

Supporting Information

Influence of a Non-Ionic Surfactant in the Microstructure and Rheology of a Pickering Emulsion Stabilized by Cellulose Nanofibrils

Jorge Velásquez-Cock ^{1,*}, Angélica María Serpa ², Catalina Gómez-Hoyos ¹, Piedad Gañán ³, Manuel Romero-Sáez ⁴, Lina María Vélez ², Natalia Correa-Hincapié ⁴ and Robin Zuluaga ²

¹ Programa de Ingeniería en Nanotecnología, Universidad Pontificia Bolivariana, Medellín 050031, Colombia; catalina.gomez@upb.edu.co

² Facultad de Ingeniería Agroindustrial, Universidad Pontificia Bolivariana, Medellín 050031, Colombia; angelicaserpa31@gmail.com (A.M.S.); lina.velez@upb.edu.co (L.M.V.); robin.zuluaga@upb.edu.co (R.Z.)

³ Facultad de Ingeniería Química, Universidad Pontificia Bolivariana, Medellín 050031, Colombia; piedad.ganan@upb.edu.co

⁴ Grupo Calidad, Metrología y Producción, Instituto Tecnológico Metropolitano, Medellín 050034, Colombia; manuelromero@itm.edu.co (M.R.-S.); nataliacorrea@itm.edu.co (N.C.-H.)

* Correspondence: jorgeandres.velasquez@upb.edu.co

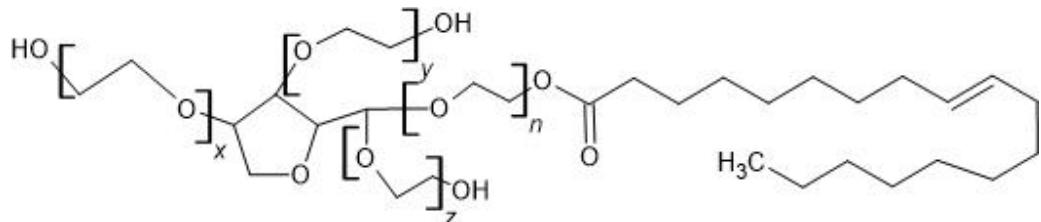


Figure S1. Chemical structure of polysorbate 80. $x + y + z + n = 20$.

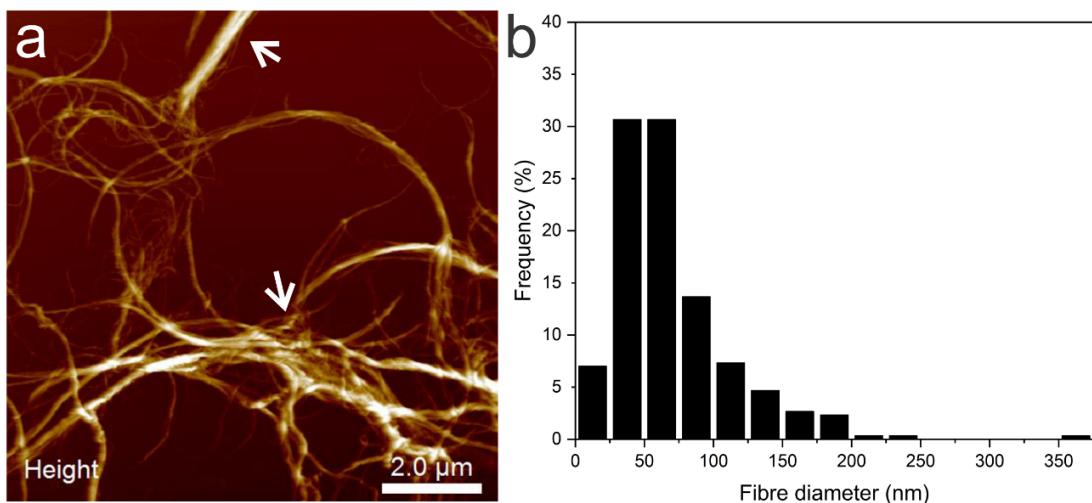


Figure S2. Atomic force microscopy height image of dried CNFs (a), and a fiber diameter frequency histogram (b).

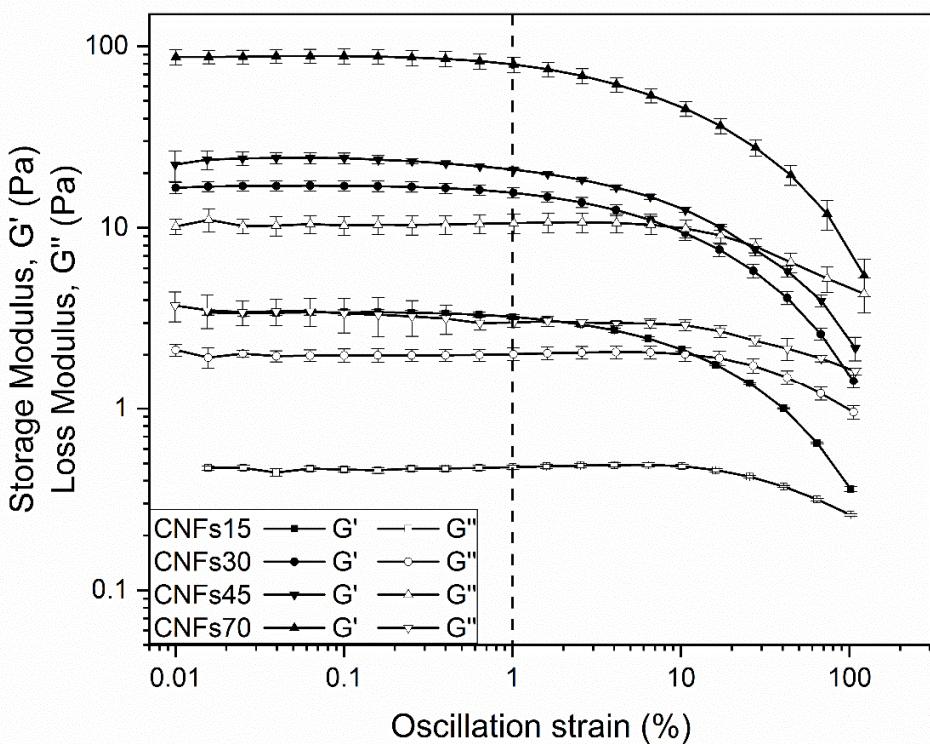


Figure S3. Amplitude sweep of cellulose suspensions containing 0.15, 0.3, 0.45 and 0.7 wt.% of CNFs, after their homogenization.

Table S1. Lipid profile of the coconut oil incorporated in the emulsions.

| Fatty Acid | Fatty Acid Content (g/100 g) |
|------------|------------------------------|
| C6:0 | 0.535 ± 0.002 |
| C8:0 | 7.058 ± 0.017 |
| C10:0 | 5.855 ± 0.017 |
| C12:0 | 49.145 ± 0.022 |
| C14:0 | 17.523 ± 0.024 |
| C16:0 | 7.652 ± 0.025 |
| C17:0 | Not detected |
| C18:0 | 2.851 ± 0.004 |
| C20:0 | Not detected |
| C16:1 | Not detected |
| C18:1n9c | 4.310 ± 0.009 |
| C20:1n9 | Not detected |
| C18:2n6c | 0.692 ± 0.002 |
| C18:3n3 | Not detected |

Table S2. Surface tension of the coconut oil-buffer interphase, measured at various times and using different concentrations of polysorbate 80 dissolved in the aqueous phase.

| Time (min) | Surface Tension (dyn cm ⁻¹) | | |
|------------|---|-------------|-------------|
| | 0 | 15 | 30 |
| 0 wt.% | 15.81 ± 2.04 | 5.84 ± 0.74 | 4.12 ± 0.49 |
| 0.1 wt.% | 2.94 ± 0.77 | 0.81 ± 0.13 | 0.61 ± 0.05 |
| 0.2 wt.% | 3.09 ± 0.45 | 0.85 ± 0.08 | 0.63 ± 0.07 |
| 0.4 wt.% | 2.47 ± 0.13 | 0.72 ± 0.04 | 0.7 ± 0.06 |
| 0.6 wt.% | 2.19 ± 0.13 | 0.55 ± 0.02 | 0.52 ± 0.02 |
| 1 wt.% | 1.77 ± 0.08 | 0.57 ± 0.01 | 0.55 ± 0.01 |