

Review of manuscript os-2020-2 - A protocol for quantifying mono- and polysaccharides in seawater and related saline matrices by electro-dialysis (ED) – combined to HPAEC-PAD

The manuscript discusses a novel way of desalinating marine samples for the determination of several low concentration organic compounds in that environment. The application of electrodialysis is investigated methodically, including the optimization of operational parameters and quantification of biases as well as a comparison to membrane dialysis. This work is very viable to help elucidate the composition and concentration of organics in marine samples and beyond. However, the text is not always easy and clear to read, and some structural changes and clarifications are needed before publication. These are discussed in the comments below.

Specific comments

- Lines 102-105: what are you basing this statement on? Is this based on preliminary own experiments? If so, can this be discussed further (in supplementary information perhaps)?
- Line 123: at which concentration was the seawater prepared?
- Line 149: why did you chose to work with a 16 g/L NaCl solution in the concentrate? The unit of ml/mL also seems wrong here.
- Line 155-156: what do you mean by 'homogenized with a pipette during desalination'? This is not clear to me.
- What type of membranes were the end membranes? From Figure 1 it seems like a CEM was used at the anode side and an AEM was used at the cathode side, but this is not specified in the text.
- Line 221: what are the setpoints 25V and 0.6A based on? This is a very high voltage which can cause water splitting. Did you see any pH fluctuations? This question is later answered in part 3.1, I suggest to already make a reference to this part and/or include the protocol for the parameter optimization in M&M instead of results.
- The same comments holds for part 3.2. Both this part and the previous part contains information that is not considered results or discussion and should thus be included in the introduction part (e.g. general explanation of (electro)osmotic water transport and why a concentration of 16 g/L was chosen in the concentrate).
- Line 319: it is not clear how you estimated this 3% and how you distinguished this osmotic water transport from the overwhelming electro-osmotic water transport. Is this from Figure 3? Because you can't really distinguish between the two modes of water transport during the first part of your desalination. The contribution of osmosis also changes in size and direction throughout the experiment as the salt concentrations change. Is it not simply enough to determine the final volumes in each compartment to account for concentration/dilution of your sample due to water transport?
- Line 351-352: transport of organics in presence of high salt concentrations is expected to be minimal, as demonstrated in a paper by Vanoppen et al. (2015). DOI 10.1021/es504389q
- Line 366-368: this statement is odd here and would be expected more at the end of the introduction.
- Figure 4: describe the difference between the full and dotted line in the caption. Please discuss the implications of the dotted line in the discussion. Is this a good quantification of the difference between both methods?

Technical corrections

- Generally, I propose to introduce the abbreviation ED for electro-dialysis and using it throughout the manuscript.
- Line 98, replace ‘,’ with ‘and’ (and there are ofcourse many more examples of ED application)
- Line 199: sometimes you use ‘electro-dialysis’ and sometimes ‘electrodialysis’. The latter is more frequently used and you can introduce the abbreviation as suggested before.
- Line 210: ‘slide’ = ‘slight’