



Stable carbon isotope ratio analysis of anhydrosugars in biomass burning source aerosol

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Compound specific isotopic measurements of levoglucosan, mannosan and galactosan were performed by employing ThermoDesorption – Two Dimensional Gas Chromatography – Isotopic Ratio Mass Spectrometry (TD-2DGC-IRMS). The $\delta^{13}C$ measured in a standard mixture showed good agreement with isotopic measurements of the bulk anhydrosugars, carried out by Elemental Analysis - Isotope Ratio Mass Spectrometry (EA-IRMS). Isotope ratios of levoglucosan, mannosan and galactosan from source samples, collected during combustion of hard wood, softwood and crop residues, were determined. $\delta^{13}C$ values of levoglucosan were found to vary between -25.6 and -22.2 ‰ being higher for the softwood samples. In this presentation, the observed $\delta^{13}C$ for levoglucosan will be compared to the carbon isotopic composition of the parent fuel, holocellulose. The potential of using compound specific $\delta^{13}C$ measurements of anhydrosugars for improved source apportionment will be discussed.