Manuscript reference: plants-2412200

Answers to Reviewers and Editor of the manuscript:

“Common bean productivity and micronutrients in the soil-plant system under residual applications of composted sewage sludge”

The authors would like to sincerely thank both the Editor and Reviewers for their useful comments and suggestions, which were carefully considered and incorporated into the revised manuscript.

The changes made in response to Reviewer’s comments are highlighted in yellow in the “Revised manuscript 20230518”.

In particular:

Reviewer #1:

1.1. Based on my previous expertise, your manuscript titled "Common bean productivity and micronutrients in the soil-plant system under residual applications of composted sewage sludge" is of high quality, and contains important results for plant scientists.
1.2. I suggest to read through the entire manuscript, the English style and grammar need some corrections.
1.3. Anyway, I suggest to maintain the structure and content of the manuscript as it is now, it is clear and understandable, with quality discussion and acceptable conclusions.

Response to Reviewer comments

Note 1.1: Thanks for your kind comments. We really appreciate it. Please note that all your suggestions were considered. Please note the following points.

Note 1.2: Please kindly note that the paper has been edited and double-checked by an English mother-tongue colleague’ expert in this field, i.e., Prof. Arun D. Jani, one of the paper’s co-author. He is a native US-citizens, working in this field for several years and with considerable experience in paper writing, reviewing, and Editing too.

Note 1.3: The structure and content has been maintained but some changes has been done following Reviewres#2’s suggestions.

Reviewer#2:

MATERIALS AND METHODS

2.1. Line 443 - The authors should include table 1 and a comment on the chemical-physical characteristics of the soil because some of them, for example the pH, the cation exchange capacity, the organic carbon content, influence the dynamics of micronutrients and heavy metals in the soil system- plant.
2.2. Line 454- In Figure 14 check and replace HR with RH.
2.3. Line 473 - The authors should insert table 2 in the text of the paper. Some characteristics of the compost, as well as for the soil, can affect the mobility of nutrients when compost is applied to the soil.
2.4. Line 463- Authors should assign a acronym to each treatment (CSS rates and Control), not just conventional fertilization. These acronyms must be reported in the text and in all the figures in order to allow each measured value to be associated with the relative treatment. Otherwise the results and figures are difficult to read.
2.5. 527 "Nutritional parameters of bean culture" The authors should better detail the preparatory phase of the plant samples because in materials and methods they write only leaves. In the results they also write about grains and shoots.
2.6. How did they determine the crop productivity?
2.7. Line 536-540 Authors should clarify in paper what they mean by export and how they calculated it.
2.8. Do they mean the uptake of micronutrients which is obtained by multiplying the concentrations in plant per dry plant biomass?

RESULTS

2.9. Line 106 - The X labels of the different treatments must be reported in all the graphs under the x axis (fig.1,2, 5-10). In this version of the paper, reading the results and comparing them with the graphs is neither simple nor immediate.
2.10. Line 217- "Extraction and export of micronutrients" in shoots, crop, grains? Authors should specify for consistency with discussion of data.
2.11. What do the authors mean by extraction and export? Authors should clarify in paper. Regarding the micronutrients export, how was it calculated?
2.12. Do they mean the uptake of micronutrients which is obtained by multiplying the concentrations in plant per dry plant biomass?
2.13. Line 218 - shoots? crop? Authors should be consistent with the terminology used in all sections of the text and in figure 7, 8 captions.
2.14. Line 262 - export: see previous comment line 217.
2.15. "micronutrients carried out by bean plant" plant or grains? (see fig. 9 caption)
2.16. Line 292 specify grains export.

DICUSSION

2.17. Line 329 The authors did not present data on soil organic matter. Did they analyze the soil before and at the end of the first and second year of experimentation? They should present the data.
2.18. Line 336 - The behavior of Cu and Zn, both in total and available form, depends on the type of bonds they form with the different fractions of organic matter in the soil. The authors should present at least the physico-chemical characterization of the soil in order to broaden the discussion on the behavior of these two metals in the two years of experimentation.
2.19. Line 354 -What is the meaning of this sentence? It is an incomplete sentence.
2.20. Line 359-365 - This sentence should be placed in the introduction.

2.21. Line 377 - The authors did not present Table 1 in the supplementaty files. However, table 1 with the characterization of the soil should be presented in the text.

Response to Reviewer comments

Note 2.1: Thanks for your kind comments. We really appreciate it. Please note that all your suggestions were considered as following reported. First of all, Table 1 has been included in the main text and soil physical-chemical properties discussed. Please note line 346.

Note 2.2: Changed per suggestion. Please note line 477.

Note 2.3: Table 2 has been included in the main text and its influence of obtained results discussed. Please note line 351.

Note 2.4: Changed per suggestion. Please note the entire text.

Note 2.5: Done. Please note lines 560-565.

Note 2.6: Information added. Please note lines 568-575.

Note 2.7: Done. Please note lines 568-575.

Note 2.8: Yes.

Note 2.9: Changed per suggestion. Please note all Figures.

Note 2.10: Specified. Please note lines 219-221.

Note 2.11: Talking about extraction and export, kindly see the previous notes. In particular, as already specified (*vide supra*), micronutrient export was determined by the concentration of nutrients in the grains by the dry mass, and extrapolated by the area.

Note 2.12: Yes.

Note 2.13: We better explained this point in lines 219-221.

Note 2.14: Specified. Please see Note 2.10.

Note 2.15: Specified. Please see line 266.

Note 2.16: Changed per suggestion. Please note line 296.

Note 2.17 and 2.18: Please kindly note that we are still investigating this specific aspect that will be the main scope of a future paper. Data are not still available. However, since we agree with Reviewer#2 that this is an important point, we focused on it as a future step in the research activity. Please note lines 595-597.

Note 2.19: The sentence has been rewritten. Please note lines 378-383.

Note 2.20. Thanks for your suggestion. However, we think that it should be left here since it was important to underline obtained results also from a practical viewpoint. This is the reason why we kindly ask Reviewer#2 to rethink about its suggestion.

Note 2.21: Done. Please see Note 2.1.