

Journal: ACP

Title: Ice nucleation by water-soluble macromolecules

Author(s): B. G. Pummer et al.

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In my previous review I had major concerns with the structure of this paper which was not coherent. It was presented as a research article with an experimental part, results and discussion sections but it looked more like a review on the domain. Also the supplement part was unusual, closer to a patchwork of book chapters, the idea being to help some readers to understand the rest of the paper. I did suggest to completely rewrite this paper as a review and to delete some basic information present in the Supplement part.

The authors did not completely take into account these remarks as they did not write a review. However they rewrote this paper in a form closer to that of a “classical article” by transferring most of the introduction part in the discussion. They also shortened the Supplement.

I still believe that it is not the best choice and I would have really preferred a review. However, because the content is interesting anyway, I would accept this paper with minor revisions if the editor agrees with the final form of the manuscript.

Minor changes:

P 17 lines 14 to 16 “At last, microorganisms are present in precipitation samples (Vaitilingom et al. 2012)... altitudes”. This is not exact, they were found in cloud waters directly (and not precipitations). Also INA Bacteria were isolated from cloud waters (Joly et al. Ice nucleation activity of bacteria isolated from cloud water. *Atmospheric Environment*, 2013, **70**, 392-400). So basically the whole sentence should be rephrased and this last reference added.

Supplement:

S1.1 Macromolecular chemistry

This part is still too basic. I suggest making it even shorter and referring to text books for undergraduates. In addition the paragraph p2 line 11 to p3 line 4 “The solubility of a macromolecule...elementary cells” should be deleted.