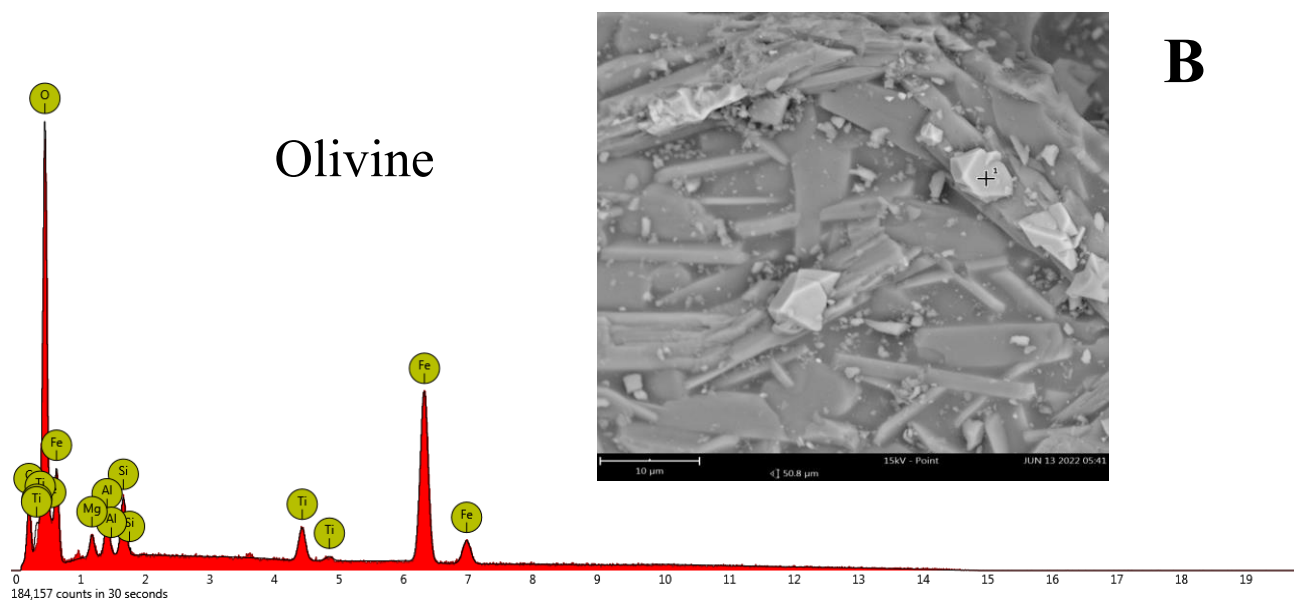
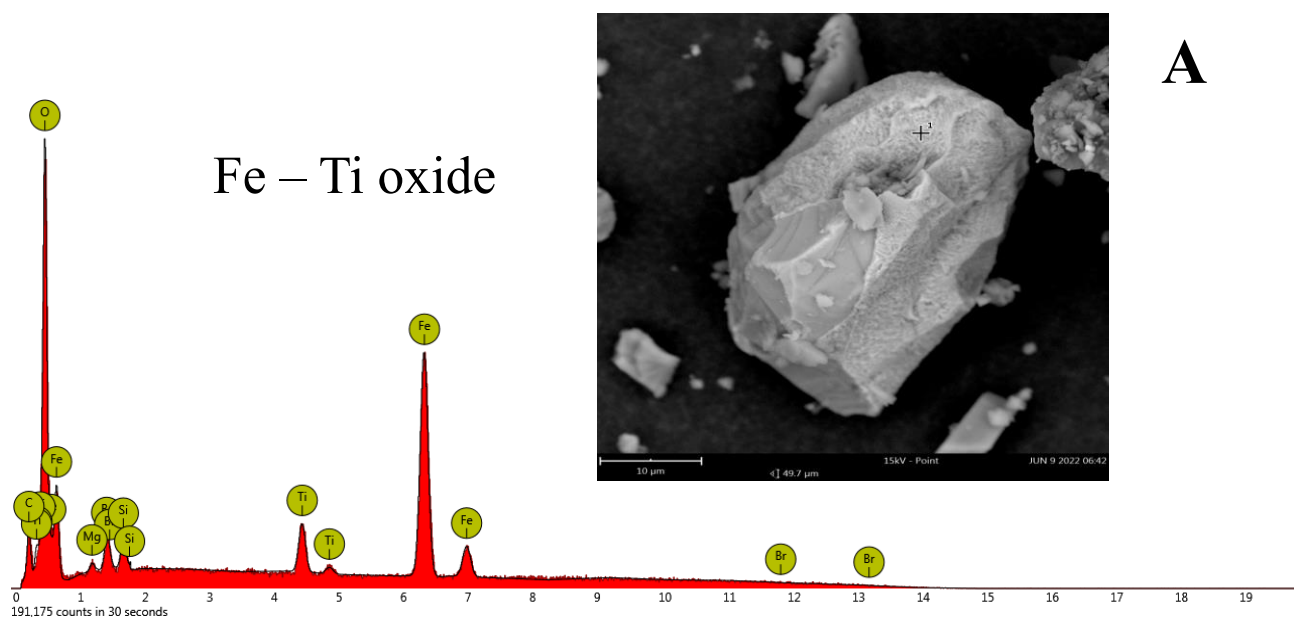


Characterization and Polydispersity of Volcanic Ash Nanoparticles in Synthetic Lung Fluid

Benedetto Schiavo^{1*}, Ofelia Morton-Bermea¹, Diana Meza-Figueroa², Mónica Acosta-Elías³, Belem González-Grijalva², Maria Aurora Armienta-Hernández¹, Claudio Inguaggiato⁴, Daisy Valera-Fernández¹

Supplementary material

Figure S1: Mineralogical phases recognized in ash samples. **A:** Fe-Ti oxide, **B:** Olivine, **C:** Pyroxene.



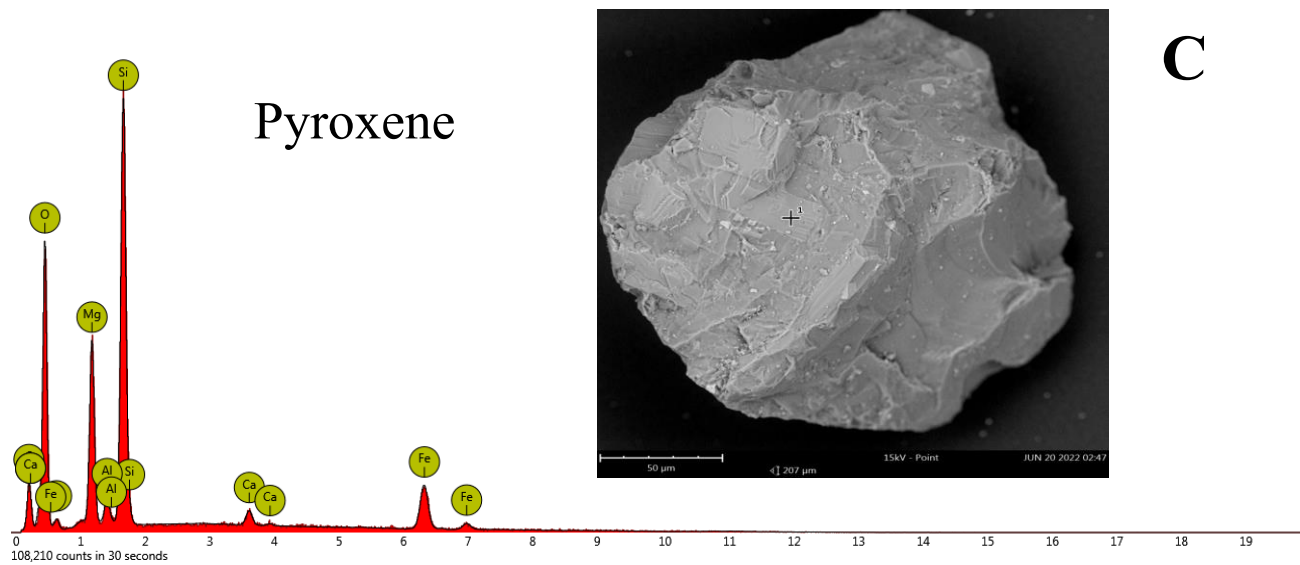
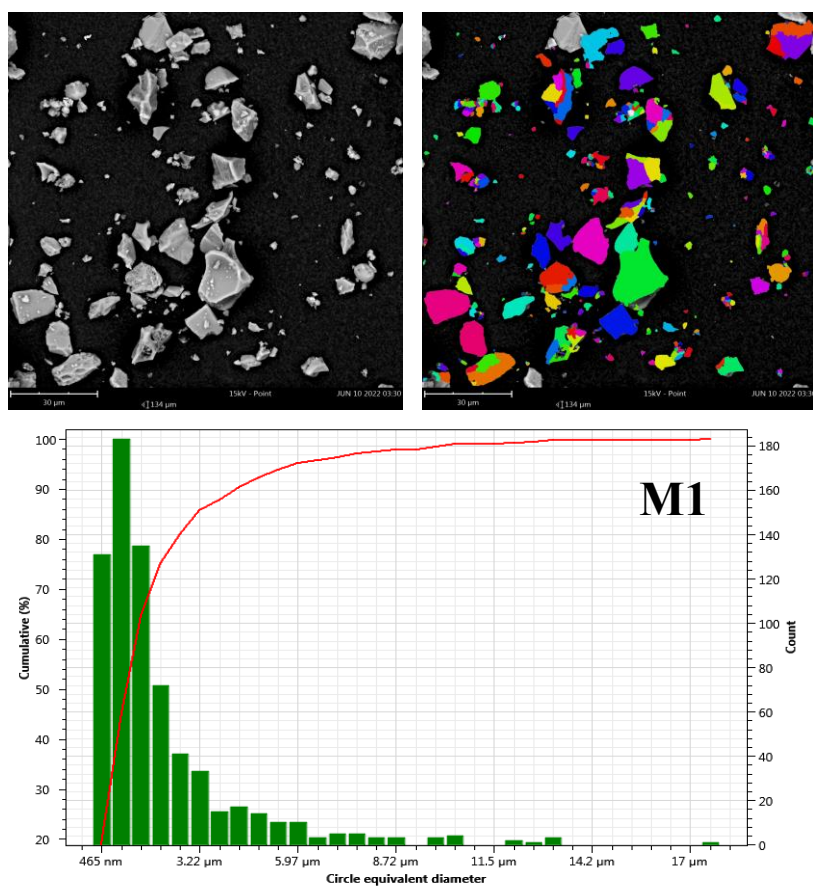
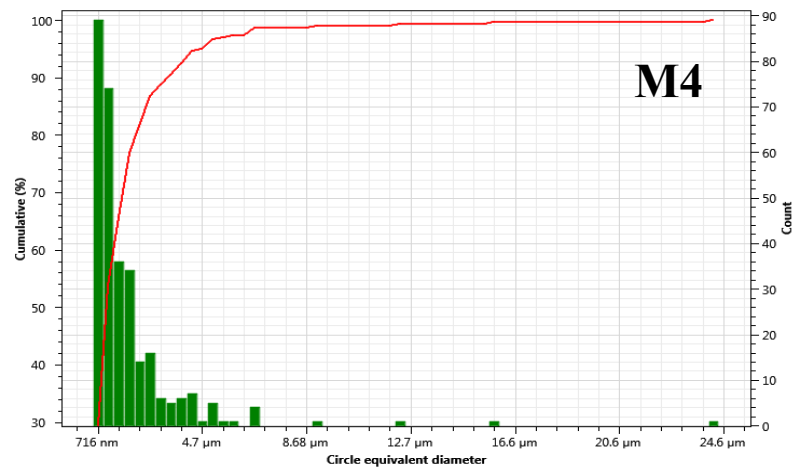
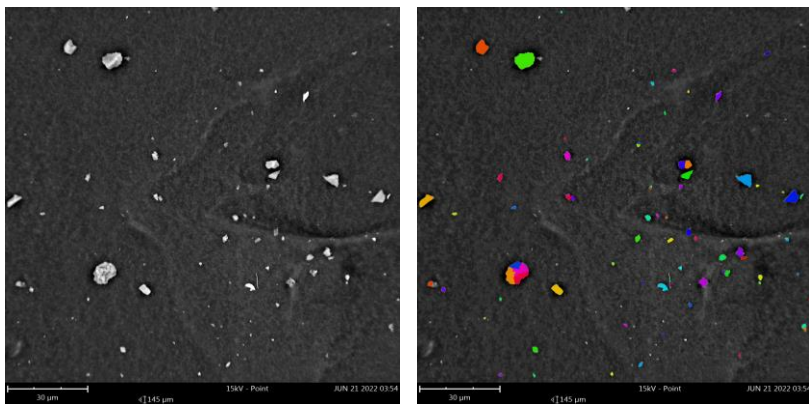
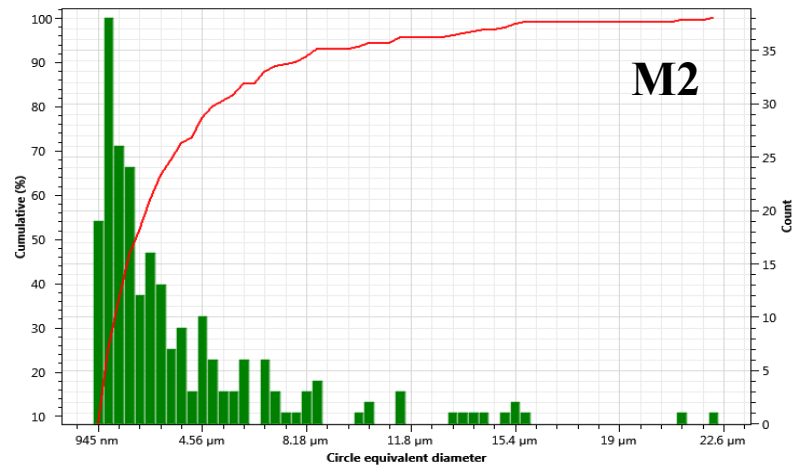
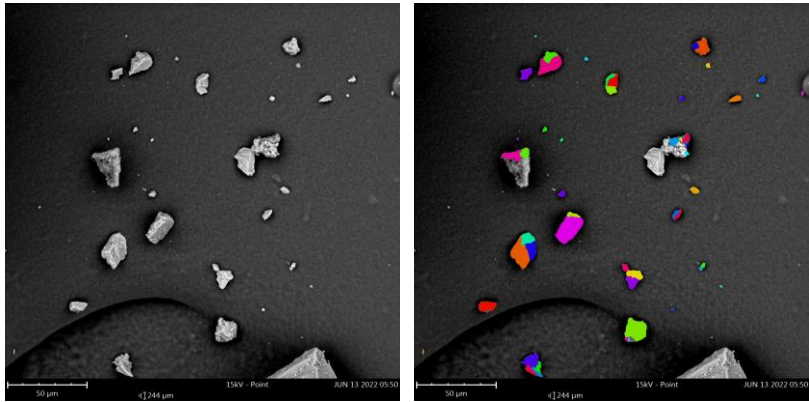


Figure S2: Particle size distribution by ParticleMetric software (SEM) of M1, M2, M4, and M5 ash samples.





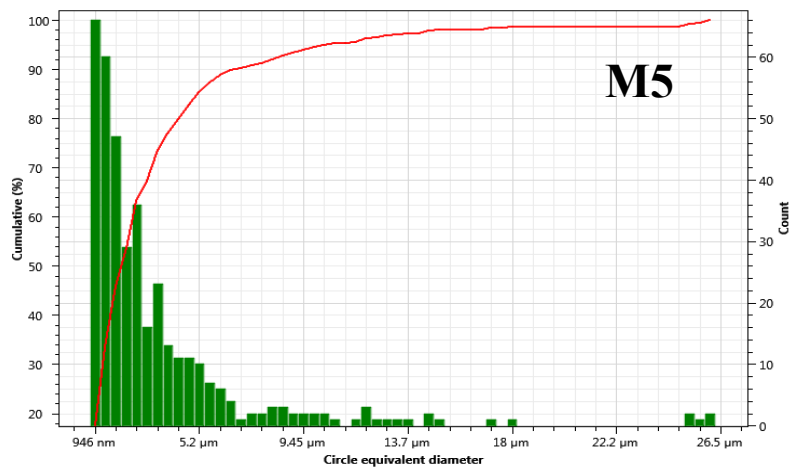
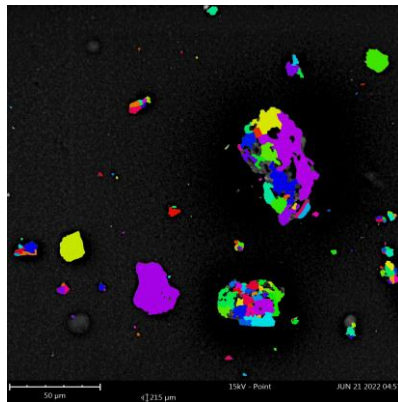
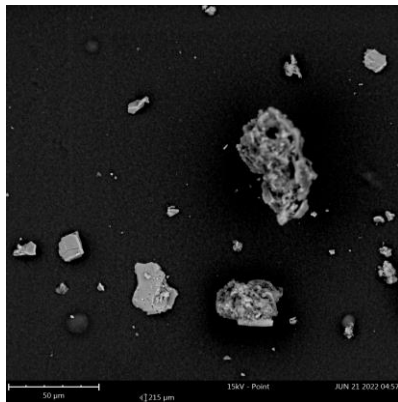


Table S1: Chemical composition of Gamble solution (GS) and Artificial lysosomal fluid (ALF) solution used for in vitro lung bioaccessibility.

Reagent required for 1 L of solution (g)	Formula	GS (pH ~ 7.4)	ALF (pH ~ 4.5)
Magnesium chloride hexahydrate	MgCl ₂ ·6H ₂ O	0.10	0.05
Sodium chloride	NaCl	6.02	3.21
Potassium chloride	KCl	0.30	-
Disodium hydrogen phosphate	Na ₂ HPO ₄	0.13	0.07
Sodium sulphate	Na ₂ SO ₄	0.06	0.04
Calcium chloride dihydrate	CaCl ₂ ·2H ₂ O	0.37	0.13
Sodium acetate	C ₂ H ₃ O ₂ Na	0.57	-
Sodium hydrogen carbonate	NaHCO ₃	2.6	-
Sodium citrate dihydrate	C ₆ H ₅ Na ₃ O ₇ ·2H ₂ O	0.10	0.08
Sodium hydroxide	NaOH	-	6
Citric acid	C ₆ H ₈ O ₇	-	20.8
Glycine	H ₂ NCH ₂ COOH	-	0.06
Sodium tartrate dihydrate	C ₄ H ₄ O ₆ Na ₂ ·2H ₂ O	-	0.09
Sodium lactate	C ₂ H ₅ NaO ₃	-	0.09
Sodium pyruvate	C ₃ H ₃ O ₃ Na	-	0.09