

### Review Form 3

Journal Name:	<a href="#">Asian Journal of Research in Agriculture and Forestry</a>
Manuscript Number:	Ms_AJRAF_126058
Title of the Manuscript:	Effect of Different Zn Concentrations on Root nodulation in Yard-long bean ( <i>Vigna unguiculata</i> L.)
Type of the Article	

#### **General guidelines for the Peer Review process:**

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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#### **Important Policies Regarding Peer Review**

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**Review Form 3**

**PART 1: Review Comments**

<b>Compulsory</b> REVISION comments	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
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.	The authors have studied the effects of various concentrations of Zn (applied as ZnSO <sub>4</sub> ) on the growth and nodulation of <i>Vigna unguiculata</i> L. to determine the threshold level at which Zn is beneficial to the plant. The study has been conducted with a clear objective using suitable growth and nodulation parameters. The results are clearly presented and the conclusions are in line with the objectives of the study. As it deals with nutrient requirements of crop plants, the study is beneficial in the for academicians and researchers in the agricultural field.	
Is the title of the article suitable? (If not please suggest an alternative title)	No, currently, the article is titled "Effect of Different Zn Concentrations on Root nodulation in Yard-long bean ( <i>Vigna unguiculata</i> L)", and does not include the growth parameters on which the effects of Zn have also been studied. Suggestions: 1) Effects of Different Zn Concentrations on Growth and Root Nodulation in Yard-long bean ( <i>Vigna unguiculata</i> L.) 2) Growth and Root Nodulation in <i>Vigna unguiculata</i> L. Under Various Zn Concentrations Applied as ZnSO <sub>4</sub> 3) Effects of Various Zn Concentrations on the Morphological and Physiological Characteristics of <i>Vigna unguiculata</i> L.	
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.	The abstract of the article is comprehensive; it includes the study objective, study design, place and duration, methodology, results, and conclusions.	
Are subsections and structure of the manuscript appropriate?	Yes; they are appropriate.	
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.	The manuscript details a well-designed experiment with a clear research question, appropriate methodology, and meaningful results. The use of a completely randomized design with multiple treatments and replicates ensures reliability and statistical validity. The effects of different Zn concentrations on the growth and nodulation of <i>Vigna unguiculata</i> L. addresses a specific knowledge gap, and the dose-response analysis provides valuable insights into optimal Zn levels in relation to the test plant and its development.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. :	The references are not sufficient; some of the statements in the manuscript require references. These have been indicated below. In addition, 14 references cited are more than 10 years old (before 2014). Additional references that can be cited: 1. "It contains mineral nutrients such as Fe, Mg, Mn, K, P, Na, Ca, etc." ( <a href="https://www.medindia.net/nutrition-data/yardlong-bean-cooked-boiled-drained-with-salt.htm">https://www.medindia.net/nutrition-data/yardlong-bean-cooked-boiled-drained-with-salt.htm</a> ); <a href="https://www.nutritionvalue.org/Yardlong_bean%2C_raw_nutritional_value.html">https://www.nutritionvalue.org/Yardlong_bean%2C_raw_nutritional_value.html</a> ). 2. "Yard-long bean, a true legume, enriches the soil by fixing atmospheric nitrogen in nodules on its roots. With the help of nitrogen fixing bacteria, the plant makes its own food, maintain soil fertility, and reduce fertilizer dependence." ( <a href="https://plants.usda.gov/DocumentLibrary/plantguide/pdf/pg_viuns2.pdf">https://plants.usda.gov/DocumentLibrary/plantguide/pdf/pg_viuns2.pdf</a> ) 3. For Zn concentration levels: a. Zinc Concentration and Distribution in Vineyard Soils and Grapevine Leaves from Valdepeñas Designation of Origin (Central Spain); <i>Sustainability</i> 2021, 13(13), 7390; <a href="https://doi.org/10.3390/su13137390">https://doi.org/10.3390/su13137390</a> b. Zinc in soils, water and food crops; <i>Journal of Trace Elements in Medicine and Biology</i> 2018, 49 (252-260); <a href="https://doi.org/10.1016/j.jtemb.2018.02.009">https://doi.org/10.1016/j.jtemb.2018.02.009</a> 4. Ref. 4 cited after "Beyond its critical role in maintaining ribosomal integrity, zinc contributes to several other vital biophysicochemical processes in plants as facilitating protein synthesis, regulating gene expression, participating in carbohydrate metabolism, and playing a role in the structure and function of biological membranes [4]." does not contain any mention of the processes stated in the sentence; suggestions: a. Functions and strategies for enhancing zinc availability in plants for sustainable agriculture; <i>Front Plant Sci.</i> 2022 Oct 7;13:1033092. doi: <a href="https://doi.org/10.3389/fpls.2022.1033092">10.3389/fpls.2022.1033092</a> b. Zinc and nitrogen mediate the regulation of growth, leading to the upregulation of antioxidant aptitude, physio-biochemical traits, and yield in wheat plants; <i>Sci Rep</i> 14, 12897 (2024). <a href="https://doi.org/10.1038/s41598-024-63423-y">https://doi.org/10.1038/s41598-024-63423-y</a> (Please ensure that the reference cited accurately reflects the contents of the written sentence in the manuscript) 5. "Noxious levels of Zn in soils can result in various alterations in plants." (Zinc toxicity in plants: a review; <i>Planta</i> 2021 May 27;253(6):129. doi: <a href="https://doi.org/10.1007/s00425-021-03642-z">10.1007/s00425-021-03642-z</a> )	

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<p>Minor REVISION comments</p> <p><b>Is the language/English quality of the article suitable for scholarly communications?</b></p>	<p><b>No, currently the English quality is not suitable. The entire manuscript requires a thorough revision for language, grammar, flow, and sentence structure by a native English speaker.</b></p> <p><b>Example:</b>  <del>Zinc plays a crucial role as a micronutrient in biological nitrogen fixation, and it is likely essential for the synthesis of leghaemoglobin. When legumes experience zinc deficiency, it can lead to a reduction in both the number and size of their root nodules [3].</del> Zinc is naturally present in all soils in typical background concentrations 10–100 mg Zn kg<sup>-1</sup>. The amount of <del>zinc-Zn</del> present in the soil depends on the parent materials of that soil. Sandy and highly leached acid soils generally have low plant-available <del>zinc-Zn</del>. Soils originating from igneous rocks are higher in <del>zinc-Zn</del>. <del>Zinc plays a crucial role as a micronutrient in biological nitrogen fixation and is likely essential for the synthesis of leghemoglobin. When legumes experience Zn deficiency, it can lead to a reduction in both the number and size of their root nodules [3].</del> Zinc is a fundamental element that acts as a catalytic cofactor for various enzymes, influencing the folding, structural stability, and functionality of many proteins. <del>Beyond</del><del>In addition to</del> its critical role in maintaining ribosomal integrity, <del>zinc-Zn</del> contributes to several other vital bio-physicochemical processes in plants, <del>such</del> as <del>facilitating</del> protein synthesis <del>facilitation</del>, <del>regulating</del> gene expression <del>regulation</del>, participation<del>ng</del> in carbohydrate metabolism, and <del>playing a role in</del> <del>maintenance of</del> the structure and function of biological membranes [4]. <del>Noxious-High</del> levels of Zn in soils can result in <del>various adverse effects on plants such as reduced growth, photosynthesis, and respiration; nutrient imbalance; and increased lipid peroxidation and proteolysis, among others (ref.)</del>alterations in plants.</p> <p><b>This paragraph mentioned the role of Zn followed by its concentrations in various soil types again followed by its effects. The last sentence in the original text read vague. All levels of Zn have the capability of affecting plants; as high levels were mentioned, the text should detail specific effects of high Zn levels.</b></p> <p><b>Examples of other issues to note:</b></p> <ul style="list-style-type: none"> <li>- Use of Zn vs zinc interchangeably throughout the manuscript</li> <li>- Terminology; CRD stands for Completely Randomized Design not Complete Randomized Design</li> <li>- References should be in accordance with journal guidelines</li> <li>- Use either “Control” or T1 throughout (List 1 mentions T1 while everywhere else you have used “Control”); best avoid ambiguity.</li> <li>- Typographical errors: ZnSO<sub>4</sub>.5H<sub>2</sub>O (the comma should be replaced with a period)</li> <li>- latitude of 7° 43a N and the longitude of 81° 42a E (please correct the “a” here)</li> <li>- Unnecessary capitalization: Sandy Regosol, Plant height, Chlorophyll content, Leaf area, Fresh weight of shoot &amp; root, Dry weight of shoot &amp; root, Number of nodules, Effective nodule percentage, as well as Soil respiration</li> <li>- Methods section: Soil microbial respiration: please mention how was it measured and what are the units</li> <li>- The units need not be mentioned in the headings in the Results and Discussion.</li> <li>- Table footnotes: Also indicate what the different superscripted letters in the table represent.</li> <li>- “WAP” should be defined at the first mention in the main text as well.</li> <li>- It has not been clearly indicated why the data for plant height has been given at three stages while for the rest of the parameters, these have been given only at one stage. Please clarify this.</li> <li>- The manuscript would benefit greatly if you could insert the following figures:             <ol style="list-style-type: none"> <li>a. Experimental setup</li> <li>b. Photographs of some of the control and treated plants at all Zn concentrations</li> </ol> </li> <li>- Line 269: It is a declaration, not a disclaimer (which is a statement that denies something, especially responsibility)</li> </ul>	
<p><b>Optional/General</b> comments</p>	<p>The above instances noted are only examples. Please ensure that the manuscript is thoroughly checked for all grammar, structure, flow, typographical, and consistency in terminology issues.</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:**

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