. Example: "This study aimed to assess the nutritional quality parameters of green gram seed exposed to elevated levels of carbon dioxide (CO<sub>2</sub>) to manage <i>Callosobruchus chinensis</i> infestation."</li> </ol> </li> <li>2. <b>Include Specific Findings:</b> <ol style="list-style-type: none"> <li>a. While the abstract mentions the key findings, it could be more specific about the impact of CO<sub>2</sub> level on protein, carbohydrate, and fat content.</li> <li>b. Example: "The results showed that seed treated with 80% CO<sub>2</sub> retained the highest carbohydrate content (62.93%) and crude fat (4.51%), while the protein content decreased to 25.26% after two months of storage."</li> </ol> </li> <li>3. <b>Highlight the Significance:</b> <ol style="list-style-type: none"> <li>a. Add a sentence that highlights the broader significance or potential applications of the findings.</li> <li>b. Example: "These findings suggest that using elevated CO<sub>2</sub> levels could be a viable alternative to chemical fumigants for preserving green gram during storage."</li> </ol> </li> <li>4. <b>Remove Redundancies:</b> <ol style="list-style-type: none"> <li>a. The phrase "this treatment was also found to be the best treatment" is repetitive. Streamlining this could improve readability.</li> <li>b. Example: "The 80% CO<sub>2</sub> treatment was consistently the most effective in preserving nutritional quality."</li> </ol> </li> <li>5. <b>Key Words:</b> <ol style="list-style-type: none"> <li>a. Consider adding keywords that are more specific to the methods and findings of the study, such as "controlled atmosphere storage" or "storage pest management."</li> </ol> </li> </ol>	
<p><b>Are subsections and structure of the manuscript appropriate?</b></p>	<p>The subsections and structure of the manuscript are generally appropriate for a scientific paper, but there are a few areas where improvements could be made to enhance clarity and flow.</p>	

[ReviewForm3](#)

	<p><b>Suggestions for Improvement:</b></p> <ol style="list-style-type: none"> <li>1. <b>Introduction:</b> <ul style="list-style-type: none"> <li>o <b>Current Structure:</b> The introduction effectively sets the context by discussing the importance of green gram and the challenges posed by storage pests. However, it could be more focused by clearly stating the research gap and the specific objectives of the study earlier in the section.</li> <li>o <b>Suggested Structure:</b> <ol style="list-style-type: none"> <li>1. Importance of green gram and its vulnerability to pests.</li> <li>2. Challenges with current pest management methods (e.g., chemical fumigation).</li> <li>3. Introduction of controlled atmosphere (CA) as a potential solution.</li> <li>4. Clearly state the specific objective of this study.</li> </ol> </li> </ul> </li> <li>2. <b>Materials and Methods:</b> <ul style="list-style-type: none"> <li>o <b>Current Structure:</b> The methods section is detailed and covers the essential steps in the experiment. However, it could be further divided into more specific subsections for clarity.</li> <li>o <b>Suggested Structure:</b> <ol style="list-style-type: none"> <li>1. <b>Mass Culturing of Test Insect:</b> Detailed steps of culturing <i>Callosobruchus chinensis</i>.</li> <li>2. <b>Experimental Setup:</b> Description of CO<sub>2</sub> treatments and seed preparation.</li> <li>3. <b>Nutritional Quality Analysis:</b> Methods used to assess carbohydrate, protein, and fat content.</li> <li>4. <b>Statistical Analysis:</b> Description of the statistical methods used, such as the t-test.</li> </ol> </li> </ul> </li> <li>3. <b>Results and Discussion:</b> <ul style="list-style-type: none"> <li>o <b>Current Structure:</b> The results and discussion are recombined, which is common in many journals. However, the manuscript could benefit from a clearer separation of the results and discussion for each parameter (carbohydrate, protein, crude fat).</li> <li>o <b>Suggested Structure:</b> <ol style="list-style-type: none"> <li>1. <b>Effect of CO<sub>2</sub> on Carbohydrate Content:</b> Present results followed by discussion.</li> <li>2. <b>Effect of CO<sub>2</sub> on Protein Content:</b> Present results followed by discussion.</li> <li>3. <b>Effect of CO<sub>2</sub> on Crude Fat Content:</b> Present results followed by discussion.</li> </ol> </li> <li>o This would allow the reader to more easily follow the findings and their implications.</li> </ul> </li> <li>4. <b>Conclusion:</b> <ul style="list-style-type: none"> <li>o <b>Current Structure:</b> The conclusion summarizes the key findings well but could be expanded slightly to include recommendations for future research or practical applications.</li> <li>o <b>Suggested Structure:</b> <ol style="list-style-type: none"> <li>1. Summary of key findings.</li> <li>2. Implications for sustainable pest management.</li> <li>3. Suggestions for future research or practical application.</li> </ol> </li> </ul> </li> <li>5. <b>Tables and Figures:</b> <ul style="list-style-type: none"> <li>o Ensure that all tables and figures are clearly labeled and referenced appropriately in the text. They should be placed close to the relevant text to make it easier for the reader to interpret the data.</li> </ul> </li> </ol>	
<p><b>Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that</b></p>	<p>The manuscript appears to be scientifically robust and technically sound because it follows a systematic experimental design, with clear methods for testing the effects of elevated CO<sub>2</sub> on green gram seeds infested by <i>Callosobruchus chinensis</i>. The study uses well-established procedures for measuring key</p>	

### ReviewForm3

<p><b>sound? A minimum of 3-4 sentences may be required for this part.</b></p>	<p>nutritional parameters, such as carbohydrate, protein, and crude fat content, ensuring reliable and reproducible results. Additionally, the use of appropriate statistical analysis, like the t-test, to compare treatments further strengthens the scientific rigor of the findings. The study's focus on a sustainable alternative to chemical fumigants for pest management adds practical value, making the research both relevant and applicable to the field.</p>	
<p><b>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</b></p>	<p>The references in the manuscript are generally sufficient and relevant, covering key studies related to the effects of controlled atmosphere on stored grains and the nutritional impact of pest infestation. However, there are a few areas where the references could be updated or expanded to include more recent studies to enhance the manuscript's relevance.</p>	
<p><u>Minor REVISION</u> comments</p> <p><b>Is the language/English quality of the article suitable for scholarly communications?</b></p>	<p>The language and English quality of the article are generally suitable for scholarly communication, but there are a few areas where improvements could be made to enhance clarity, readability, and overall flow.</p>	
<p><u>Optional/General</u> comments</p>	<p>Here are some general comments and suggestions to further improve the manuscript:</p> <ol style="list-style-type: none"> <li>1. <b>Emphasize Practical Applications:</b> <ul style="list-style-type: none"> <li>o Highlight the practical implications of the findings, particularly how the use of elevated CO<sub>2</sub> levels can be adopted by farmers and grain storage facilities. Discuss any potential challenges or limitations in implementing this method on a large scale.</li> </ul> </li> <li>2. <b>Discuss Environmental Impact:</b> <ul style="list-style-type: none"> <li>o Given the focus on sustainable pest management, it would be beneficial to include a brief discussion on the environmental benefits of using CO<sub>2</sub> compared to chemical fumigants. This can add depth to the significance of the study.</li> </ul> </li> <li>3. <b>Expand on Future Research:</b> <ul style="list-style-type: none"> <li>o Suggest areas for future research, such as exploring the long-term effects of CO<sub>2</sub> treatment on other nutritional parameters or assessing the economic viability of this method in different regions.</li> </ul> </li> <li>4. <b>Consider Broader Impacts:</b> <ul style="list-style-type: none"> <li>o If applicable, discuss how this research could influence policy-making or guidelines for grain storage, particularly in regions heavily impacted by pest infestations.</li> </ul> </li> <li>5. <b>Visual Aids:</b> <ul style="list-style-type: none"> <li>o Consider adding more visual aids, such as graphs or charts, to represent the data on nutritional quality parameters more clearly. Visuals can make it easier for readers to grasp key findings at a glance.</li> </ul> </li> <li>6. <b>Review Statistical Analysis:</b> <ul style="list-style-type: none"> <li>o Ensure that all statistical analyses are clearly explained and justified. This includes detailing why certain tests were chosen and how they support the study's conclusions.</li> </ul> </li> </ol> <p>Overall, the manuscript is well-structured and addresses an important topic in agricultural science. Implementing these suggestions could enhance its impact and readability.</p>	

### PART 2:

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<p><b>Are there ethical issues in this manuscript?</b></p>	<p><i>(If yes, Kindly please write down the ethical issues here in details)</i></p>	

### Reviewer Details:

<p>Name:</p>	<p><b>Mohammad Rafiq Bhat</b></p>
<p>Department, University &amp; Country</p>	<p><b>Tamil Nadu Agricultural University, India</b></p>