Geophysical Research Abstracts,
Vol. 10, EGU2008-A-11759, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-11759
EGU General Assembly 2008


# Characterization of selected organic compound classes in secondary organic aerosol from biogenic VOCs by HPLC/MS

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The formation of secondary organic aerosol (SOA) plays an important role in earth's aerosol budget and can affect climate and health. SOA is formed by the reaction of volatile organic compounds (VOCs) from anthropogenic and biogenic sources with reactive atmospheric species e.g ozone, $NO_3$-radicals, OH-radicals. Some efforts were made to reveal the structure and chemical composition of the formed aerosol, to get a closer look at formation pathways and mechanisms. Unfortunately a large fraction of products formed are not identified yet and their formation pathways are still ambiguous.

However, a general understanding exists about the most important VOC precursors, the fundamental underlying gas phase chemistry and the major particle phase products. During the first years of SOA-research attention was paid to the carbonylic and carboxylic oxidation products, both important compound classes formed in the photooxidation and ozonolysis of biogenic VOCs. However, more recent studies show that also other product classes with different functionalities, such as esters[1], peroxides[2] or organosulfates[3], have to be considered in order to understand the detailed chemical mechanisms leading to SOA as well as to predict the aerosol mass loadings. For the identification and quantification of these three compounds classes as well as for carboxylic SOA compounds, LC/MS is the most appropriate analytical methodology. This contribution tries to shortly summarize the work that has been done for the determination of SOA related carboxylic acids as well as present new LC/MS/MS re-

sults on the characterization of the esters, peroxides and organosulfates, if necessary, supported by online-MS. In contrast to earlier work, the mass spectrometric characterization of the individual compounds is always based on the comparison with authentic reference compounds.

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