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Interactive comment on "Can worms be used to produce amendments with reduced CO_2 emissions during co-composting with clay and biochar and after their addition to soil?" *by* J. Barthod et al.

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Dear reviewer 2, We sincerely appreciate your interest in our study and would like to thank you for your time and effort. We took into consideration your recommendations and suggestions you've made to improve the paper. The following was done:

Reviewer 2: Comment 1. Line 83-84-the authors say that there are no studies that investigated the effect of biochar as a co-composting agent during vermicomposting, I would point out the research reported by Malinska et al.2016 in Ecological Engineering on "The effect of precomposted sewage sludge mixture amended with biochar on

the growth and reproduction of Eisenia fetida during laboratory vermicomposting"-the authors investigated the effect of biochar on reproduction rate, biomass and mortality,

Line 83-84: we will add this reference to our study and take it into account in our discussion. Thank you for this information and reference.

Comment 2: biochar was produced in unusually high temperature, what is the reason for that?

The biochar used in this study was produced at high temperature (1200°C) by gazification. Biochar obtained from the gasification system shows similar physico-chemical caracteristics as biochar obtained with pryolysis, but these biochars have a different structure, with higher macroporosity (Brewer et al, 2009). Moreover, the production at high temperature may imply a high chemical recalcitrance against biological decompostion. We used this biochar because it was well characterised in particular with regards to absence of toxic compounds like PAH and dioxine (Wiedner et al., 2013), which might have influenced worms' activity.

Comment 3: did the authors analyze the chemical composition of biochar? and 4: also, did the authors analyze biochar for surface area and microporosity? : The chemical composition of the biochar used has not been analyzed in this study. But we used the same biochar as previous authors (Wiedner et al, 2013) of agro-inductrial biomass on a commercial scaleÂăwho have analyzed its. This information was added to our manuscript. Unfortunately, we did not analysed the specific surface area and microporosity of this biochar.

Comment 5: there is little information about composting in the article, i.e the duration of composting (from my understanding that was the first step), the size of the reactors, temperature during composting.

In this study, we did not consider the whole composting phase because we used a pre-composted material from a composting plat-form in windrows. As mentionned in

the section 2.1, the pre-composted material was sampled after 4 month of composting in windrows. In our study, we used this pre-composted material mixed with different additives and ended the composting process in 2L jars. The temperature of our step was maintained to 20°C , due to the presence of worms. This information was added to the manuscript.

References

Brewer C.E, Schmidt-Rohr K., Satrio J.A. and Brown R.C. (2009) Characterization of iochar from fast pyrolysis and gasification systems. Environmental Progress and Sustainable Energy 28-3, 386-396.

Wiedner K., Rumpel C., Steiner C., Pozzi A., Maas R. and Glaser B. (2013) Chemical evaluation of chars produced by thermochemical conversion (gasification, pyrolysis and hydrothermal carbonization) of agro-industrial biomass on a commercial scale. Biomass and bioenergy 59, 264-278.

Please also note the supplement to this comment:
http://www.soil-discuss.net/soil-2016-35/soil-2016-35-AC2-supplement.pdf

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