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Atmospheric Measurement Techniques Discussions

Interactive comment on "Online determination of levoglucosan in ambient aerosols with Particle-into-Liquid Sampler – High-Performance Anion-Exchange Chromatography – Mass Spectrometry (PILS–HPAEC–MS)" *by* K. Saarnio et al.

Anonymous Referee #2

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This is a nice short technical note about the construction of an online PILS-HPAEC-MS system that provides much needed time-resolved PM1 levoglucosan data. The authors have shown that the method is robust and provides comparable results to offline levoglucosan analysis from PM1 filter samples. It is highly likely that the manuscript attracts further interests in developing similar systems focusing on the analysis of marker compounds such as levoglucosan. The manuscript is short, concise and easy to follow

and I recommend the manuscript be published after minor technical corrections noted below.

Page 5497 line 13: Andydro monosaccharides should be andhydromonosaccharides, and the abbreviation should be 'AM'. Alternatively, if the authors prefer 'MA' as an abbreviation, it should be monosaccharide anhydrides.

Page 5500 line 4: Sigma Aldrich should be Sigma-Aldrich. Is galactosan technical grade? Please provide the quality of galactosan.

Page 5500 line 12: Millipore is now Merck Millipore, and their corporate HQ is in MA, USA.

Page 5502 Determination with HPEAC-MS: I presume the authors used a negative ion mode. This information is missing in the description of the MS method.

Page 5507 "Standard addition method": It is interesting that the authors added a levoglucosan standard solution to improve the detection and quantification of the ambient samples. However, the authors state in page 5506 that the ISTD signals showed a significant variation when the method was tested for ambient aerosols, implying that the signals obtained form the standard addition likely showed a significant variation as well. Have the authors improved the variation by the standard addition? If not, have the authors determined statistically significant differences between the signals obtained from the standard addition and the ambient sample + standard addition? i.e. If the 100 ng/mL signal of levoglucosan standard addition has a standard deviation of 25% (say 100 $\pm$ 25 ng/mL), what would be a criteria for the authors to quantify the ambient samples? 150 ng/mL levoglucosan signal? 200 ng/mL levoglucosan signal?

Page 5511 line 21: (1) The standard deviation values do not contain much information when they are larger than the average values. The ranges of levoglucosan concentrations should be given here instead.

(2) Have the authors found statistically significant difference between the daytime and

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the nighttime levoglucosan concentrations? The difference in the average values does not necessarily mean that two sets of data are statistically significantly different.

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 5495, 2013.