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# Characterization of high molecular weight compounds in urban atmospheric particles

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Abstract. The chemical nature of a large mass fraction of ambient organic aerosol particles is not known. High molecular weight compounds (often named humic-like substances) have recently been detected by several authors and these compounds seem to account for a significant fraction of the total organic aerosol mass. Due to the unknown chemical structure of these compounds quantification as well as a determination of their molecular weight is difficult. In this paper we investigate water soluble humic-like substances in ambient urban aerosol using size exclusion chromatography-UV spectroscopy and laser desorption/ionization mass spectrometry (LDI-MS). LDI-MS was used for the first time to investigate HULIS from atmospheric aerosols. A careful evaluation of the two method shows that both methods complement each other and that both are needed to learn more about the molecular weight distribution and the concentration of humic-like substances. An upper molecular weight limit of humic-like substances of about 700 Da and a concentration of 0.3-1.6 $\mu g/m^3$ air can be estimated, corresponding to 9-30% of the total organic carbon for an urban background site.

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