

## **Point-by-Point Response to editor's Comments**

Dear Editors,

Thanks for your valuable comments and suggestions, and for allowing us to resubmit our manuscript (egosphere-2024-2498) entitled “Status and influential factors of soil nutrients and acidification in Chinese tea plantations: A meta-analysis”. We made careful modifications according to your comments and suggestions. The revised text is marked in blue in the “Soil nutrient status in China-Soil - with tracks” file. We hope that the revised manuscript can meet the standards of *Soil*. Our responses to your comments and suggestions are as follows.

We are looking forward to hearing from you.

Yours Sincerely,

Wanqin Yang et al.

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Here are our responses to all the comments one by one.

### **Overall comments**

Thank you for submitting the revised version of your manuscript. In terms of content, I am mostly satisfied with the edits to your manuscript. The main two comments that I would please ask you to address refer to: a) comments 7 and 11 of reviewer 2, which could be changed using my suggestions for Table 1 (see attached), and b) comment 8 of reviewer 2, which could be addressed with my comment in section data analysis (see attached).

Some other minor changes can be seen in the attached PDF.

*Response:* Many thanks for your positive comments and valuable suggestions. The manuscript has been revised accordingly. For detailed revisions and responses, please see the following specific responses.

In terms of style, I would like to ask the authors to have a good read through the text to increase the quality. I pointed out some things in the attached PDF. I would also recommend having an English

native speaker or professional editor to have a read through the manuscript. The English is decent, but there are some areas where it needs improving.

*Response:* Many thanks for your kind suggestions. We have thoroughly upgraded the manuscript to identify and correct any errors. Additionally, the manuscript has been reviewed by a professor from the University of Nottingham Ningbo China, who is an English native speaker.

### **Comment 1**

Line 26: In italics; Please check that all scientific names are in italics along the text.

*Response:* Many thanks for your comment and suggestion. The mistake has been corrected. Please see the revised manuscript (Line 26).

### **Comment 2**

Line 32: are; Please, give the text a good read all along to correct for grammar mistakes.

*Response:* Many thanks. All grammar mistakes were checked and corrected by a English-speaking professor from the University of Nottingham Ningbo China. For detailed revisions, please refer to the corrected words in blue within the revised manuscript which has change tracking enabled. For detailed revisions, please see the updated manuscript.

### **Comment 3**

Line 93: This should be the title of the next section.

*Response:* Many thanks for your comments. The mistake has been corrected (Line 94) in the updated manuscript.

### **Comment 4**

Line 112: where we collected data from used the Chinese....

*Response:* Many thanks for your comments. The mistake has been corrected (Line 113) in the revised manuscript.

### **Comment 5**

Line 117: Please, move this table to the appendix, and instead add a table to explain the main characteristics of your soil types, such as parental material, or other main characteristics, so the soil names can be understood by the international readers.

Please, include the main soil type in each region that you divided your analysis into.

This refers also to comment 11 of referee 2.

*Response:* Many thanks for your comments and suggestions. Table 1 has been moved into the appendix. A new table describing the characteristics, formation processes and the distributions of representative soil types in tea cultivation areas has been added to the revised manuscript. For detailed revisions, please refer to the revised Table 1 in the revised manuscript. In terms of the main soil types in each cultivation zone, we had summarized this in another paper (Wang, et al., 2023). We added the reference in the revised manuscript (Line 98). We also discussed the influence of formation processed on soil pH in the discussion section in the revised manuscript (Lines 209 – 300).

## **Comment 6**

Line 131: how?.

*Response:* In some studies, the stoichiometric ratios of soil nutrients were expressed in terms of molar mass. In this cases, the stoichiometric ratios were transformed by multiplying the molar mass of each element. We have added the explanation in the updated manuscript (Lines 129 – 132).

## **Comment 7**

Line 135: I would recommend to try to do a multi-way ANOVA, or some sort of other multivariate analysis to better address comment 8 of reviewer 2. It is clear that Location, climate, soil type, and soil management affect your results. However, it would be interesting to know which of those affects the results the most, as asked by Reviewer 2.

This can be reported as just one table with the results of a multi-way anova, for example. No massive extra information is needed.

*Response:* Many thanks for your suggestions. During the data analysis stage, we attempted to analyze the contributions of influential factors on the status of soil pH and nutrients using random forest analysis; however, the numbers of data points for nutrients and pH varied, and there were insufficient datasets containing all influential factors, which would introduce uncertainty. Therefore, we decided to abandon this approach. In this revision, we compared the standardized beta coefficients from regression analyses to assess the effect strengths of longitude, latitude, elevation, MAT, MAP and the stand age of tea plantations on soil nutrients and pH. Furthermore, multi-way ANOVA was performed to explore the effect strengths of soil classification and fertilizer strategy on soil nutrients and pH. The methods have been detailed in the revised manuscript (Lines 147 – 150). A new section (3.4 3.4 The effect strengths of influential factors on soil nutrients and pH) and two tables (Tables 9 – 10) have also been added to the revised manuscript to describe the results.

## **Comment 8**

Line 150: Figures.

*Response:* Many thanks for your comments. The mistake has been corrected (Line 159 in the revised manuscript), and similar mistakes have been corrected.

## **Comment 9**

Line 151: Tables.

*Response:* Many thanks for your comments. The mistake has been corrected (Line 160 in the revised manuscript), and similar mistakes have been corrected.

## **Comment 10**

Table 3: This decimal place is irrelevant, and inconsistent with the other numbers in this table. Please check all along the text for consistency in the selection of significant figures. Please, note that significant figures is not the same than decimal places.

*Response:* Many thanks for your comments. We checked our original data and found that 1244.8 was an extreme outlier. After excluding this number, we reanalyzed the data. The related contents have also been updated. Please see the updated Tables 1 and 6 and Figure 5 in the revised manuscript.

## **Comment 11**

Table 4: Please, make sure the tables can be read by themselves without further support from the text. I would recommend to either include this as a footnote in the table, or change for Precipitation or Temperature.

*Response:* Many thanks. Footnotes have been added under the table to explain MAT and MAP (Line 229 in the revised manuscript).

## **Comment 12**

Line 316: correlation is not causation. Please check for accurate vocabulary along the text.

*Response:* Many thanks for your suggestion. The sentence has been rephrased (Lines 328 – 329 in the revised manuscript), and similar expressions have been checked and corrected.

## **Comment 13**

Line 320: I suspect this figure was done with R, please add this to the methods, and reference appropriately.

*Response:* Thank you very much. This figure was generated using OriginPro 2024. We have added this information in the methodology section of the revised manuscript (Lines 146 – 147).