

Figures

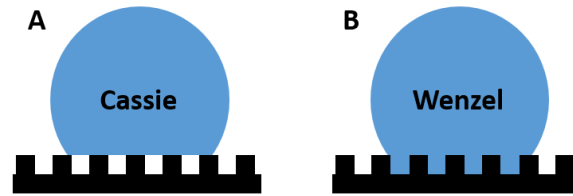


Figure 1. Scheme of a droplet in the non-wetting Cassie state (A), with the presence of air bubbles beneath the droplet, in the surface anfractuositities, and in the wetting Wenzel state (B), with the droplet filling all the anfractuositities of the surface beneath it.

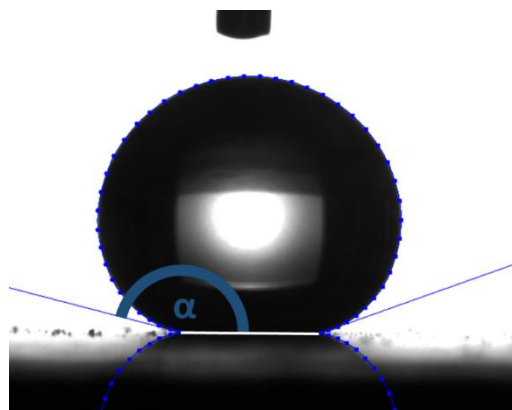


Figure 2. Picture of a $\sim 20 \mu\text{L}$ droplet (20 mM HEPES, pH 7.45) deposited on a Glaco™ coated glass blade ($76 \times 26 \text{ mm}$) surface. Contact angle, CA = 159° .

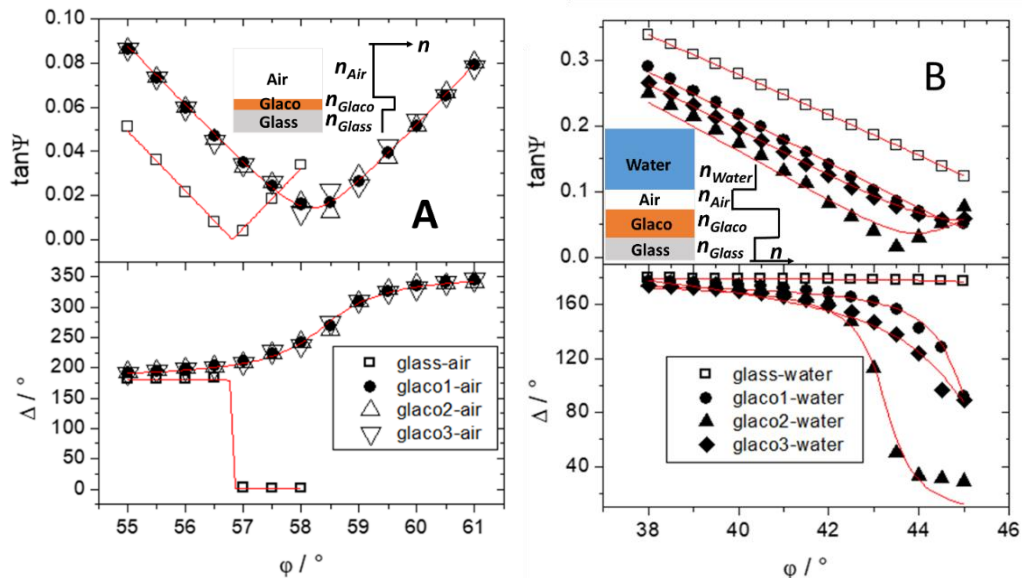


Figure 3. Ellipsometric scans of Glaco™ coated glass blade at the solid-air interface (A) and solid-liquid interface (B). Glaco 1, Glaco 2 and Glaco 3 are three different Glaco™ coated glass blades. Ultrapure water was used for (B).

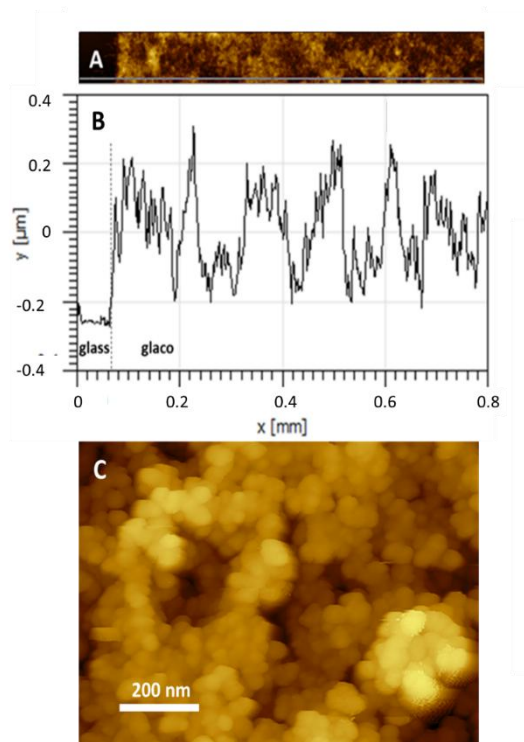


Figure 4. (A) Tapping mode AFM scan of a Glaco™ coated glass blade surface with a bare glass space (black) ; (B) corresponding texture profile of AFM scan showing the size and structure of the Glaco™ nanoparticles and clusters ; and (C) zoom in of the Glaco™ coating.

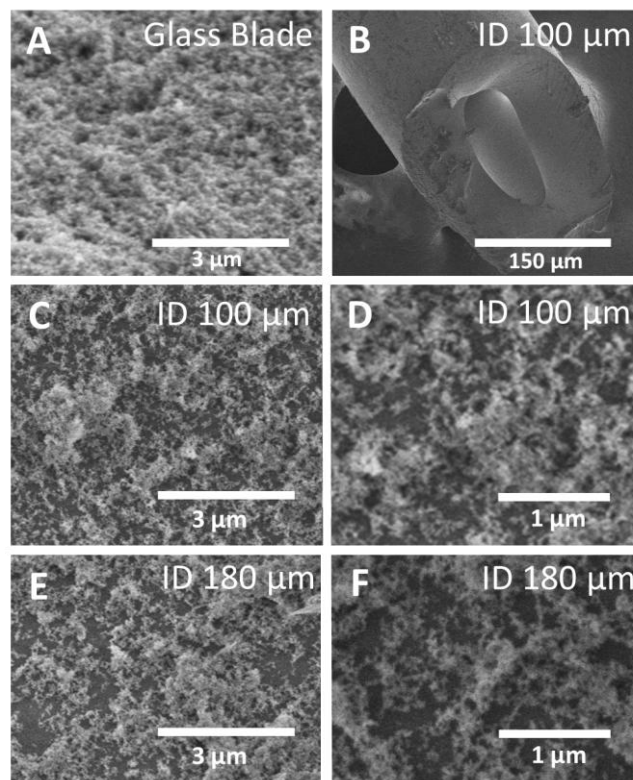


Figure 5. SEM pictures of Glaco™ coated surfaces. Glaco™ coated glass blade (A). Beveled capillary end (100 μ m internal diameter capillary) (B). (C) and (D) display different zooms of a 100 μ m internal diameter capillary inner wall coated by Glaco™. (E) and (F) show different zooms of a 180 μ m internal diameter capillary inner wall coated by Glaco™.

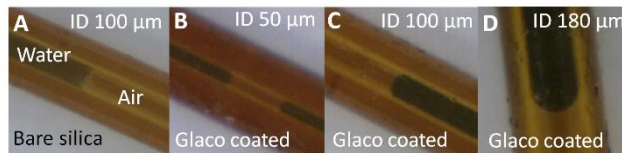


Figure 6. Visualization of the meniscus in bare silica (A: 100 μm ID) and in Glaco™ coated capillaries of different internal diameters (B: 50 μm ; C: 100 μm and D: 180 μm ID) by optical microscopy (magnification x50). Capillaries are filled with blue colored water (dyed with E133 at 1 g/L) and air. Glaco™ coated capillaries are prepared according to the protocol given in section 2.2 (see also Table 1).

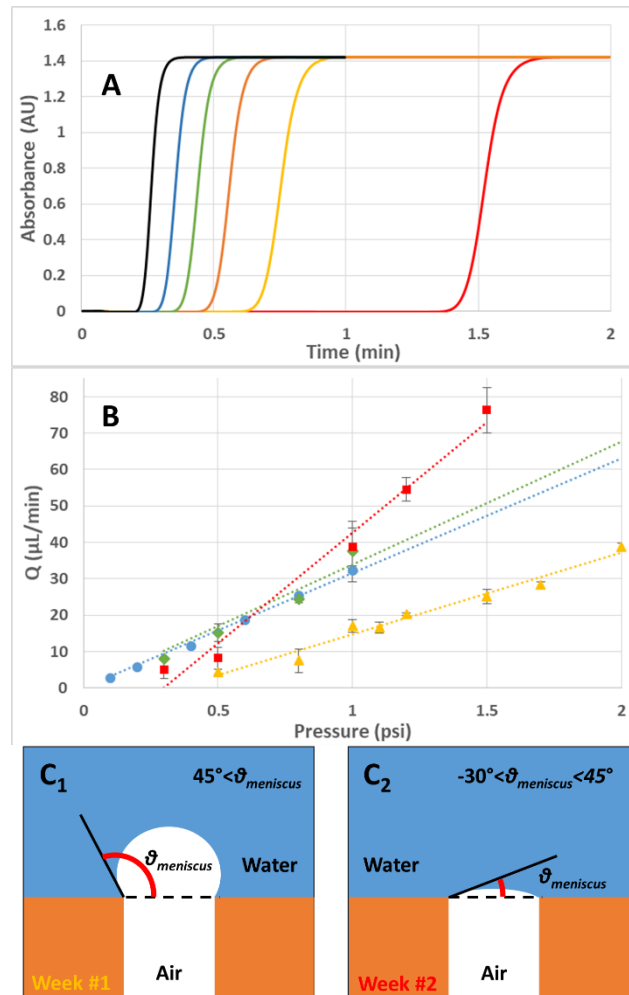


Figure 7. DMF fronts obtained at different applied pressures on Glaco™ coated capillary (A): 2 psi (black), 1.5 psi (blue), 1.2 psi (green), 1 psi (orange), 0.8 psi (yellow) and 0.5 psi (red) and the Poiseuille profiles obtained for different 180 μm ID capillaries (B): bare silica capillary (●), Glaco™ coated capillary week #1 (▲), week #2 (■), and week #3 (◆). Glaco™ coated capillaries # 1, 2 and 3 correspond to the same capillary used in the first week, second week and third week of experiments. Each flow rate determination was realized in triplicate (error bars are +/- one SD). Experimental conditions: capillary dimensions 180 μm ID x 40 cm length (30 cm to the detector). BGE: 20 mM HEPES + 10 mM NaOH at pH 7.65. Marked BGE contains 0.5 % DMF in the HEPES/Na BGE. BGE flush between runs: 1 psi (~ 70 mbar), 2 min. (C₁) and (C₂) show schemes of an air bubble in the capillary, during week #1 and week #2.

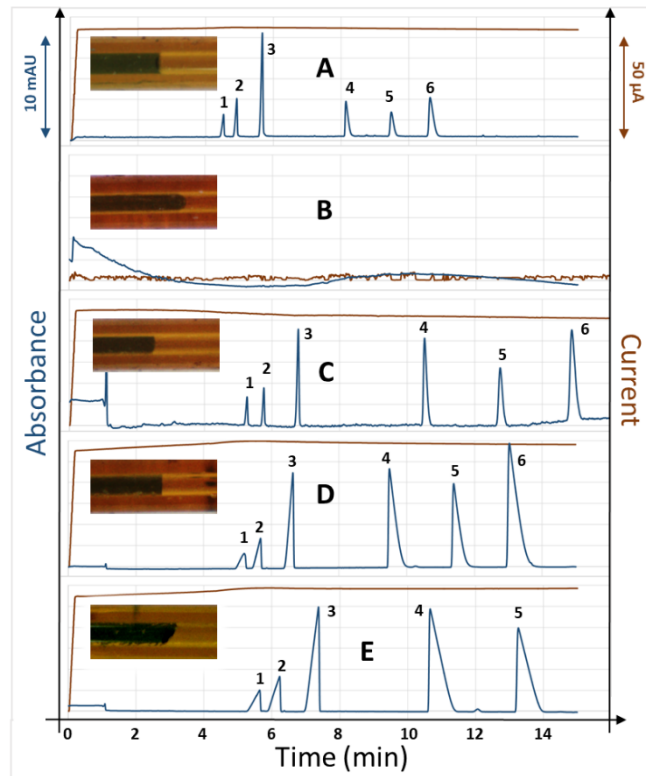


Figure 8. Electrophoregrams (blue traces) of a peptide mixture obtained on bare silica capillary (**A**), freshly prepared Glaco™ coated capillary (**B**), Glaco™ coated capillary after 5 runs (**C**), Glaco™ coated capillary after 10 runs (**D**), and Glaco™ coated capillary after 15 runs (**E**). Corresponding current intensity are displayed in brown. Inserts show the water (dyed with E133 at 1 g/L) – air (translucent brown) interface of each capillary. Experimental conditions: capillary dimensions 100 μm x 40 cm length (30 cm to the detector). Background electrolyte: Tris / Phosphate 6.5 mM/14.1 mM at pH 2.5. Voltage: 10 kV. Pressure: + 3 psi at both ends. Injection: 2 psi, 0.2 s. Peptide identification: Bursin (1), Lys-His-Gly (2), Creatinine (3), Ala-Ala (4), Ala-Ala-Ala (5) and Ala-Ala-Ala-Ala (6).

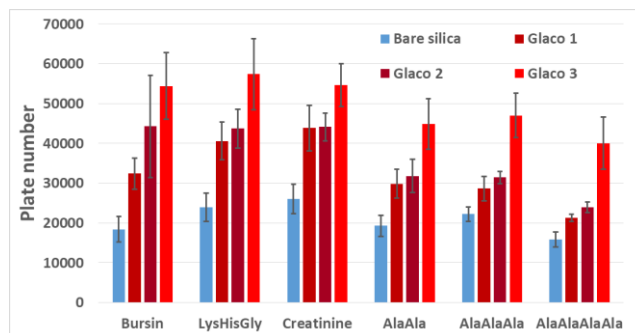


Figure 9. Separation efficiencies for each peptide obtained on bare silica capillary and on three different Glaco™ coated capillaries. Plate numbers are average value obtained on 4 successive runs (from run 5 to run 9 of each capillary) (+/- one SD). Experimental conditions as in Figure 8.