

SOIL Discuss., referee comment RC1
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Comment on soil-2021-110

Anonymous Referee #1

Referee comment on "Pairing litter decomposition with microbial community structures using the Tea Bag Index (TBI)" by Anne Daebeler et al., SOIL Discuss.,
<https://doi.org/10.5194/soil-2021-110-RC1>, 2021

General comments

The manuscript "Pairing litter decomposition with microbial community structures using the Tea Bag Index (TBI)" combines recently widely applied Tea Bag Index, introduced by Keuskamp et al. (2013), with data on microbial diversity and abundance in soil, green tea and rooibos litter, which should explain the decomposition patterns across three habitats in vineyards. In the whole, the study is rather interesting and highlights the importance of decomposers communities for early stages of decomposition of less or more recalcitrant litter across four seasons. The results are novel, tested hypotheses are clear, the applied methods are relevant, and the results are well discussed and consider the recent literature. The title and the abstract reflect the content of the manuscript. The presentation quality is good.

Special comments

I have not detect any serious flows in this study, therefore there are few comments to improve the manuscript.

In introduction it would be good to add some information about stabilization mechanisms, and which factors other than microbes, may influence it, such as links with cations of Al or Ca. Also some notes about the mechanism of colonization of tea bags by bacteria and fungi would be relevant. While fungi proliferate with hyphae, how do bacteria reach tea bags? Is it known, if all the groups of bacteria have the same possibility to get inside the tea bag, so only best decomposers increase their abundance?

Lines 102 – 103: Add the reference to soil types.

Line 202: "The results were surprising..." May be, the lack of correlations of some soil properties with decomposition rate may be caused by small gradients, at least in pH, which is important for microbes activity, and within this study covers only good conditions for decomposition.

Figure 3 has the panels too small and rather difficult to explore. Instead, Figure S3 with ordination results clearly shows the differences between spectra of decomposers, and I'd like to see it in the main text.

Technical comments

Lines 116 – 118: The references Tatzber et al. (2015), Keeney (1982) and Kandeler (1993) are absent in the list of references.

Line 133: "were collected at each season for comparison." – This needs clarification. The comparison of microbial community structure?

Line 210: at low temperatures.

Line 224: Table 1 shows.

Lines 266 – 267: sort references by years.

Line 272: "soil green tea and rooibos" – comma after soil.

Also check for the spelling of word "Stabilisation" (as it is usually given in the text) versus "Stabilization" (line 252), the last should be correct. The same about the word "colonization".

Please also note the supplement to this comment:

<https://soil.copernicus.org/preprints/soil-2021-110/soil-2021-110-RC1-supplement.pdf>