

February 24, 2020

Review of Predominance of hexamethylated 6-methyl branched glycerol dialkyl glycerol tetraethers in the Mariana Trench: Source and environmental implication" *by* Wenjie Xiao et al. (bg-2019-391)

Dear Dr. Xu,

Thanks for submitting responses to reviewers' comments to your article. Both reviewers are very positive about this article, and I agree with them as well.

I am looking forward to reviewing a new version that incorporates those comments. Please pay attention, particularly to the following aspects:

- 1) Reviewer 2. "The uniqueness of the study site is both a strength and a weakness of the presented work. " The reviewer is asking to discuss this caveat in the context of your conclusions, not merely state that we "...we have to be cautious...". Please elaborate further on the new version.
- 2) Reviewer 2. Line 28-30: Please consider finding more appropriate citations. Sinninghe Damste 2000 and Weijers et al. are neither the first to report on iGDGTs/brGDGTs, nor are these the most comprehensive papers.

Authors: We have replaced previous citations with Schouten et al., 2013, which are the most comprehensive and cited papers about GDGTs.

Editor: Please revise. A 2013 paper is not older than a 2000 paper. Which one is the first to report on iGDGTs/brGDGTs?

- 3) Reviewer 2, "5) Line 120-122: Without response factors of GDGTs relative to the C46 standard, concentrations cannot be determined. Please report concentrations as response units or peak areas normalized to OC.

Authors: "This is a good comment. In the revised manuscript, we added the sentences as *Since all brGDGT isomers were assumed to have an identical response factors on the instrument, our analytical method is better regarded as semi-quantification.*" (Line 289-290). "However, it is common to report the concentration of GDGTs in ... without consideration of response factor in literatures. So we still keep the current format for the concentration. "

Editor: "it is common to report the concentration of GDGTs ... without consideration of response factor"). This is not correct. Is there much variability in response factors for brGDGT isomers?

- 4) Reviewer 1. "3. The application of soil pH index CBT' and mean annual air temperature index MAT_{mr} in this marine setting is unconvincing. "

Authors: " As mentioned above, we accepted the reviewer's suggestion and removed all relevant figures and discussion."

Editor: Being that the case, the associated conclusion should be removed from the abstract as well (line 15).

Other comments from Associate Editor:

1. Line 30. Change IGDTs with iGDGTs
2. Line 15. Replace "Rota Evaporator" with "rotary evaporator "
3. Line 175.? Why "stated elsewhere"?
4. Line 190. Consider using gdw instead of "dry weight sediment (dws) " since it is more commonly used
5. Figure 4. Remove comma in Luo et al., (2017)

Looking forward to hearing from you

Best regards

Silvio Pantoja-Gutiérrez

Associate editor