

Interactive comment on “Relation of aggregate stability and microbial diversity in an incubated sandy soil” by F. Büks et al.

Anonymous Referee #1

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This study addressed a very interesting question and appears to be overall nicely executed and the manuscript is well written. My main concern with the study is inadequate number of replications, the lack of statistical significance that probably ensues from it, and inadequate treatment of that lack of statistical significance.

If I understand correctly, there were only three true replications of the studied systems? Given very high variability of soil aggregation data, no wonder that no statistically significant differences were observed. But the observed tendencies appear to be consistent with the authors' hypothesis. In such cases it is strongly recommended to conduct post-hoc power analysis to address the sufficiency of the replications and the size of the differences that could be statistically detected given the observed variability and the numbers of replications used. I would strongly recommend the authors to conduct such analysis.

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Other questions: 1) The choice of microorganism sources: soil born - air-born. Does not it by definition biases things towards greater aggregation in soil-born case, because they will for sure have fungi? If the authors are truly after biofilms they should choose a more biofilm oriented set of sources.

2) It is not clear where the air-born microorganisms come from. Line 195 paragraph talks about sterile air supply and line 215 paragraph states that exposure to unsterile air was done after the incubation?

3) Description of statistical methods is not clear. There are two factors here - two soil treatments and several sampling times. Why this is not analyzed as a two factor experiment with repeated measures? There were only three replications analyzed - how the tests for normality and equal variance could be conducted with so few data points. What is meant by "variant"?

4) Results section can be shortened and a lot of things in Discussion should be moved to the Results. As of now the Results contain a lot of verbal descriptions of how numbers go up and down on the figures and this is not helpful. I would suggest to focus on bringing to reader's attention the key trends and points of interest instead (those are present in the Discussion and should be moved to the Results – e.g., the material in l. 405 paragraph).

5) Should show on the figures and in Table 3 when the differences are statistically significant and when they are not.

6) LI 384-385 – unclear, please rewrite.

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