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Paper: **"Effects of Slag Applications and Salinity Stress on Greenhouse Durum Wheat (Triticum durum Desf.) Plants"**

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Peer review:

Reviewer 1: Enriko Ceko
Wisdom University, Albania

Reviewer 2: Bryce Payne
Center for Energy, Environment and Sustainability, Wake Forest University, USA

Reviewer 3: Blinded

Reviewer A:
Recommendation: Accept Submission

The TITLE is clear and it is adequate to the content of the article.

title is clear and covers well the content of the article and the study made

The ABSTRACT clearly presents objects, methods, and results.

the abstract presents well the main of the study , methodsand results . But, I have some remarks to improve the paper

Line 26-27: Please change "Steel slag have been studied" by "Steel slag has been studied"
Line 28: Please replace "In this regard" by "Therefore"
Line 30: Instead of "Two slag doses" ; "Two doses of slag"
Line 32-33: Change "Wheat exposure to salinity decreased its biomass" by "Exposure of wheat to salinity decreased its biomass"
Line 35: In the sentence "Amended plants with 10 g slag/ kg soil (D1), led to a significant improve in biomass," "improve" could be changed to "improvement"
(Line 37: "Compared to the control treatment 0 g slag/ kg soil (C)" could be changed by "Compared to the control treatment with 0 g slag/ kg soil (C)"

There are a few grammatical errors and spelling mistakes in this article.

The study METHODS are explained clearly.

Methods are clearly , I propose some modifications of forms:

L 91 to 93: change "The experiment was conducted under greenhouse conditions at Cadi Ayyad University Marrakesh, Morocco. The environmental ……..density average" by "The experiment was conducted in a greenhouse at Cadi Ayyad University in Marrakesh, Morocco. Temperature inside the greenhouse during the experiment was 25.5 °C, relative humidity of 68.5% and photon flux density of 410 μm−2 s−1 "

L98 to 103: rephrased the sentence "The slag, which is a by-product obtained from the "Concamine" company based in Berrechid, Morocco,……;Table 1." I proposed "The slag used in the experiment was obtained from the "Concamine" company in Berrechid, Morocco, and was composed of a variety of chemical elements and oxides. The majority of the slag was made up of CaO and ortho-phosphates (PO43-). The elemental analysis of the slag using energy dispersive X-ray (EDX) analysis showed the presence of different chemical elements, including carbon, oxygen, iron, sodium, magnesium, ……...slag products were

used in the form of a fine powder and their composition is presented in Table 1."

L 112: replace"Wheat seeds" by "The wheat seeds"

L 117: "Factorial arrangement" can be replaced with "factorial design"

Line 162: change "According to the method given by Madhava Rao and Sresty (2000), malondialdehyde (MDA) was measured." By "malondialdehyde (MDA) was measured following the method described by Madhava Rao and Sresty (2000)"

The body of the paper is clear and does not contain errors.

The study carried out is very interesting and deserves to be published, however some remarks of form in the different sections (see attached file) to improve the quality of the Manuscript

The CONCLUSION or summary is accurate and supported by the content.

some remarks of form below to improve the quality of the Manuscript
Abstract
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Introduction
Line 46: reformulate " With the world's population that is estimated to grow to around 8.5 billion " by " With the increasing of the world's population that is estimated to achieve 8.5 billion"
Line 49: change "plays a great role" by "plays a significant role"
Line 53-54: the sentence "One of the most popular cereal crops worldwide ……..." could be rephrased by "Durum wheat is a widely consumed staple grain and contributes to 20% of the total dietary calories and proteins globally."
Line 56: replace "bread wheat" by "common wheat"
L 56: rephrase "planted less frequently than bread wheat" by "less commonly cultivated than common wheat"
L 75-76: change "Different types of steel slag had a good effect" by "Various types of steel slag have shown positive effects"
L80: replace "increase in the content ……" by "increases in the ……."

Materials and methods
L 91 to 93: change "The experiment was conducted under greenhouse conditions at Cadi Ayyad University Marrakesh, Morocco. The environmental ……..density average" by "The experiment was conducted in a greenhouse at Cadi Ayyad

University in Marrakesh, Morocco. Temperature inside the greenhouse during the experiment was 25.5 °C, relative humidity of 68.5% and photon flux density of 410 μm−2 s−1 “

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Line 222: replace “Salt stress resulted in” by “ Salt stress induced”

Fig 2 , Fig 3 and Fig 4 change in legend 100 Mm by 100 mM
Line 276 must be placed before table 4
Line 286-287: change “may be important for understanding, analyzing, and improving defense strategies of durum wheat plant.” to may be important for understanding, analyzing, in order to use it for improving defense strategies of durum wheat plant.
Line 315: change this “that contribute to a plant's ability” to this “that contribute to the plant's ability”

Conclusion
Please replace "Slag-based fertilizers promote the growth of T. durum plants at lower amendment levels (10 g slag/kg soil)." by "Slag-based fertilizers promote the growth of T. durum plants at lower amendment levels, specifically at 10 g slag/kg soil." (Line 366)
Line 368: change "In contrast,” by “ However, “
Line 369: " and caused a decline in growth and physiological parameters of wheat” can be changed by " resulting in a decline in growth and physiological parameters of wheat."
Line 372-375"Interestingly, these results strongly support the hypothesis that slag-based fertilizers with a rate of 10 g slag/ kg soil develop salt-adaptive strategies through the influence of plant mechanisms, such as better efficiency of PSII, osmolyte accumulation and mineral nutrition, which are important mechanisms in tolerance of durum wheat seedlings to salinity."
Line 376-378: change "As a perspective of this work, Slag-based fertilizers with a level of 10 g slag/ kg soil will be tested in the field in order to evaluate the effect of

this bio-stimulant on the biomass and grain yield, which is the most important for the farmers." By "As a perspective of this work, Slag-based fertilizers at a low rate will be tested in the field to evaluate the effect of this fertilizer on biomass and grain yield, which is crucial for farmers." ()
Line 378: replace "Some treatments with hydric stress in combination with the slag fertilizers will be also evaluated." By "Additionally, some treatments with water stress in combination with slag fertilizers will be evaluated"

The list of REFERENCES is comprehensive and appropriate.

Reference list is appropriate

Please rate the TITLE of this paper.

[Poor] **1-5** [Excellent]

5

Please rate the ABSTRACT of this paper.

[Poor] **1-5** [Excellent]

4

Please rate the LANGUAGE of this paper.

[Poor] **1-5** [Excellent]

4

Please rate the METHODS of this paper.

[Poor] **1-5** [Excellent]

5

Please rate the BODY of this paper.

[Poor] **1-5** [Excellent]

5

Please rate the CONCLUSION of this paper.

[Poor] **1-5** [Excellent]

5

Please rate the REFERENCES of this paper.

[Poor] **1-5** [Excellent]

5

Overall Recommendation!!!

Accepted, minor revision needed

Comments and Suggestions to the Author(s):

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Reviewer W:
Recommendation: Revisions Required

The TITLE is clear and it is adequate to the content of the article.

Yes

The ABSTRACT clearly presents objects, methods, and results.

Yes

There are a few grammatical errors and spelling mistakes in this article.

There are some.

The study METHODS are explained clearly.

Yes

The body of the paper is clear and does not contain errors.

Yes

The CONCLUSION or summary is accurate and supported by the content.

The conclusions should be listed 1, 2, 3, 4, ... and not as a paragraph...
The conslusions should be followed by recommendations, as per the same list 1, 2, 3, 4 where the first recomendation should referes to the first conclusion and so on...

The list of REFERENCES is comprehensive and appropriate.

Yes

Please rate the TITLE of this paper.

[Poor] **1**-**5** [Excellent]

4

Please rate the ABSTRACT of this paper.

[Poor] **1**-**5** [Excellent]

3

Please rate the LANGUAGE of this paper.

[Poor] **1**-**5** [Excellent]

3

Please rate the METHODS of this paper.

[Poor] **1**-**5** [Excellent]

4

Please rate the BODY of this paper.

[Poor] **1**-**5** [Excellent]

4

Please rate the CONCLUSION of this paper.

[Poor] **1-5** [Excellent]

3

Please rate the REFERENCES of this paper.

[Poor] **1-5** [Excellent]

4

Overall Recommendation!!!

Accepted, minor revision needed

Comments and Suggestions to the Author(s):

The authors should take into consideration other researches and field experiments with steel slag, especially those related to acid soils, as well as to deepening the study on the type of chlorophyll type A, B, C and so on in leaves of wheat, and other cultures (if possible, in the future lab experiments and field experiments too).

Reviewer Y:
Recommendation: Revisions Required

The TITLE is clear and it is adequate to the content of the article.

Title is "Effects of slag-based fertilizer to mitigate salinity stress on greenhouse durum wheat (Triticum durum Desf.) cultivars".
I suggest "Effects of slag applications and salinity stress on greenhouse durum wheat (Triticum durum Desf.) plants "

The ABSTRACT clearly presents objects, methods, and results.

There are some areas where wording on methods and data graphs are not adequately clear. I have marked items that need revision in the attached, marked-up file. NOTE: Text I suggest be removed/revised is "crossed out" (has a line through it). Text I

added/suggested as replacement is in red font. When crossed out text was redundant or unnecessary, there is no revision in red font.

There are a few grammatical errors and spelling mistakes in this article.

I have edited most grammatical and spelling mistakes in the attached file.

The study METHODS are explained clearly.

Some of the methods used are not clearly described. I also marked and made suggestions for revisions (red font).

The body of the paper is clear and does not contain errors.

The body of the paper is clear and does not contain obvious errors. I suggest that the explanation of the various plant stress indicator parameters (PS II, TSS, gs, etc.) should be moved from the discussion section to the introduction section of the paper. It is generally more effective to let readers know why you are measuring something before you present procedures for or data from such measurements.

The CONCLUSION or summary is accurate and supported by the content.

This section presents a summary of reasonable conclusions supported by the content of the paper. Again, I offer some revisions/suggestions in the attached file.

The list of REFERENCES is comprehensive and appropriate.

List of REFERENCES appears appropriate and adequate, but I do not have time for a full review and evaluation of the References or use of them in this paper.

Please rate the TITLE of this paper.

[Poor] **1**-**5** [Excellent]

3

Please rate the ABSTRACT of this paper.

[Poor] **1**-**5** [Excellent]

4

Please rate the LANGUAGE of this paper.

[Poor] **1**-**5** [Excellent]

3

Please rate the METHODS of this paper.

[Poor] **1-5** [Excellent]

4

Please rate the BODY of this paper.

[Poor] **1-5** [Excellent]

4

Please rate the CONCLUSION of this paper.

[Poor] **1-5** [Excellent]

4

Please rate the REFERENCES of this paper.

[Poor] **1-5** [Excellent]

4

Overall Recommendation!!!

Accepted, minor revision needed

Comments and Suggestions to the Author(s):

See attached file with revisions/suggestions. I suggest a bit more caution in statements regarding some of the methods used. A number of the methods used appear to be "indicator/qualitative methods" rather than "quantitative methods". I do not see this as a serious flaw in the paper, but one should be careful about overextending conclusions with regard to causative mechanisms when those mechanisms are not directly and/or quantitatively evaluated, but, instead, evaluated by measuring parameters that may be

affected by more than one factor/mechanism/process, or are indirect evaluations of the mechanisms of interest.
