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Atmospheric Chemistry and Physics Discussions

# *Interactive comment on* "Measurement report: Amino acids in fine and coarse atmospheric aerosol: concentrations, compositions, sources and possible bacterial degradation state" *by* Ren-guo Zhu et al.

**Anonymous Referee #3**

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Comments

The research on amino acids in aerosols is an interesting topic, given their important roles in human health, air quality and even climate. In this study, Zhu and coauthors investigated the amino acids in fine and coarse aerosol particles collected from a city in China, with emphasis on their concentrations, compositions profile, as well as the potential controlling process. However, this current manuscript suffers from substantial weakness. Generally, the experimental design, including instrumentations, observation locations made it very hard to conduct in depth data interpretation and discussion.



Therefore, the current version of the manuscript is more like a data report, than a research article.

Specific comments: 1. The title is misleading. Is the knowledge from this study applicable universally? Actually, it seems only reflect the scenario at the sampling sites, i.e. Nangchang, China. So the information of the study area should be added in the title. 2. In the section 2.1 Sampling collection. What is the consideration to choose urban, town, town, suburban, airport and forest as reprehensive sites for the amino acids study? Especially, why airport was selected as one of the sampling sites? It seems agricultural site is more important than other areas for the amino acids. 3. Also Section 2.1, How many forest soil, paddy soil, road soil were collected and analyzed? 4. In the Section 2.2, I did not find the description of the pretreatment and chemical analysis for soil samples. Current contents are only about the analysis of aerosol samples. 5. In the results, Section 3.1.2, Line 191, It was found that the concentration level of THAA at airport is highest among the five different sites. But the reason was not appropriately explained later. 6. Line 198-204, here I understand that precipitation is an important factor to affect the amino acids in air, not only the concentration level, but also the composition pattern. However, actually there are many meteorological factors could change the amino acid in air. Why did you only consider the impact of precipitation? If you want to reveal the influence of precipitation on AA, actually the precipitation samples should also collected and analyzed simultaneously, along the aerosol sampling. The AA in precipitation samples could offer more information. 7. Line 208, here you mentioned the results of pine and straw in Figure2. Which kind of straw? Actually I did not find the relevant information in the sample collection section. 8. For the PCA analysis, there are different influencing factors (sources and degradation process ) for AA in the five sites. Is it appropriate to include the all data from different sites to conduct the PCA analysis? If the sample amount is enough, it seems more reasonable to just use the data for specific site, respectively, the reveal the difference between fine and coarse particles. 9. Line416-420, those sentences seem should be moved to Introduction part. 10. Generally, in the results and discussion, more description on the

novelty of this study is needed. What are the new findings from this study compared to what already known, and what the significance and implication of the new findings for others?

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