

Interactive comment on “Revisiting chlorophyll extraction methods in biological soil crusts — methodology for determination of chlorophyll a and chlorophyll a + b as compared to previous methods” by Jennifer Caesar et al.

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First of all we would like to thank you for your evaluation of our manuscript. Thanks for the helpful comments and suggestions to improve our manuscript.

We have reviewed all your comments and suggestions and revised the manuscript as seen below:

Caesar et al. present the results of a study in which they assessed several methodologies to extract chlorophyll from biocrusts. In a well-organized experiment, they com-

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pared the effect of variations on the key steps throughout the extraction process: the solvent that was used (ethanol vs. dmso), grinding vs. no grinding, and shaking vs. no shaking. The results are presented clearly, and the discussion is on point. I second the comments and suggestions by reviewer 1, and I only have a few additional minor comments and suggestions, all of which are easy to address:

-We would like to thank you for this very positive evaluation of our manuscript.

1. Please provide a reference to support this statement (page 1, l30).

- We now cite the following textbook: Mohr, H., Schopfer, P. (1995) Plant Physiology. 4th edition. Springer-Verlag Berlin, Heidelberg, New York.

2. Delete "as", i.e. "...conditions (e.g. disturbance).." (page 2, l4).

- Thank you for mentioning. We did the correction as suggested.

3. page 2, l4: delete "the" from "the desert ecosystems"

- Done as suggested.

4. This sentence is grammatically incorrect (page 10, l12-16). Please consider the following alternative: "A perfect extraction procedure should deliver rapid and reproducible results and has to be simple to execute. Furthermore, the used solvent should bring all pigments into solution, resolve pigments to extremely low levels of detection, be hazard-free, and cause no chemical changes to the pigments (Jeffrey, 1981)".

-Thanks for offering this alternative. The sentence has been corrected accordingly.

5. Is "most types" really appropriate here? It seems like this is only true for 2 out of 4 biocrusts (page 11, l5).

- You are right. We altered the sentence in the following way: "...Grinding of samples prior to the extraction procedure had a significant negative effect on the extracted amounts of chlorophyll, whereas shaking of samples after each extraction cycle caused

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significantly increased chlorophyll contents for two of four biocrust types..."

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6. This sentence is grammatically incorrect. Please consider the following alternative: "Fairy uncritical, as after.." should be "fairly uncritical; after.. ", or even better: "less critical; after.." (page 11, l8).

- We changed the sentence according to your last proposal "less critical; after..."

7. Please provide a reference to support this statement (page 11, l31).

- We inserted the reference "Lan, S. B., Wu, L., Zhang, D. L., Hu, C. X., and Liu, Y. D.: Ethanol outperforms multiple solvents in the extraction of chlorophyll-a from biological soil crusts, *Soil Biology & Biochemistry*, 43, 857-861, doi:10.1016/j.soilbio.2010.12.007, 2011" to support the statement as suggested (page 11, line 32).

8. What do you mean by "turned out to be positive" (page 12, l12)? Improved extraction efficiency?

- Yes, you are right. That is what we meant and thus we changed the sentence in the following way: "...In contrast, shaking between two extraction cycles turned out to improve extraction efficiency..."

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