

Interactive comment on “Response of soil microorganisms to radioactive oil waste: results from a leaching experiment” by P. Galitskaya et al.

Anonymous Referee #1

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Galitskaya P

Response of soil microorganisms to radioactive oil waste: results from a leaching experiment

General Comments

The study examines the effect of oil production waste on soil microorganisms. This is an interesting topic. The experimental design compares waste with hydrocarbons and radioactive to radioactive waste with very little hydrocarbon. Hence the effect of radioactivity can be assessed. This is okay.

The paper is generally well written. However, it reads more like a technical report than a report of a scientific study. Try to articulate major findings and new ideas revealed as

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that the reader has a good story in addition to the report of the data.

The paper is much more toxicology than biogeochemistry, to me.

Specific Comments

1) The abstract is mostly okay. The paragraph describing ‘toxicity and effects’ needs editing. I cannot follow the logic of the H-column and R-column from reading the paragraph alone. Either delete the values or change the notation, which would make the paragraph readable. Also the last sentence of the abstract should give a conclusion. What did you learn from the study? Merely knowing that microorganisms were affected is only mildly interesting – otherwise why do the study?

2) The introduction is okay.

3) The description of the experimental design could use some editing. Did you apply the waste one time then was it into the soil for 30 days? Otherwise the methods are straightforward.

4) The results are okay. My one suggestion is to not rely heavily on the ANOVAs. You have a sample size of $N=2$ per treatment, and depth is confounded because the depths are not independent of each other, i.e., from the same column. Statistics are okay, but the power is weak.

5) Much of the conclusion repeats results. Delete the redundancy and try to articulate only the major findings and what was novel about the results.

6) The tables and figures are okay.

Technical comments

1) Page 1754, line 4: please be specific rather than saying ‘and other properties’. You are making the reader guess what you are thinking.

2) Page 1754, line 11: change ‘estimated’ to ‘examined’.

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- 3) Page 1754, line 14: I suppose the relative change is okay, but the reader will not know if these changes are large, or not.
- 4) Page 1755, line 13: 'soil surface' where? This is a bit confusing because soils are everywhere.
- 5) Page 1756, line 19: this sentence about raw and treated could be repeated in the abstract. I did not catch this from reading the abstract alone.
- 6) Page 1759, line 27: what were the sample sizes and number of replicates for each test?
- 7) Table 1: what do the letters for the Waste Sample indicate? Where in the methods do you describe each sample?
- 8) Page 1763, line 22 to 25: is it necessary to give the values of the ranges? The numbers are obvious in the table. Perhaps just say range was xx-fold.
- 9) Page 1765, line 15: the wording should be 'raw waste was more toxic than treated waste'. 'Higher' and 'lower' can be confusing.
- 10) Figure 3: Consider changing the lines to dots and dashes rather than colors. Colors are difficult to discern, especially, if one is colorblind!
- 11) Page 1767, line 20: I am not following your logic here. What are the percentage values?
- 12) Page 1769, line 26: delete the word 'authors'.
- 13) Page 1771, line 10: is there a quantitative measure, rather than 'jumps up suddenly'?

Interactive comment on Biogeosciences Discuss., 12, 1753, 2015.