Atmos. Chem. Phys. Discuss., 12, C12741–C12742, 2013
www.atmos-chem-phys-discuss.net/12/C12741/2013/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Evidence and quantitation of aromatic organosulfates in ambient aerosols in Lahore, Pakistan" *by* S. Kundu et al.

Anonymous Referee #2

Received and published: 18 February 2013

General comments:

The manuscript presents the results from detailed chemical analysis of aromatic organosulfates in ambient aerosol samples collected in Lahore, Pakistan. The authors have carefully synthesized an authentic standard compound of benzyl sulfate, and quantified its concentrations in the ambient samples. Although the contribution of benzyl sulfate may be insignificant in the ambient PM2.5 mass, it provides first evidence for the presence of previously unaccounted anthropogenic organosulfates in ambient aerosols. Overall, the manuscript is well written and the results are clearly presented. I believe this study provides food for thought about anthropogenic VOCs as a source of organosulfates in the polluted environment. I recommend this manuscript be accepted after addressing a few minor comments outlined below.

Specific comments:

- Have the authors data for other anthropogenic marker compounds such as phthalic acid and nitro-aromatic compounds from the UPLC/ESI-TOFMS analysis? If so, do they correlate with aromatic organosulfates? This may give a clue if the formation mechanisms of aromatic organosulfates and their precursors involve photochemical oxidation or not.

Page 32791 line 16: Saxena and Hildemann (1996) is rather old. This reads as if we have not made any progress since their time.

Page 31812 line 2: Do the authors think that the organonitrate to organosulfate conversion explain a tight correlation between benzyl sulfate and nitrate? Just like inorganic nitrate, I expect the partitioning of organonitrates to be much more temperature sensitive than inorganic sulfate. There is no information about the average temperature during the sampling period but I guess the temperatures during the summer months were significantly higher than the winter months. It is worth testing if the authors see any trend in the temperatures, nitrate and benzyl sulfate concentrations.

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 32795, 2012.