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Interactive comment on “Quantification of levoglucosan and its isomers by High Performance Liquid Chromatography – Electrospray Ionization tandem Mass Spectrometry and its applications to atmospheric and soil samples” by C. Piot et al.

Anonymous Referee #1

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This manuscript presents an LC-MS method for the measurement of levoglucosan and its isomers in atmospheric aerosol and soil samples. The accuracy of the LC-MS method was assessed by comparison with the more traditional GC-MS method and the advantages and disadvantages of both methods are indicated. Overall, I can agree with the authors' evaluation of the relative merits of both methods. However, in contrast to what the authors seem to implicate in some sections of their manuscript (e.g., in the

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4. Page 4543, line 23, page 4547, lines 26-27, and possibly also elsewhere: References in parentheses should be placed in chronological order.

5. Page 4543, line 24: The authors claim here that their LC-MS method is a "new" method. However, on page, 4543, lines 13-14, they mention that Palma et al. (2004) already used HPLC in combination with ESI-MS/MS for measuring levoglucosan. To which extent is the authors' method then "new"?

6. Page 4544, lines 22-25: Although the diameter of the filter is mentioned later in the manuscript, it should (also) already be mentioned here.

7. Page 4545, line 3: "Favez, 2010" is not in the reference list whereas "Favez et al., 2010" is there. Should it perhaps be "Favez et al., 2010" here? "El Haddad, 2011" is not in the reference list.

8. Grammatical and other technical corrections:

p. 4542, l. 2, and p. 4556, l. 4: replace "Zdrahal" by "Zdráhal".

p. 4542, l. 18: replace "Hornig, 1985" by "Hornig et al., 1985".

p. 4545, l. 18: replace "Gelmann" by "Gelman".

p. 4545, l. 19: replace "samples extract" by "sample extract".

p. 4549, l. 22: replace "compounds analysis" by "compound analysis".

p. 4551, l. 4: replace "matrixes" by "matrices".

p. 4553, l. 19: replace "Environ. Science Technol." by "Environ. Sci. Technol.".

p. 4554, l. 16: replace "561-568 pp." by "pp. 561-568".

p. 4554, l. 22; replace "Simoni, E. d." by "De Simoni, E.".

p. 4554, l. 30: replace "European Atmospheric Conference" by "European Aerosol Conference".

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p. 4555, l. 6: This line should be adjusted to the left.

p. 4555, l. 21: replace "v Simoneit" by "Simoneit".

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Hoffmann, D., Tilgner, A., Iinuma, Y., and Herrmann, H., Atmospheric stability of levoglucosan: a detailed laboratory and modeling study, *Environ. Sci. Technol.*, 44, 694-699, 2010.

Otto, A., Gondokusumo, R., and Simpson, M. J., Characterization and quantification of biomarkers from biomass burning at a recent wildfire site in Northern Alberta, Canada, *Applied Geochem.*, 21, 166-183, 2006.

Palma, P., Cappiello, A., De Simoni, E., Mangani, F., Trufelli, H., Decesari, S., Facchini, M. C., and Fuzzi, S., Identification of Levoglucosan and Related Stereoisomers in Fog Water as a Biomass Combustion Tracer by ESI-MS/MS, *Ann. Chim.-ROME*, 94, 911-919, 2004.

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