

Review Form 3

Journal Name:	Journal of Advances in Biology & Biotechnology
Manuscript Number:	Ms_JABB_125830
Title of the Manuscript:	Influence of seed priming treatments on plant growth parameters of Barley (<i>Hordeum vulgare</i> L.)
Type of the Article	

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PART 1: Review Comments

Compulsory REVISION comments	Reviewer's comment	Author's Feedback (Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<p>Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.</p>	<p>The manuscript titled "Influence of seed priming treatments on plant growth parameters of Barley (<i>Hordeum vulgare</i> L.)" is significant for the scientific community as it explores innovative agricultural practices that could enhance barley cultivation, a crucial crop globally. By investigating various seed priming treatments, including Thiourea and KNO₃, the study provides insights into improving germination and growth parameters, which can lead to higher yields and better resource efficiency in farming. I appreciate this manuscript for its practical implications in sustainable agriculture. The findings suggest that specific seed treatments can significantly improve plant growth, which is vital for addressing food security challenges. Additionally, the rigorous experimental design and statistical analysis lend credibility to the results, making it a valuable contribution to agronomy and plant science research.</p>	
<p>Is the title of the article suitable? (If not, please suggest an alternative title)</p>	<p>The title of the article, "Influence of seed priming treatments on plant growth parameters of Barley (<i>Hordeum vulgare</i> L.)," is generally suitable as it clearly indicates the main focus of the study: the effects of various seed priming treatments on barley growth. However, it could be made more specific to enhance clarity and attract interest. A suggested alternative title could be: "Enhancing Barley Growth: The Impact of Various Seed Priming Treatments Including Thiourea and KNO₃" This alternative emphasizes not only the influence of seed priming but also highlights key treatments studied, which may attract readers interested in specific methodologies.</p>	
<p>Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.</p>	<p>The abstract of the article provides a concise overview of the study, including the objectives, methods, and key findings. However, it could benefit from some enhancements to improve its comprehensiveness. Weaknesses and Gaps:</p> <ul style="list-style-type: none"> • Lack of Context: The abstract does not provide sufficient background on why seed priming is important for barley cultivation. Including a brief statement on the significance of barley as a crop and the challenges it faces would add context. • Specific Results: While it mentions that Thiourea significantly increased plant growth parameters, it lacks specific quantitative results or metrics that showcase the extent of these improvements. Including specific data points would make the findings more impactful. • Implications: The abstract does not discuss the practical implications of the findings for farmers or agricultural practices. Adding a sentence about how these results could influence farming strategies or crop management would enhance its relevance. • Key Terms: The keywords section contains a typo ("Platn" instead of "Plant"). Correcting this error is necessary for professionalism and clarity. <p>Suggestions for Addition:</p> <ul style="list-style-type: none"> • A brief introduction to the significance of barley and seed priming in agriculture. • Specific quantitative results to illustrate the impact of treatments on growth parameters. • A sentence discussing the practical implications of the findings for farmers or agricultural practices. <p>By addressing these points, the abstract can become more informative and engaging for readers.</p>	
<p>Are subsections and structure of the manuscript appropriate?</p>	<p>The structure of the manuscript appears to be generally appropriate, with clear sections including the abstract, introduction, materials and methods, results and discussion, and conclusion. However, there are some weaknesses and gaps that could be addressed to enhance clarity and coherence. Weaknesses and Gaps:</p> <ul style="list-style-type: none"> • Subsection Titles: While the main sections are clearly defined, the manuscript would benefit from more descriptive subsection titles within the "Results and Discussion" section. This would 	

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	<p>help guide readers through the findings more effectively.</p> <ul style="list-style-type: none"> • Methodology Details: The "Materials and Methods" section could provide more details regarding the experimental design, such as specific statistical methods used for analysis. This would enhance reproducibility and allow readers to understand the robustness of the findings better. • Results Presentation: The results are mentioned but not sufficiently detailed in terms of specific data points or statistical significance. Including more comprehensive tables or figures would improve the presentation of data and make it easier for readers to interpret results. • Conclusion Clarity: The conclusion section could be expanded to summarize the implications of the findings more clearly. Currently, it briefly states that Thiourea improves growth but lacks a broader discussion on how this might affect agricultural practices or future research directions. • References Formatting: The references section appears to have inconsistencies in formatting. Ensuring a uniform style throughout would enhance professionalism. <p>By addressing these points, the manuscript could improve its overall clarity, coherence, and impact within the scientific community.</p>	
<p>Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.</p>	<p>The scientific correctness of the manuscript titled "Influence of seed priming treatments on plant growth parameters of Barley (<i>Hordeum vulgare</i> L.)" is generally robust and technically sound. The study is grounded in established agricultural principles, specifically the practice of seed priming, which has been widely recognized for its ability to enhance seed germination and subsequent plant growth.</p> <p>Strengths:</p> <ul style="list-style-type: none"> • Experimental Design: The use of a Factorial Randomized Block Design with three replications strengthens the reliability of the results, allowing for a comprehensive analysis of the effects of different seed priming treatments on barley growth parameters. • Statistical Analysis: The manuscript employs appropriate statistical methods to analyze the data, including analysis of variance (ANOVA) and calculation of critical differences. This adds credibility to the findings and ensures that the results are statistically significant. • Relevant Literature: The authors reference previous studies that support their findings, demonstrating a solid understanding of existing research in the field. This contextualizes their work within the broader scientific discourse on seed priming and its effects on crop growth. <p>Weaknesses and Gaps:</p> <ul style="list-style-type: none"> • Lack of Detailed Methodology: While the methodology is outlined, it could benefit from more specific details regarding the experimental conditions, such as soil characteristics and environmental factors during the study. This information is crucial for reproducibility and understanding the context of the results. • Quantitative Results: The manuscript mentions significant effects but could enhance its scientific rigour by providing more detailed quantitative data in the results section. Specific metrics related to growth parameters would help illustrate the magnitude of the effects observed. • Broader Implications: The discussion could be expanded to include a more thorough examination of how these findings might influence agricultural practices or future research directions. This would strengthen the manuscript's relevance to both researchers and practitioners in agriculture. <p>Overall, while the manuscript demonstrates scientific robustness, addressing these weaknesses could further enhance its impact and clarity within the scientific community.</p>	
<p>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</p>	<p>The references in the manuscript appear to be a mix of recent and relevant sources. However, there are some weaknesses and gaps that could be addressed to enhance the quality and comprehensiveness of the literature cited. Weaknesses and Gaps:</p>	

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	<ul style="list-style-type: none"> • Recency of References: While some references date back to 2022 and 2021, others, such as those from 2006 and 2009, may not reflect the latest advancements in seed priming research. Including more recent studies would strengthen the manuscript's relevance. • Diversity of Sources: The references primarily focus on specific treatments or effects related to barley. Expanding the citations to include broader reviews or meta-analyses on seed priming could provide a more comprehensive background. • Inconsistent Formatting: There are inconsistencies in how references are formatted, particularly in terms of punctuation and spacing. Ensuring uniformity in citation style is essential for professionalism. • Missing Key Studies: Important recent studies on seed priming techniques or barley growth that could provide additional context or support for the findings are absent. For example, including recent reviews on seed priming methods or their physiological impacts would enhance the manuscript. <p>Suggestions for Additional References:</p> <ol style="list-style-type: none"> 1. Recent Reviews on Seed Priming: <ul style="list-style-type: none"> ○ "Seed Priming: A New Approach for Enhancing Seed Germination and Seedling Growth" - This review could provide a broader context for the study. 2. Studies on Barley Growth: <ul style="list-style-type: none"> ○ "Advances in Barley Research: Implications for Crop Improvement"- This could offer insights into genetic advancements relevant to barley cultivation. 3. Meta-Analyses on Seed Treatments: <ul style="list-style-type: none"> ○ "Effects of Seed Priming on Crop Yield: A Meta-Analysis" - This would provide a comprehensive overview of how seed priming affects various crops, including barley. <p>By addressing these weaknesses and incorporating additional relevant references, the manuscript can significantly improve its scholarly rigour and provide a more robust foundation for its findings.</p>	
<p>Minor REVISION comments</p> <p>Is the language/English quality of the article suitable for scholarly communications?</p>	<p>The language quality of the manuscript titled has several strengths, but there are notable weaknesses and grammatical issues that need addressing to enhance its suitability for scholarly communication.</p> <p>Strengths:</p> <ul style="list-style-type: none"> • Clarity of Purpose: The manuscript clearly states its objectives and provides a logical flow of information throughout the sections. • Technical Terminology: The use of appropriate scientific terminology demonstrates familiarity with the subject matter. <p>Weaknesses and Gaps:</p> <ul style="list-style-type: none"> • Grammatical Errors: <ul style="list-style-type: none"> ○ In the abstract, "Platn growth parameters" should be corrected to "Plant growth parameters." ○ Inconsistent use of punctuation, such as missing commas in lists (e.g., "KNO3 @ 2.5%, Thiourea @ 1000 ppm, CaCl2 @ 2%..."). • Sentence Structure: <ul style="list-style-type: none"> ○ Some sentences are overly long and complex, making them difficult to follow. For example, "The interaction effect of varieties and treatments showed non significant effect on number of plant stands m-2 and number of tiller plant-1 however maximum number of plant stands m-2 (43.83) and tiller plant-1 (8.60) were observed in variety K-1055 priming with Thiourea @ 1000 ppm (V2×T3)." This could be split into shorter sentences for clarity. • Word Choice: <ul style="list-style-type: none"> ○ Phrases like "the minimum plant stands m-2, plant height, number of tiller plant-1 number of ears m-2 were observed in variety K-409 in control (V1×T0)" could be 	

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	<p>rephrased for better readability. Consider using "The lowest values for plant stands m-2, plant height, number of tillers per plant, and number of ears per m-2 were observed in variety K-409 under control conditions (V1xT0)."</p> <ul style="list-style-type: none"> • Consistency in Formatting: <ul style="list-style-type: none"> ○ Ensure consistent formatting for units (e.g., "m-2" vs. "m²") and treatment concentrations (e.g., "1000 ppm" vs. "1000 @ ppm"). <p>Suggestions for Improvement:</p> <ol style="list-style-type: none"> 1. Proofreading: A thorough proofreading process should be conducted to correct grammatical errors and improve sentence structure. 2. Simplifying Language: Aim for more straightforward sentence constructions to enhance readability without sacrificing scientific accuracy. 3. Consistent Terminology: Ensure that terms are consistently used throughout the manuscript to avoid confusion. <p>By addressing these language and grammatical issues, the manuscript will significantly improve its clarity and professionalism, making it more suitable for scholarly communication.</p>	
<p><u>Optional/General</u>comments</p>	<p>Materials and Methods:Weaknesses:</p> <ul style="list-style-type: none"> • Lack of Detail: The section does not provide sufficient detail regarding the soil characteristics, environmental conditions, or specific statistical methods used for data analysis. This information is crucial for reproducibility and understanding the context of the results. • Ambiguous Terminology: The use of terms like "full doses of P and K" is vague. Specific quantities or sources should be mentioned to clarify the nutrient application. • Experimental Design Clarity: The description of the experimental design (e.g., "Factorial Randomized Block Design") could be elaborated to explain how treatments were randomized and replicated. <p>Suggestions:</p> <ol style="list-style-type: none"> 1. Include detailed soil characteristics and environmental conditions during the experiment. 2. Specify the exact quantities of nutrients applied and their sources. 3. Provide a more comprehensive explanation of the experimental design, including randomization procedures. <p>Results:Weaknesses:</p> <ul style="list-style-type: none"> • Insufficient Data Presentation: The results are described but lack sufficient quantitative data to support claims. Specific metrics related to growth parameters should be included for clarity. • Inconsistent Table References: The manuscript refers to tables generically (e.g., "Table-1 to table-5") without providing specific insights from each table, making it difficult for readers to follow. • Lack of Statistical Analysis Details: There is little information on how statistical significance was determined beyond mentioning ANOVA. Specific p-values or confidence intervals should be included. <p>Suggestions:</p> <ol style="list-style-type: none"> 1. Include specific quantitative data points in the results section to substantiate claims. 2. Clearly reference each table with a brief summary of its contents. 	

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3. Provide detailed statistical analysis results, including p-values and confidence intervals.

Discussion:Weaknesses:

- **Limited Contextualization:** The discussion does not adequately contextualize findings within existing literature. While some references are made, a deeper analysis comparing results with previous studies would enhance understanding.
- **Lack of Implications:** There is insufficient discussion on the practical implications of the findings for farmers or agricultural practices. The significance of improvements in growth parameters should be explicitly stated.
- **Repetitive Statements:** Some statements in the discussion are repetitive or redundant, which detracts from clarity and engagement.

Suggestions:

1. Expand the discussion to compare findings with similar studies, highlighting similarities and differences.
2. Clearly articulate the practical implications of the results for agricultural practices or future research.
3. Eliminate repetitive statements to improve clarity and conciseness in the discussion section.

By addressing these weaknesses and implementing these suggestions, the manuscript can significantly enhance its clarity, rigour, and relevance within the scientific community.

Based on the provided information, there are several ethical considerations to evaluate in the manuscript titled "**Influence of seed priming treatments on plant growth parameters of Barley (*Hordeum vulgare* L.)**":

Ethical Issues:

1. **Use of Chemicals:**
 - The manuscript discusses the use of various chemical treatments, such as Thiourea and KNO₃, for seed priming. It is essential to ensure that these chemicals are used responsibly and that their potential environmental impacts are considered. The manuscript should address any safety protocols or environmental assessments related to the use of these substances.
2. **Research Integrity:**
 - The manuscript must ensure that all data presented are accurate and derived from legitimate experiments. Any manipulation or fabrication of data would constitute a serious ethical violation. The authors should provide clear methodologies to support reproducibility and transparency.
3. **Approval for Research:**
 - If the research involved any biological materials or living organisms, it is crucial to confirm that appropriate ethical approvals were obtained from relevant institutional review boards or ethics committees. The manuscript should mention whether such approvals were secured.
4. **Citations and Plagiarism:**
 - Proper citation practices are vital to avoid plagiarism. The manuscript must accurately reference all sources and previous studies to give credit to original authors and maintain academic integrity.
5. **Conflict of Interest:**
 - The authors should disclose any potential conflicts of interest that could influence the research outcomes or interpretation of results. This includes financial support from organizations with vested interests in the findings.

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	<p>Suggestions for Improvement:</p> <ul style="list-style-type: none">• Include Ethical Statements: The authors should add a section detailing any ethical considerations related to their research, including approvals for chemical use and research involving biological materials.• Clarify Environmental Impact: Discuss the environmental implications of using specific seed priming treatments, including any necessary precautions taken during the experiments.• Transparency in Data Reporting: Ensure that all data presented in the manuscript can be traced back to original experiments with clear methodologies, enhancing transparency and reproducibility. <p>By addressing these ethical issues, the manuscript can enhance its credibility and align with the standards expected in scholarly communications.</p>	
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PART 2:

	Reviewer's comment	Author's comment <i>(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)</i>
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

Reviewer Details:

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