Mexican agricultural soil dust as a source of ice nucleating particles

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Supplementary Material

This document includes:

Figures S1, S2, S3, S4, and S5.

Table S1.

Figures

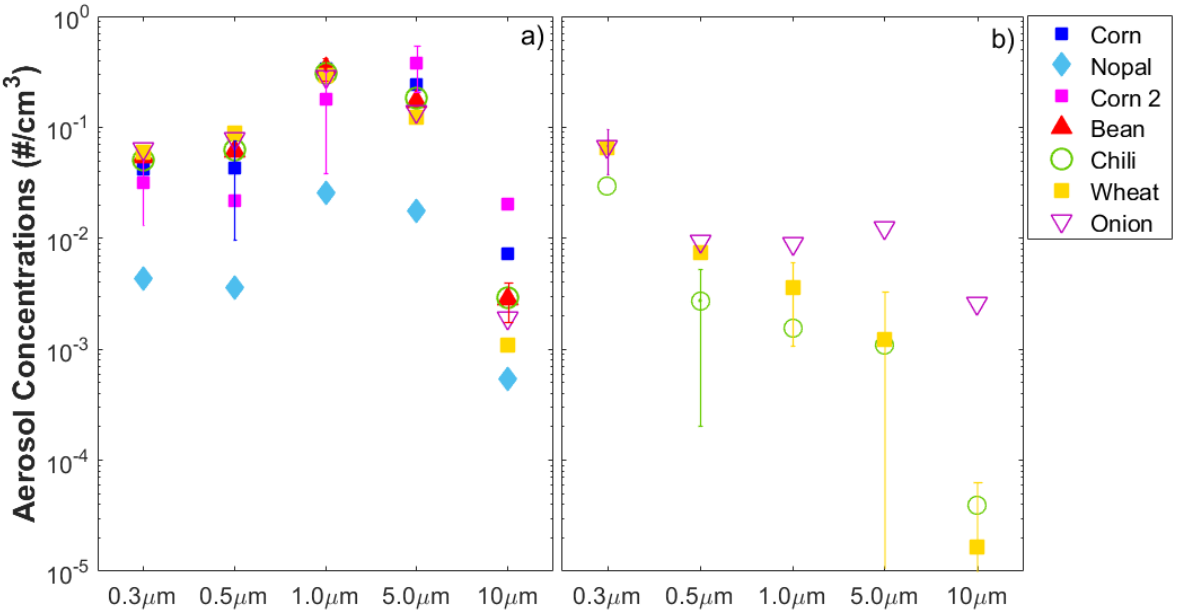

Figure S1: Particle size distribution for a) Laboratory samples, and b) Field samples. The symbols in colors show the mean values of the aerosol particle concentrations from the different soil samples, and the error bars represent the typical values of the standard deviation for each particle size.

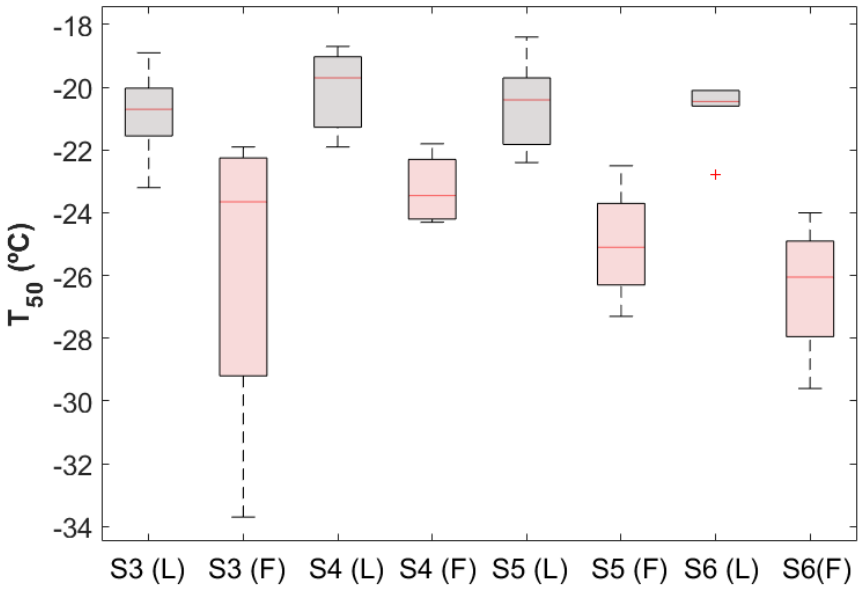

Figure S2: Average T_{50} of the aerosol samples collected at the field (F, red boxes) and those generated in the laboratory (L, grey boxes) for particle ranging between 3.2 and 5.6 µm (S3), 1.8 and 3.2 µm (S4), 1.0 and 1.8 µm (S5), and 0.56 and 1.0 µm (S6). The red cross indicates an outlier value of the T_{50}.

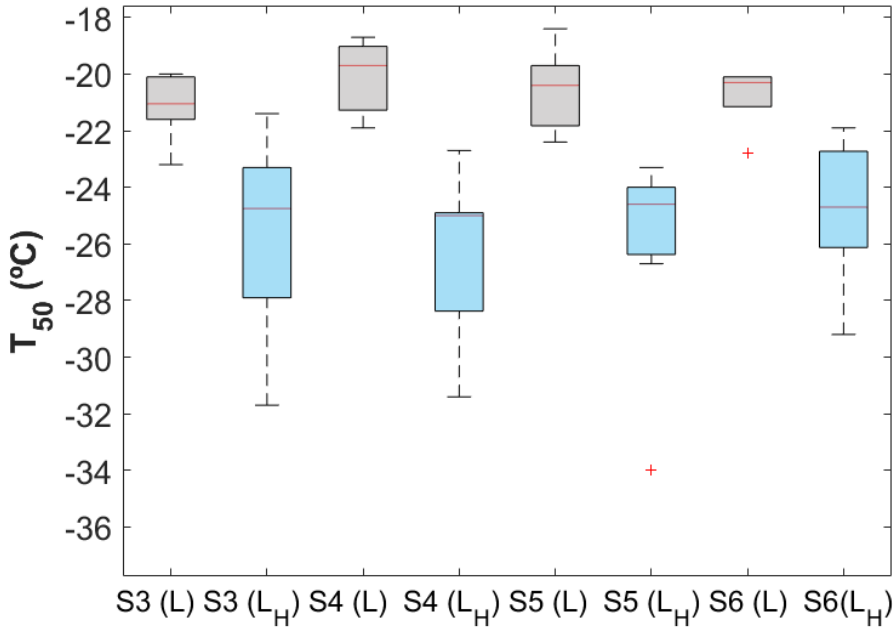

Figure S3: Average T_{50} for the agricultural dust particles generated in the laboratory (L) before (grey boxes) and after (blue boxes) the heating treatment for particle sizes ranging between 3.2 and 5.6 µm (S3), 1.8 and 3.2 µm (S4), 1.0 and 1.8 µm (S5), and 0.56 and 1.0 µm (S6). The heated samples are represented by the letter H. The red cross indicates an outlier value of the T_{50}.

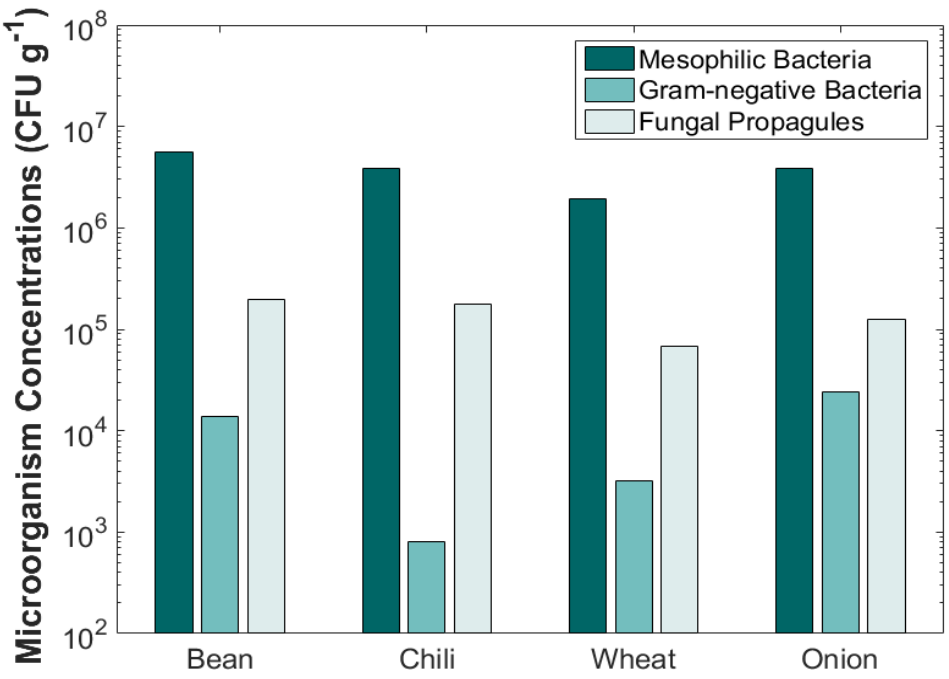

Figure S4: Concentration of microorganisms observed in soil samples collected in ZAC. Samples were cultured on Trypticase Soy Agar, MacConkey Agar, and Malt Extract Agar for mesophilic bacteria, gram-negative bacteria, and fungal propagules, respectively.

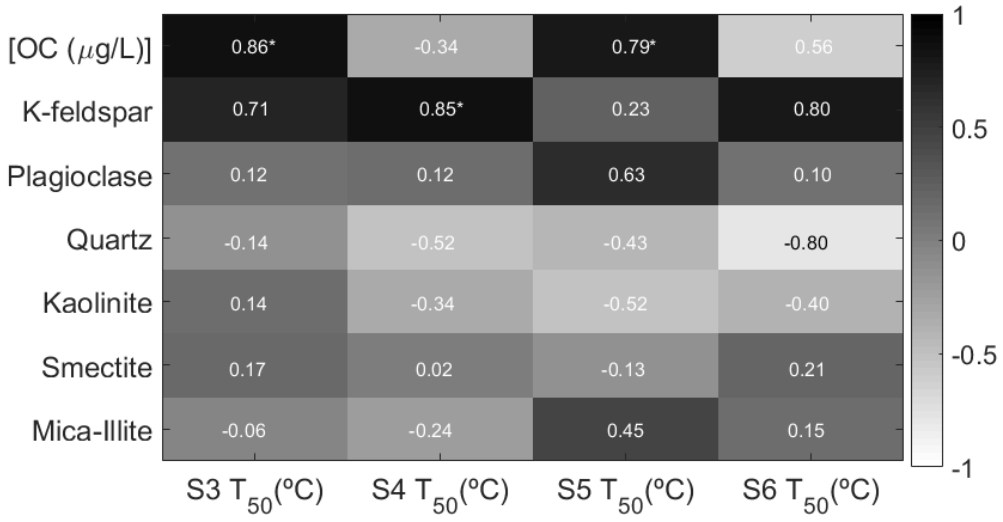

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Figure S5: Correlation map between T_{50}, the concentration of the mineral phases, and the OC concentration for particle ranging between 3.2 and 5.6 µm (S3), 1.8 and 3.2 µm (S4), 1.0 and 1.8 µm (S5), and 0.56 and 1.0 µm (S6).

Table S1: Summary of the temperature shifts (ΔT_{50}) observed for the aerosol samples generated in the laboratory after the heat treatment. The results are reported for particles sizes ranging between 3.2 and 5.6 µm (S3), 1.8 and 3.2 µm (S4), 1.0 and 1.8 µm (S5), and 0.56 and 1.0 µm (S6).

	ΔT_{50} (ºC)			
Soil crop Sample	S3	S4	S5	S6
Corn	N/A	-7,6	-5,4	-4,6
Nopal	-5,9	-5,2	-3,7	-2,9
Corn 2	-11,7	-11,7	-14	-8,9
Bean	-1,9	-3	-6,3	N/A
Chili	-6,3	-9,6	-5	N/A
Wheat	-0,3	-3,2	-2,3	-2,3
Onion	-0,7	-4	-2,2	-1,3

N/A shows not available data as the heat samples were damaged during the experiments.