



## **First laboratory-intercomparison on biogenic SOA marker compounds – Overview and first results**

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Organic compounds makes up a large fraction of aerosol particles and varies in composition depending on the meteorological conditions, the location as well as the stage of processing. Thus aerosol particles contain hundreds of different compounds that affect the chemical and physical properties and with this human health and climate. OGTAC CC is a calibration centre for the analysis of atmospheric organic tracers and particle-phase constituents. As a first activity OGTAC CC conducted in Spring 2018 an inter-laboratory comparison (ILC) to compare and validate offline analysis for particle-phase oxidation products of BVOCs.

The ILC comprised the distribution of filter samples collected in the TROPOS ACD aerosol chamber and at the TROPOS research station Melpitz (Germany). As target compounds Terebic acid, Terpenylic acid, Pinic acid, Pinonic acid and 3-Methyl-1,2,3-butane-tricarboxylic acid (MBTCA) were selected. The dataset comprises data from 9 participants. Within the ILC each participating laboratory followed their own established method. With this an overview can be given now about all applied techniques and the quality of these techniques. At the same time a questionnaire was send to the participants requesting information about storage, extraction procedure, type of analysis, column for separation, detector, eluent gradient, type of standards used for quantification (purchased from supplier, surrogate, synthesised standard) and detection limit.

Based on the first preliminary data, a huge dataset about existing methods to detect and quantify BSOA marker compounds was obtained. The majority of the groups work with LC/MS and already a great fraction is able to apply HR/MS. Within the existing methods, still a great fraction of users apply ultrasonic agitation to extract their samples which is very critical. Also the use of surrogate compounds pointed out to be very common and need to be further discussed within the community.

Aside from this, the choice of commercially available standard pointed out as the most critical point for the quality of data. It was found that the choice of standard directly effects the outcome of the analysis and that results can be grouped according to the applied standard. Thus, specific suppliers/quality of the standard need be recommended within the aerosol community to compared quantified values for specific SOA marker compounds.