

Interactive comment on “Molecular distributions of dicarboxylic acids, ketocarboxylic acids and α -dicarbonyls in biomass burning aerosols: implications for photochemical production and degradation in smoke layers” by S. Kundu et al.

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This article provides novel insights into the formation of oxalic acid and other low-molecular-weight dicarboxylic acids in biomass burning aerosols that were collected in the Amazon during the dry period of the 2002 SMOCC campaign. A better understanding has been achieved of sources and formation processes of dicarboxylic acids through detailed analysis of their molecular distributions and that of related compounds in day- and nighttime samples. Convincing data are presented that biomass burning is an important source of dicarboxylic acids in the atmosphere, and that low-molecular-

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weight dicarboxylic acids have mainly a secondary origin in biomass smoke. Some minor revisions are suggested as detailed below.

Specific comments:

Page 19787 – line 5: it is not clear how the quantitative determinations were made; the quantitation/calibration procedures should be briefly included in the experimental section.

Page 19789 – line 19 and places elsewhere: it is hard to consider the C5-C10 compounds as high-molecular-weight compounds. I still consider these compounds as low-molecular-weight compounds; a better term would be medium-chain compounds.

Page 19792 – line 21: I do not consider it a striking phenomenon that the concentrations of dicarboxylic acids and related compounds normalized to the biomass burning tracer levoglucosan are higher in the daytime than in the nighttime. The highest atmospheric concentrations of levoglucosan are found during nighttime when smoldering combustion takes place; hence, even in the case that the concentrations of the dicarboxylic acids would not reveal day/night differences, the concentrations normalized to levoglucosan would be higher in the daytime. I suggest to simply write: “We have observed that the concentrations of dicarboxylic acids and related compounds normalized by the”

I think it could also be informative to calculate the percentage contributions of the dicarboxylic acids and related compounds to the OC and to evaluate their day/night differences.

Technical corrections:

Page 19784 – line 7: . . . gas chromatography (GC) and

Page 19784 – line 11: . . . and 56 ng m⁻³, (insert a space after ng)

Page 19787 – line 15: . . . a capillary GC instrument (the abbreviation GC denotes “gas

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chromatography” and not the instrument)

Page 19787 – line 21: . . . a GC/MS instrument . . .

Page 19791 – line 10: . . . aromatic hydrocarbons, . . .

Page 19792 – line 9: Table 2 compares concentration data of . . .

Page 19793 – line 14: . . . heterogeneous degradation reactions . . .

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