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Comment

## ***Interactive comment on “Determination of atmospheric organosulfates using HILIC chromatography with MS detection” by A. P. S. Hettiyadura et al.***

### **Anonymous Referee #4**

Received and published: 9 January 2015

This is an interesting piece of work focusing on analytical method optimization for atmospherically relevant organosulfates in ambient aerosols. The authors utilized a HILIC column to achieve a better separation of small organosulfates that mainly originate from isoprene oxidation. What is notable here is that the authors have synthesized a series of authentic standard compounds to optimize the separation and quantification of these compounds. The authors present their newly optimized method in a clear manner and it should be relatively easy to replicate the method for people who have been experienced in HPLC/MS techniques. I recommend the paper be accepted subject to minor revisions. My more specific questions/comments are given below.

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Pp. 12590 Line 4: The detection of organosulfates is not analytical challenging. Do the authors mean 'quantify' rather than 'measure' here? Can the authors be more specific about the challenge in measuring organosulfates here (e.g. lack of authentic standard compounds)?

Pp. 12590 Line 17: The authors may reconsider the use of 'superior' here. Is the ultrasonication really 'superior' when the difference between the two methods is so small? The authors may opt for the ultrasonication based on the result obtained in their study but the ultrasonication is certainly not superior to the rotary shaking considering the potential negative artifact formation from acoustic cavitation.

Pp. 12590 Line 24: I do not think this sentence belongs here. The abstract should highlight the most important results and conclusions of the manuscript. A vague future research plan does not add any useful information to the abstract.

Pp. 12591 Line 23 onwards: I feel that the citations in the introduction are not very comprehensive and sloppy. I'd expect the authors to cite most of available papers at proper places, as there aren't hundreds of papers dealing with organosulfate analysis.

Pp. 12599 Lines 3-4: Significant figures are not consistent in these numbers. Do the authors guarantee zero after a decimal point of 25.0, 50.0, 100.0, 300.0 and 500.0  $\mu\text{gL}^{-1}$  standard solutions? Since the manuscript deals with a quantification method, I feel it is important to indicate the uncertainty properly.

Pp. 12601 Line 8 and corresponding reference: Gomez-Gonzalez should be Gómez-González.

3.5 Application to ambient aerosol: It is clear to readers that the separation is better with a HILIC column. How about the quantification? Have the authors compared the

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quantitative results from the HILIC and RP methods for atmospheric samples? I think the community likely adopts the authors' new method widely if the authors can add this information here to demonstrate the advantage of the HILIC method.

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