Review Form 1.7

Journal Name:	**International Journal of Plant & Soil Science**
Manuscript Number:	**Ms_IJPSS_115072**
Title of the Manuscript:	**Phenotypic Variation and Correlation Analysis of Chickpea Germplasm under Heavy Metal Stress at Seedling Stage**
Type of the Article	

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PART 1: Review Comments

	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)*
Compulsory REVISION comments 1. **Is the manuscript important for scientific community?** (Please write few sentences on this manuscript) 2. **Is the title of the article suitable?** (If not please suggest an alternative title) 3. **Is the abstract of the article comprehensive?** 4. **Are subsections and structure of the manuscript appropriate?** 5. **Do you think the manuscript is scientifically correct?** 6. **Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.** **(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)**	**1. Is the manuscript important for scientific community?** The manuscript entitled "Phenotypic variation and correlation analysis of chickpea germplasm under heavy metal stress at seedling stage", is an experimental article that describes, through a biological hypothesis, the use and effect of a concentration of 200 µM of manganese on physiological capacity and germination of chickpea grains (*Cicer arietinum* L.). Although it is a relevant article for the scientific community, it requires severe adjustments regarding topics related to introduction and experimental contextualization, material and methods, results, discussion and conclusion. This occurs because when reading the manuscript, the authors do not provide information that is essential to generate reliability in this experimental work. Furthermore, the article emphasizes information and analyzes that were not carried out throughout the manuscript. Therefore, I consider that making corrections and suggestions necessary to obtain a better version, and a subsequent attempt to submit this work. **2. Is the title of the article suitable?** The manuscript titled as "Phenotypic variation and correlation analysis of Chickpea germplasm under heavy metal stress at seedling stage" is an interesting title to use. However, it does not present the scientific name of the grain used in this study, and although it has different germplasms or types of cultivars, it is necessary to provide the scientific name, followed by the identifier of the grain used in this study. Therefore, as a suggestion for a title, I highlight an alternative below: Effect and cytotoxic influence of high concentrations of manganese on the phenotypic variation of different chickpea (*Cicer arietinum* L.) seedlings **3. Is the abstract of the article comprehensive?** The abstract needs to be reorganized in terms of information, although there is a limitation on the number of words. This is justifiable because in this topic it is necessary to provide information related to the importance of evaluating the effect of high concentrations of manganese. Furthermore, it is important to highlight the biological hypothesis, as well as the justification for this manuscript. Furthermore, in the abstract it is important to contain a more detailed methodology, that is: How was the experiment carried out? What analyses were carried out? How many experimental groups (variables) were analysed? Additionally, what were the main results obtained? Furthermore, what do these results represent? Finally, it is necessary to draw a conclusion thinking about a future perspective for carrying out this work. **4. Are subsections and structure of the manuscript appropriate?** Initially, I will leave corrections, as well as suggestions according to the textual organization of the manuscript. Considering the highlighted approach, the following suggestions can be observed: Introduction: The introduction aims for the authors to clarify why evaluating the importance of low concentrations of manganese, and how excess of this metal can cause damage to Cicer arietinum seedlings. In	

	this sense, the introduction lacks emphasis on a justification as well as a biological hypothesis on how the authors achieved and why they decided to specifically evaluate this heavy metal? Furthermore, are there already studies using manganese and excess of this substance and how can it cause damage to seedlings? What is considered a high concentration of manganese? Why did the authors decide to evaluate this heavy metal at this concentration? Biochemically, how does this heavy metal act on plants? Are there studies involving Cicer arietinum? If so, which ones? How and in what ways can plants mitigate manganese toxicity? Does this also occur in Cicer arietinum or is it different from other seedlings? Material and methods It remains to describe the experimental design used by the authors. How was the selection of Cicer arietinum seedlings/seeds carried out? Were they performed more than once? Was this doubt generated due to the selective process for experimental selection, as well as in the germination test? Furthermore, could the sodium hypochlorite solution being used to sterilize the seeds not cause changes in this biological sample for subsequent quality assessment? What were the groups? Why were these groups used? How did the authors conclude evaluating 200 µM? Why was germination progress assessed over 14 days? What statistical analyses were used? Was a normality and homoscedasticity test performed? Was the data normal or not? If so, which tests where they transformed by? Were the seeds used as treatments? If so, it would be more interesting to employ another statistical test. Results and discussion The results do not agree with the tables, graphs and figures, requiring correction. Furthermore, the results are not interesting to discuss, since there is a specific topic for that. The discussion is confusing, requiring a reorganization of ideas. Conclusion The conclusion is confusing, and it is necessary to reorganize the ideas, as well as the actual results obtained. **5. Do you think the manuscript is scientifically correct?** For the manuscript to be correct, the severe corrections previously described are necessary. Therefore, I do not agree with the acceptance of publication of this work. **6. Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.** The manuscript requires additional information and references to make the version complete, justified and correct in detail.	

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Minor REVISION comments **1. Is language/English quality of the article suitable for scholarly communications?**	*The English language of the manuscript allowed for a good understanding of the manuscript.*	
Optional/General comments		

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)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

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