Freeze-induced gelation of dilute alginate suspensions enables encapsulation of suspended microparticles

Colloid and Polymer Science

Rafael V. Oliveira,[a] Walter R. Waldman[a]*

[a] Center for Science and Technologies for Sustainability, Graduate Program in Biotechnology and Environmental Monitoring (PPGBMA), Federal University of São Carlos (UFSCar), Sorocaba, São Paulo, 18052-780, Brazil.

***Corresponding author**

Authors' e-mails: roliveira@estudante.ufscar.br (Rafael V. Oliveira); walter@ufscar.br (Walter R. Waldman)*

Summary of the Supplementary Information: 6 Figures, 4 pages.

Below in the Supplementary Information, you can find all the data cited in the main text to support the discussion and provide additional information where necessary. Additionally, following the UNESCO guidelines for Open Science, we also provide a ZENODO link to make available all the data used to build the graphs and all the data gathered for the paper graphs and images (https://zenodo.org/records/21811681). Briefly, there are all the composite images (controls and treatments), the images and results from FIJI software counting the particles, SEM images for verification of the surroundings, the data used for building all the graphs, and the readme file explaining the organization.



Figure S1 - Photograph of the blue Luxens spray paint used.



Figure S2 - Photographs of the room where paint particles were prepared by spraying the paint in the air.

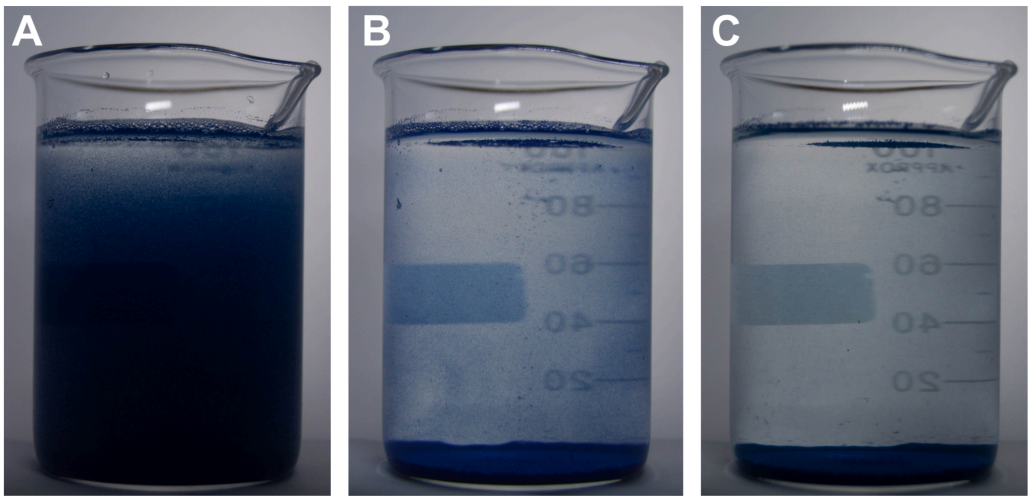


Figure S3 - Pictures of the sinking behavior of the particles as a function of time. A) resting time of 10 minutes; B) resting time of 90 minutes; C) resting time of 180 minutes.

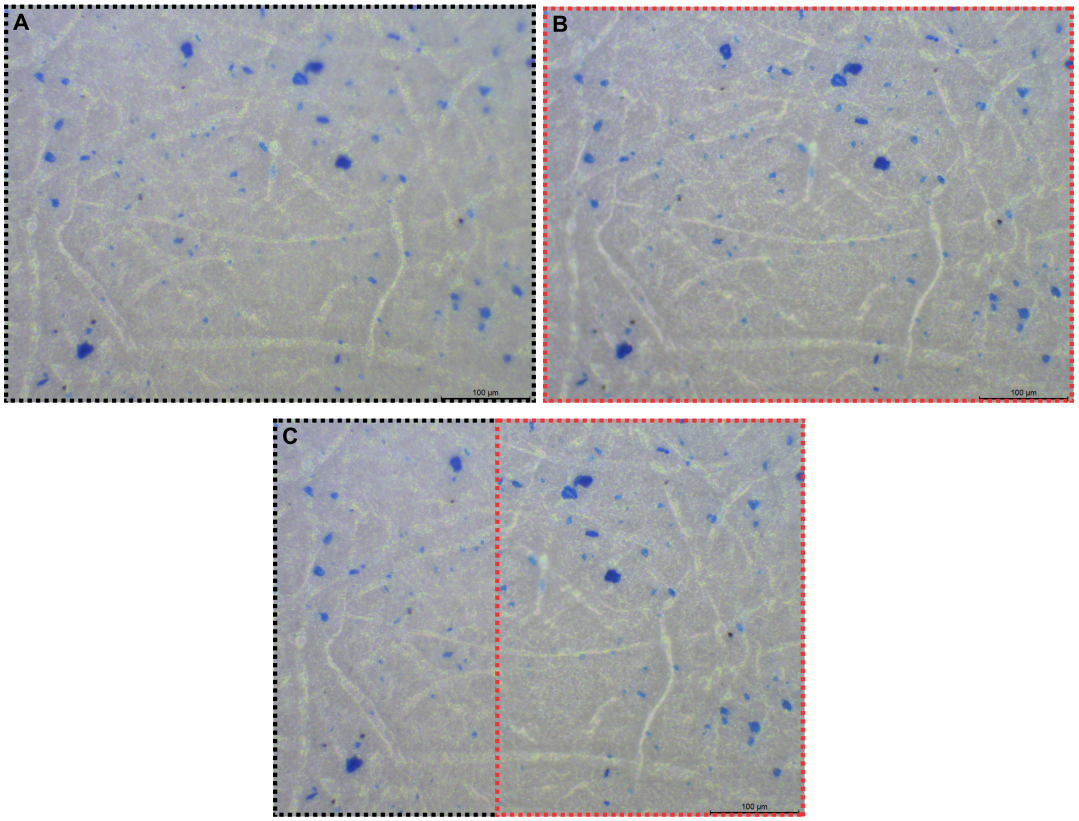


Figure S4 - Example of how the images were composed by merging photographs. A - Image with better focus on the left side. B - Image with better focus on the right side. C - Image resulting from merging photographs A and B.

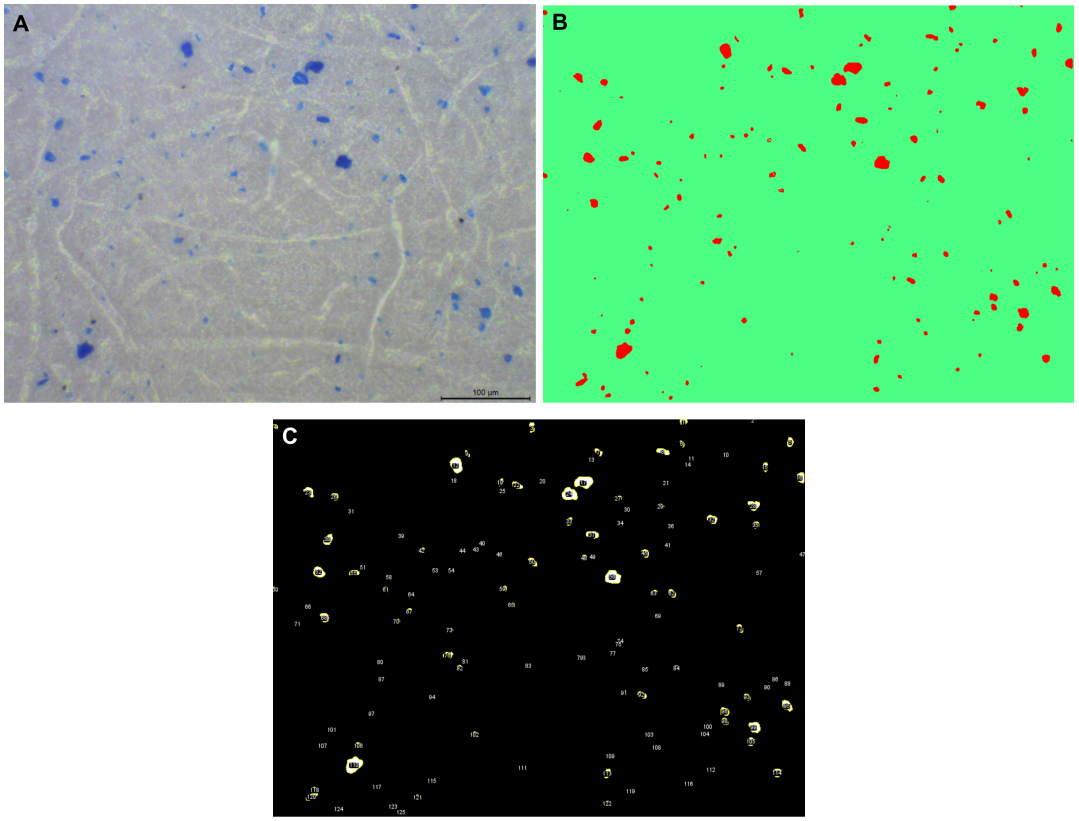


Figure S5 - These three images illustrate the steps taken during the process of counting the particles. A) Image from the composite of photographs obtained under an optical microscope with 20x magnification (Figure S4C). B) Image obtained after applying the Trainable Weka Segmentation plugin in FIJI (ImageJ) software. C) Image of the particles that were actually counted.

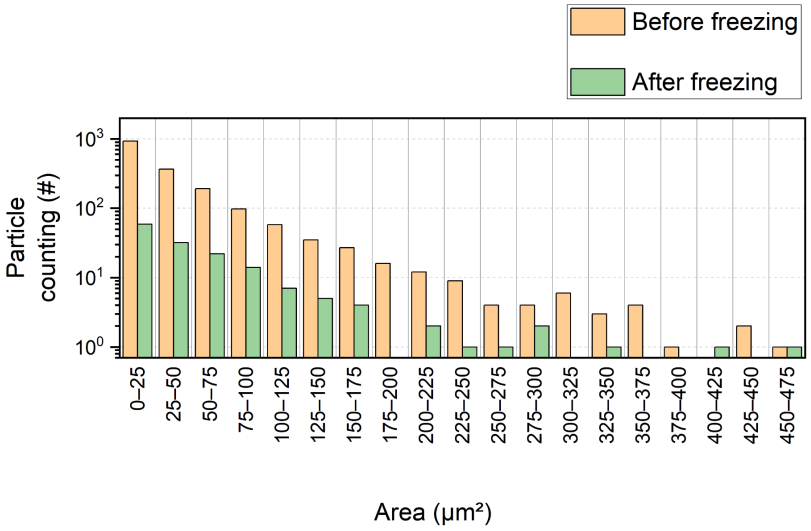


Figure S6: Graph of the particle counting made by the FIJI plugin Trainable Weka Segmentation (TWS) as a function of the size range before and after the freezing/thawing process (note the log scale on the y-axis).