

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

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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

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

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