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Comment

Interactive comment on “Brown carbon absorption linked to organic mass tracers in biomass burning particles” by D. A. Lack et al.

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I would like to draw attention to a group of biomass burning tracer compounds, namely, nitro-aromatic compounds, [1,2] which the authors do not seem to be aware of and are of relevance to the current study as they concern levoglucosan-related organics with optical properties.

These nitro-aromatic compounds include nitrocatechols, nitrophenols, nitroguaiacols and nitrosalicylic acids, can be regarded as secondary tracers formed from volatile organic vapors that are emitted during fires, and can explain the optical (chromophoric) properties of biomass burning aerosols. One of the most important classes of water-soluble organic compounds in continental fine and tropical biomass burning aerosol is humic-like substances (HULIS), which contain components with strong po-

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lar, acidic and chromophoric properties. In a recent study, we provide evidence that nitro-aromatic catecholic compounds are among the major chromophoric species of HULIS.[3] In another recent study, we have quantified nitro-aromatic tracers in ambient urban aerosol and found that they correspond to a significant fraction of the organic carbon (about 1%) in winter aerosol and are well correlated with levoglucosan, a primary biomass burning tracer.[4]

I hope this information on levoglucosan-related organic tracers will be useful.

References:

- [1] Y. Iinuma, O. Böge, R. Gräfe, H. Herrmann, Environ. Sci. Technol. 44 (2010) 8453.
- [2] Z. Kitanovski, I. Grgić, F. Yasmeen, M. Claeys, A. Čusak, Rapid Commun. Mass Spectrom. 26 (2012) 793.
- [3] M. Claeys, R. Vermeylen, F. Yasmeen, Y. Gomez-Gonzalez, X. Chi, W. Maenhaut, T. Meszaros, I. Salma, Environ. Chem. 9 (2012) 273.
- [4] Z. Kitanovski, I. Grgić, R. Vermeylen, M. Claeys, W. Maenhaut, J. Chromatogr. A . in press, available on line at: <http://dx.doi.org/10.1016/j.chroma.2012.10.021>

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