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Stable carbon isotope ratio analysis of biomass burning tracers in source and ambient aerosols

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Component-specific isotope ratio analysis of levoglucosan in source samples originating from the combustion of selected C3 plants has been carried out by employing Thermal Desorption – 2 Dimensional Gas Chromatography – Isotope Ratio Mass Spectrometry (TD-2DGC-IRMS). Further, δ^{13}C of levoglucosan in ambient aerosol sampled in rural, suburban and urban locations in Guangdong province, China, was measured, showing values in the range of –26 to –21‰. The observed δ^{13}C values of levoglucosan in ambient samples were well in the range of observations from source samples derived from C3 plant combustion. Component-specific data will be presented together with total carbon δ^{13}C, measured by Elemental Analysis - Isotope Ratio Mass Spectrometry (EA-IRMS), for both source and ambient samples. The potential of using the very different carbon isotopic composition of C3 and C4 plants for improved source apportionment of combustion aerosol will be discussed.