Title: Biochar's role in improving cabbage quality and microbial community structure in rhizosphere soil

In this study, the authors have evaluated the effects of different concentrations of bio char on growth and productivity of Chinese cabbage. Simultaneously, a correlation has been tried to establish among different biochemical and microbiological properties of cabbage cultivated soil and the optimum bio char concentration. The addition of bio char into soil for different benefactions is a well-established technology; hence this manuscript lacks a serious and innovative novelity in this regard. Though, the evaluation of bio char concentration for cabbage cultivation could be a significant step for successful propagation of this technology into different aspects of agricultural studies. The experiments are well framed but, methodology needs to be precisely expanded to widen the ambit of this study. The results aren't described thoughtfully, and there are some pernicious ambiguities also in the description and inferences of out comings.

With this, pl. find below some comments for the improvement of this manuscript.

Introduction

Ln 54-55 it's a repetitive information. Pl. remove

Ln 58-65 the sentences are without any context and suitable references. Add subject matter, e.g. in which experiment, in combination or alone, and how much bio char has been used. Pl. correct

The use of acronyms in the text isn't appropriate. Pl. write full name and its acronym in parenthesis with first usage, and short form continuously then after.

Ln 71-73 the addition of bio char affected which dominant bacterial groups? Pl. elaborate this precedent.

Ln. 71-72 the microorganisms mentioned here are common soil dwellers which affect the plant growth. Why not to mention/discuss some specific species of microorganisms which specifically known to improve crop productivity in combination with bio char.

Ln 75-79 Repetitive information. Either modify or remove

Ln 79-80 the importance of bio char in nitrate accumulation in plants has been described by the authors in introductory paragraph (Ln 51-65). So there seems to be no gap in this regard. Pl. justify the statement

The introduction has been written as a collection of reports on different case studies. Number of precedents have been given; however with very limited information. Therefore, the introduction need to be modified to make it relevant in terms of sufficient information of available research.

Materials and methods

Ln 107-108 "The same compound fertilizer" which one?

Ln 116 Incubated for how much time at 75 °C?

Ln 119 Expand VC as earlier in the manuscript full form isn't provided either.

Ln 123-125 Pl. add respectively at the end of the sentence if the dye staining for soluble protein and acid hydrolysis method was used for total cellulose content. If not, then reframe this sentence.

It is generally preferred to briefly explain the methods used for different experiments. Pl. do the needful wherever some specific methodology/assays have been used.

Ln 127 "tomato seedlings"?

Ln 132, 138 Expand TTC, EC

Ln 145 Pl. correct "described by Magoc and Salzberg)"

Ln 146-147 Pl. correct "v338f-v806r and its1737f - its2-2043r". Use standard terminology to note the name as well as sequence information of primer pairs.

Results and discussion

Ln 159-162 what are the exact results then when 3%, 5% as well as 7% bio char treatments increasing dry root weight of cabbage produce.

Ln 165-168 the soluble sugar content isn't significantly high T2 (Table 3).

Ln 172 Pl. correct "Effects of Different Concentrations of Biochar on Soil Nutrient and Enzyme Activities" titles should be in sentence letter case.

Ln 174-175 there is no significant different could be observed in the activities of Urease and Phosphatase (Table 4). Pl. modify accordingly.

Ln 178-179 pl. remove the sentence.

Ln 180-187 pl. revisit the data interpretation of Table 5. Some of the values are not significantly enhanced or depleted as compared to the CK control and other experimental variants.

Figure 1 Why not to include more conclusive taxonomic hierarchies like phylum, genus or species. Pl. include other taxon levels also to conclude the findings more precisely. Moreover, except *Anaerolineae,* there is no significant variation seems to be in data on this level.

The resolutions of Figure 2 aren't good enough to understand the representation. Pl. improve

Ln 195 Pl. correct "Adding different biochar"

Figure 4A what does this "All between treat" and "All within treat" denotes.

Ln 227 Pl. correct "COSS, nr,"

Figure 5 has been subdivided into A and B parts but not described in the text. Pl. correct

Figure 6 what is this "General function prediction only" which has highest proportion percentage; however, not defined in the text.

Ln 234 "Cell motility" doesn't seems to be highly regulated in either CK or T2 in Figure 6. Pl. correct

Figure 6 and 7 both need improvisation in terms of data interpretation. Pl. modify the text according to the data given in the figures.

I think the difference shown in the functional profiling in Figure 6, 7, and 8 has been intentionally highlighted by increasing the Proportion (%) scale to 42.8 in Figure 8 and keeping this scale between 0.0-12.9 in case of Figure 6 and 7. Pl. correct this ambiguity.

I also couldn't understood the rationale behind studying the functional potential using the sequencing data of short variable region (V3-V4) only.

Ln. 279 Pl. correct "biochar Addition based"

Ln. 301-304 this has been already mentioned in the results. Pl. remove

The discussion should be focused on the interpretation of results not repeating them. Pl. modify accordingly.

Ln 341 Pl. correct "genus of acid microorganisms".