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Biogeosciences Discussions

Interactive comment on "Technical Note: Rapid Normal-phase Separation of Phytoplankton Lipids by Ultra-High Performance Supercritical Fluid Chromatography (UHPSFC)" *by* J. Brandsma et al.

Anonymous Referee #2

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Review of bg-2016-13 submitted on 12 Jan 2016 Tecnical Note: Rapid Normal-phase Separation of Phytoplankton Lipids by Ultra-High Performance Supercritical Fluid Chromatography (UHPSFC) J. Brandsma, T. R. Sutton, J. M. Herniman, J. E. Hunter, T. E. G. Biggs, C. Evans, C. P. D. Brussaard, A. D. Postle, T. J. Jenkins and G. J. Langley

In this technical note the authors presented the results of the characterization of lipids in the cultures of marine phytoplankton and in the community of phytoplankton sampled in Antarctic waters during the time of austral summer by Ultra-High Performance Supercritical Fluid Chromatography coupled to a tandem quadrupole MS. Although it seems that the method should work, the characteristic distribution of phytoplankton lipid classes were not obtained (except for Synechocystis sp.). Since the reasons con-

cerning the method is thoroughly and expertly commented by H.F. Fredricks I would add another possible reason for not finding the typical distribution of lipids in phytoplankton samples.

The lipid distribution shown in Table 2 (although it is very difficult to draw conclusions on the basis of +/- presentation) is more characteristic for the bacteria and/or detritus than for eukaryotes. So, it is possible that the most of the phytoplankton cultures decayed and dominated by fast-growing bacterial population. I wonder how the authors checked the phase of phytoplankton growth; did they count the cells under microscope and make sure they are growing the species obtained or conclude about the phase according to culture turbidity? Also in the samples from the Antarctic waters, (it seems that the quantity of filtered water is too small if there was no bloom), do they know the phytoplankton abundance or community composition? Here, it is also possible that phytoplankton was not dominating.

Although the manuscript has a lot of shortcomings and it is not now acceptable for publication, I would encourage the authors to repeat the experiments with cultures and try to find out the real reasons for such results.

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