

Review

Title : Straw and biochar co-application: A strategy to reduce Cd–Zn bioavailability, alleviate microbial nutrient limitations and enhance soil C stability

The manuscript idea is wonderful and interesting, as the study aims to evaluate the effect of different ratios of straw to biochar (incubation experiment for 90 day) to provide an optimal strategy for treating soil contaminated with cadmium and zinc, and to study their ability to treat soil contaminated with these heavy metals, and also to study the availability of microbial nutrients, the carbon cycle, and the elements available in the soil (soil fertility). The topic is important, and manuscript fits with the scope of the journal. The manuscript is very well written, the effort is very evident, and the way the results are presented is excellent. But it has some weaknesses associated with the presented data and discussion have shortcomings as discussed below. Therefore, the current version of the manuscript needs major revision to be published in (egusphere). There are several issues must be addressed.

Major comments

1. Line 64: What is the texture of the soil used in the study?
2. Line 96: please add the reference of microbial biomass estimation.
3. Line 110: in statical analysis, the experiment was CRD or WHAT....?
4. Line 119: It says the results were on days 30, 60, and 90... Please clarify this in the materials section.
5. In Results and discussion section.... Please write the value of heavy metals concentration not the reduction rate only to clarify the result more.

6. Line 145: please add reference.
7. Figure 2: illustrate CO₂ flux and (b) accumulation of different treatments in different time.... please clarify it in material section.
8. In general, please specify the days on which the measurements were taken in more detail in material section.
9. Please provide a more detailed and clearer explanation of why these transactions were the best or worst in value. What is the underlying reason for this?
10. Figure 3: please write down the day the measurement was taken.
11. The title of Figure 4 needs further clarification and detail, with the full name written next to the abbreviations.
12. Line 193: what do you mean by “cultivation progressed”?
13. Figure 5: please write down the day the measurement was taken for further clarification.
14. Line 208: Soil microbial biomass. Please write the discussion in a more detailed manner and cite scientific references in this section.
15. Line 265: Correlation and principal component analysis. Please write the discussion in more detail and cite scientific references in this section.
16. References are generally very good, but they need to be expanded and cite recent research related to the research topic.

Overall, the research is very good and the idea is excellent, but please cite more references in the discussion as there are sections without definitive references. Also, please include the original measured value compared to the control or initial value, and not just the percentage increase or decrease. The number itself indicates the actual concentration.