

Interactive comment on “A quest for the biological sources of the ubiquitous long chain alkyl diols in the marine realm” by Sergio Balzano et al.

Anonymous Referee #3

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In their manuscript “A quest for the biological sources of the ubiquitous long chain alkyl diols in the marine realm”, S. Balzano and co-authors present a detailed lipid-DNA comparison along a transect in the tropical North Atlantic for long-chain diols and their producers.

Long-chain diols (LCD) have been of considerable interest to the community for a few years now, and show some potential as proxies for riverine input, upwelling, or potentially temperature. As their sources have not yet been clearly identified, it is timely to use an approach to combine molecular biology and DNA, which the authors employed in this study. Balzano and co-authors, using an in situ filtering approach, found diol concentrations as expected at this site, but were not able to detect the DNA of enough diol producers to account for the amounts of diols detected.

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The research presented is thorough, and the manuscript is clear. I have a few questions and comments:

1. The title is engaging, but sounds more like a general review of the topic, and does not reflect the content at all. Rephrase this to clearly indicate the study area and the results.
2. Why was this specific study area selected, what makes it useful for the research question?
3. There is a mismatch between the DNA and the diol concentrations. Could this be because of the size fraction sampled (0.7 μm)? This is addressed (I think) by the comparison of the cell counts and the discussion in L599-606, but should be made clearer.
4. The supplementary data is great and detailed, but the diol concentrations should be added in a table as well. Have the sequences been deposited in GenBank ?
5. The references are inconsistent, some contain a doi, some don't, some include the doi as a link, the citation for ODV is not correct.

L182-183: The temperature regime is a very minor detail to add, so for the sake of the reader who wants to reproduce this, I would add this to the section. L277-297: Is this new data or has this been published by Bale et al. 2017? Table 2: Is that % abundance or actual concentrations? Figure 1&2: Considering the two-dimensional nature of the transect, a supplementary online 3D plot could be useful.

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