Biogeosciences Discuss.,
https://doi.org/10.5194/bg-2018-79-AC3, 2018

Biogeosciences Discussions
Open Access
EGU

Interactive comment on "Potential relevance of Mortierella alpina as a source of ice nucleating particles in soil" *by* Franz Conen and Mikhail V. Yakutin

Franz Conen and Mikhail V. Yakutin

franz.conen@unibas.ch

Received and published: 29 May 2018

The attribution of INP to fungi is based on a combined set of criteria, which is not matched by INP from any other source we are currently aware of. These criteria are a size < 0.22 micron, ice-nucleation activity at -6.5 °C or warmer, tolerant to heating to 60 °C, and deactivation by heating to 95 °C and by 6 M guanidinium chloride. Bacterial INP have been found to not withstand heating to 60 °C (Pummer et al., 2015) with the exception of ice-nucleating entities produced by Lysinibacillus sp. (Failor et al., 2017). However, unlike the INP we presume are derived from fungi, INP from Lysinibacillus sp. also withstand boiling (Failor et al., 2017). Pollen-derived INP are insensitive to

Printer-friendly version

Discussion paper

boiling or be 6 M guanidinium chloride (Pummer et al., 2012).

References

Failor, K. C., Schmale III, D. G., Vinatzer, B. A., and Monteil, C. L.: Ice nucleation active bacteria in precipitation are genetically diverse and nucleate ice by employing different mechanisms, ISME J., 11, 2740-2753, doi:10.1038/ismej.2017.124, 2017.

Pummer, B. G., Bauer, H., Bernardi, J., Bleicher, S., and Grothe, H.: Suspendable macromolecules are responsible for ice nucleation activity of birch and conifer pollen, Atmos. Chem. Phys., 12, 2541-2550, doi:10.5194/acp-12-2541-2012, 2012.

Pummer, B. G., Bundke, C., Augustin-Bauditz, S., Niedermeier, D., Felgitsch, L., Kampf, C. J., Huber, R. G., Liedl, K. R., Loerting, T., Moschen, T., Schauperl, M., Tollinger, M., Morris, C. E., Wex, H., Grothe, H., Pöschl, U., Koop, T., and Fröhlich-Nowoisky, J.: Ice nucleation by water-soluble macromolecules, Atmos. Chem. Phys.., 15, 4077-4091, doi:10.5194/acp-15-4077-2015, 2015.

Interactive comment on Biogeosciences Discuss., https://doi.org/10.5194/bg-2018-79, 2018.

Printer-friendly version

Discussion paper