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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 δ13C 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 δ13C value of all sites we estimate a heterotrophic contribution of 70%, assuming no substrate-product fractionation for heterotrophy (Pearson, 2010), and a methanotrophic contribution of 30%, assuming a 12‰ substrate-product fractionation for methanotrophy (Niemann and Elvert, 2008).

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Discussion paper

Nevertheless, we propose to nuance our statement in lines 236-237 as follows: “A predominant methanotrophic origin for BDGTs is unlikely, as δ13CBDGTs values were generally higher than δ13CCH4 (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 δ13C, 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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