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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Properties of atmospheric humic-like substances – water system" *by* I. Salma et al.

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This is a nice paper that characterizes properties of HULIS extracted from urban aerosol in downtown Budapest. The paper uses state of the art approach to derive important properties that can be used in further studies that put HULIS in their relevant climatic context. It also uses an empirical approach for determining the average molecular weight of the compounds studied. The authors point out that HULIS exhibit a wide range of properties which may vary by conditions. However, I believe that studies such as this one are very valuable. It is remarkable that the results are in line with previous studies, suggesting that the divergence may be actually not be that great. More studies of this type, with samples from different locations and seasons are therefore encouraged in order to get a full view of the topic. Due to the complexity and variability

of what we call HULIS, empirical approaches may be the way to go. An item that still needs to be resolved is whether different extraction protocols actually isolate the same compounds and if not, what are the differences. It should be emphasized that this is only a water soluble fraction of the OC and other fractions are less well studied. The paper is well organized, well written and presents clear results. It is a bit long and may be shortened in some parts. The conclusions are well presented and summarize the results adequately. It can be published in ACP, taking into account a few minor remarks listed below.

1. P1984, L10: please add reference to (Taraniuk, et al., 2007) who measured surface tension of HULIS, and to (Wex, et al., 2007)

2. P1984, L15: Please add reference to Dinar et al (Dinar, et al., 2008) who measured the complex refractive index of HULIS.

3. P1984, L21: add references to (Wex, et al., 2007), (Dinar, et al., 2007; Dinar, et al., 2006), (Asa-Awuku and Nenes, 2006, 2007; Koehler, et al., 2006; Petters, et al., 2006)

4. P1985, L11-13: Do the different season have any effect on the HULIS properties? Studies in Zurich have shown some such differences. (Samburova, et al., 2005).

5. P1985, L16: "fibre" should be "fiber"

6. P1985, L23: Have you considered possible effects of ozone/OH reactions with the absorbed organics on the filter?

7. P1989, L16: do you have an estimate for the error in the derived aromaticity?

8. P1989, L21: Please explain the kind of artefacts you refer to.

9. P1989, L25: Please explain the kind of artefacts you refer to

10. P1991, L14: How did you verify that contributions to absorbance from other compounds?

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11. P1993, L23: supplement the sentence by saying that these differences would mean that extracting climate-related properties form terrestrial sources may be problematic. This was pointed out also by the works of Dinar et al, Taraniuk et al, and Graber and Rudich, and possibly by others.

12. P.1994, L16: Besides that AVARGE MW of SRFA it contains some small amount of very high MW compounds that may have large effects on reactivity, solubility and other properties, despite their low contribution.

13. P.1995, L16: Aggregation was of HULIS and is implications was already suggested by Tabazadeh (, 2005). This should be cited.

14. P1997. L21: Doesn’t the factor depends on the pH as well?

15. P1998, L25: Depsite what is said in the sentence there is considerable resemblance to results by Dinar et al, Wex et al a,d the works by Kiss, Gelencser and coworkers

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