Comments on Ruiz-Jimenez et al : « Chemical and microbiological characterization of primary biological aerosol particles at the boreal forest » revised into "Determination of free amino acids, saccharides and selected microbes in biogenic atmospheric aerosols - seasonal variations, particle size distribution, chemical and microbial relations"

I have to admit that I am a bit confused by the revision and concerned by the validity of the data and analyses. I do not follow the argument of the samples being collected in September-November in the present study and that would explain the low values of gene copy numbers. On the contrary the values should be much higher than those reported, referring to fig2 in Helin et al. (~1000 genes copies/m3 at least as expressed as bacteria/m3 in Helin). In addition, I do not really get the point regarding the fraction of filter used for explaining the low values, since the data were normalized to air volumes (was normalization to air volume somehow not linearly related to filter surface??).

It is indicated by the authors that "The data in all Tables and in all Figures have been checked, revised and updated". I am very puzzled here: all or almost all the values for amino acids, saccharides and gene copies have changed (increased, by different factors) in Figures 1, 2, Tables S8-S11 compared to the last version, whereas the data were not changed in other figures (Figure 3 and Figure S6 for example). The modifications done would need to be at least clearly listed and justified. Averages, standard deviations and CVs, min/max and ranges were modified (Tables S8-S11), but surprisingly neither skewness nor kurtosis were affected. I would then also expect the regression coefficients (based on parametric statistics) to change according to raw data modification, since the modifications of the data were not linear, but this is surprisingly not the case (Fig 4 and 5, S4, S7, etc).

For example: bacteria in PM2.5-10 (Table S10) were modified from 4.4 +/- 1.7 (average +/- SD) into 53.0 +/- 54.0 (factor of 12 between averages). Elsewhere (Table S8) Gln in PM2.5-10 was modified from 1.9 +/- 1.9 over into 5.6 +/- 4.7 (factor of ~3 between averages). However, the Pearson correlation between Bact and Gln is still the same as in the previous version (Figure S4).

References:

Helin, A., Sietiö, O.-M., Heinonsalo, J., Bäck, J., Riekkola, M.-L. and Parshintsev, J.: Characterization of free amino acids, bacteria and fungi in size-segregated atmospheric aerosols in boreal forest: seasonal patterns, abundances and size distributions, Atmospheric Chemistry and Physics, 17(21), 13089–13101, https://doi.org/10.5194/acp-17-13089-2017, 2017.