

Interactive comment on “Effects of fresh and aged biochars from pyrolysis and hydrothermal carbonization on nutrient sorption in agricultural soils” by M. Gronwald et al.

M. Gronwald et al.

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Dear Referee, Many thanks for your comments which helped to improve our paper. We found your suggestions very useful and have undertaken the revision of the manuscript and considered all of them.

Anonymous Referee #1 (C12-C13) Received and published: 09 February 2015.

1. Please be consistent with some terms like pyrochar, hydrochar, biochar and charcoal. If the authors would like to focus on pyrochar and hydrochar, please use just those terms.

C125

Reply: Both you and reviewer #2 criticized the large number of different terms used. Therefore, we decided to only use the term ‘char’ when we talk about both char types and to only use the terms ‘pyrochar’ or ‘hydrochar’ separately when we talk about one of them. Accordingly, we changed the term ‘biochar’ in the main title of the paper to ‘char’. Additionally we wrote a definitions for these terms in the introduction and how we use them throughout the manuscript (revised manuscript page 2, line 20-32).

2. Page 33, from line 21; please define DOC since it is the first time to be used.

Reply: Thank you for this hint. We defined this abbreviation as ‘dissolved organic carbon’ (revised manuscript page 4, line 19).

3. Page 37: How was CEC measured?

Reply: We did not measure CEC immediately after shaking the mixtures. We made separate char-soil mixtures for determining CEC. CEC was measured as potential CEC with the standard method after ISO 13536:1995. We corrected our writing and added this to the Materials & Methods section (revised manuscript page 8, line 6-7).

4. Page 39: Statistical analysis is not complete. It is only focused on adsorption processes.

Reply: We hope that we have understood your comment correctly by assuming that you were referring to the statistics on the effects of washing, which was indeed missing in the Material & Methods section and were added in the revised manuscript. Besides the statistical procedures for the adsorption experiments, we tested for differences between unwashed and washed chars with the unpaired t-test (revised manuscript page 9, line 18-19).

5. Page 40: Please give some explanation about Hydro200, Hydro250. The reader needs to be reminded here about those treatments.

Reply: We added a short repetition of the definitions for the used terms in the beginning of the result section (revised manuscript page 9, line 24-26).

C126

6. Page 42, line 26: Is 8-2 % correct???

Reply: We switched the values from lowest to highest (2-8 %) and completed the values with the addition 'depending on the nutrient solution concentration' (revised manuscript page 11, line 14).

7. The results section particularly sorption of phosphorous is very difficult to be understood. It needs to be rewritten.

Reply: We rewrote the entire results section and shortened it considerably (from 2.476 words to 1.982 words) in order to make it more easily readable.

8. Reference list needs to be edited.

Reply: We are not completely sure in which way the reference list needs to be edited. In any case, we used the Corpernicus/SOIL EndNote template for editing the references. Additionally, we did a thorough spell-checking for all names etc. in the reference list.

Interactive comment on SOIL Discuss., 2, 29, 2015.