

Interactive comment on "Structural elucidation and environmental distributions of butanetriol and pentanetriol dialkyl glycerol tetraethers (BDGTs and PDGTs)" by Sarah Coffinet et al.

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On behalf of all coauthors, I would like to thank V. Grossi for participating to the discussion on the present manuscript. We agree with V. Grossi that mixed populations could explain the δ 13C values we obtained for BDGTs but it would require a large proportion of heterotrophs to counterbalance the very depleted signal we expect to get from methanotrophs. For example, based on the average δ 13C value of all sites we estimate a heterotrophic contribution of 70%, assuming no substrate-product fractionation for heterotrophy (Pearson, 2010), and a methanotrophy (Niemann and Elvert, 2008).

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Nevertheless, we propose to nuance our statement in lines 236-237 as follows: "A predominant methanotrophic origin for BDGTs is unlikely, as δ 13CBDGTs values were generally higher than δ 13CCH4 (Fig. 5), which contrasts the relationship found in lipids from anaerobic methane oxidizing archaea at seeps (Hinrichs et al., 1999; 2000)."

References: Niemann, H., Elvert, M.: Diagnostic lipid biomarker and stable carbon isotope signatures of microbial communities mediating the anaerobic oxidation of methane with sulphate. Org. Geochem. 39, 1668–1677. https://doi.org/10.1016/j.orggeochem.2007.11.003, 2008. Pearson, A.: Pathways of Carbon Assimilation and Their Impact on Organic Matter Values δ 13C, in: Handbook of Hydrocarbon and Lipid Microbiology. Springer, Berlin, Heidelberg, pp. 143–156. https://doi.org/10.1007/978-3-540-77587-4_9, 2010.

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