



Determination of atmospheric concentrations of levoglucosan with LC-MS and comparison with GC-MS measurements.

J. L. Jaffrezo (1), C. Baduel (1), C. Piot (2,1), and J. L. Besombes (2)

(1) LGGE, Université Joseph Fourier, Grenoble, France, (jaffrezo@lgge.obs.ujf-grenoble.fr / Fax: +33 (0) 4 76 82 42 01), (2) LCME, Université de Savoie, Chambéry, France, (jean-luc.Besombes@univ-savoie.fr)

The determination of atmospheric concentrations of levoglucosan, an unambiguous tracer of biomass burning emissions, becomes all the more important with the development of wood as a renewable energy for domestic heating. Indeed wood smoke contains many toxic compounds, like polycyclic aromatic hydrocarbons (PAHs) and fine particular matter (PM). In consequence, it has an impact on the ambient air quality and a lot of publications demonstrated the increase of this impact in many industrial world countries.

Fast, cheap, and reliable measurements are needed for an improved survey of this impact of these emissions. This analysis is traditionally performed with GC-MS techniques after derivatization. But this method requires several labour intensive and solvent-consuming steps of extraction and derivatization before analysis. Simpler and faster techniques using LC-MS emerged in the last few years. The LC-MS analysis of levoglucosan doesn't require the use of derivatization reagent and can be carried out starting from an aqueous extraction of the samples. So far, the two techniques have not been intercompared for measurements performed on the same samples. This work presents such a comparison, for samples coming from different types of samples sites, including rural and urban areas, and emissions sources.