Improving silica matrices for encapsulation of *E. coli* using osmoprotectors

Mercedes Perullini[1], Makhlouf Amoura,[3] Cécile Roux[3], Thibaud Coradin,[3]* Jacques Livage,[3] Maria Laura Japas[4], Matías Jobbágy[1,2] and Sara A. Bilmes[1,2*]

SUPPLEMENTARY INFORMATION

Table 1: composition of hydrogels

sample	$[Si]_{SiNa}$: $[Si]_{Ludox}$	$[Si]_{SiNa}$ (M)	$[Na^+]_{total}$ (M)
HG-1:3	1:3	0.52	0.32
HG-1:3.5	1:3.5	0.46	0.29
HG-1:4	1:4	0.42	0.27
HG-1:4.5	1:4.5	0.38	0.24
HG-1:5	1:5	0.35	0.23

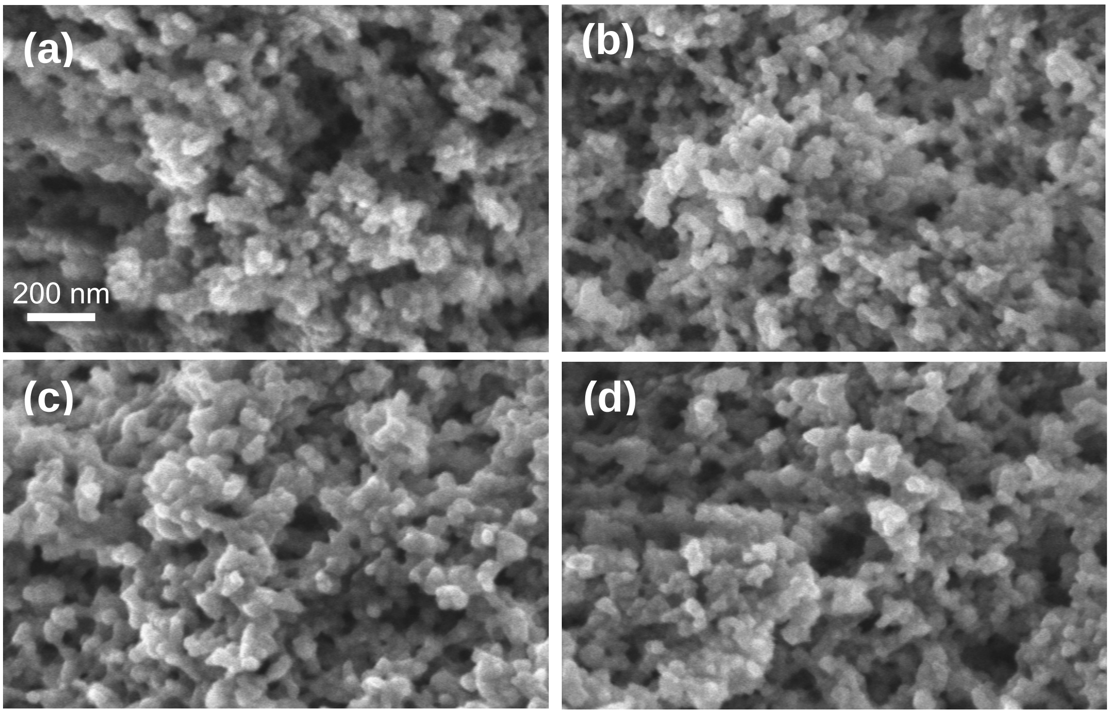


Figure S1. SEM micrographs of aerogels derived from hydrogels with glycine betaine 10 mM: (a) HG-1:3, B; (b) HG-1:4, B; (c) HG-1:5, B and without glycine betaine: (d) HG-1:5. All pictures were taken with the same magnification and in all cases samples were not metallised.

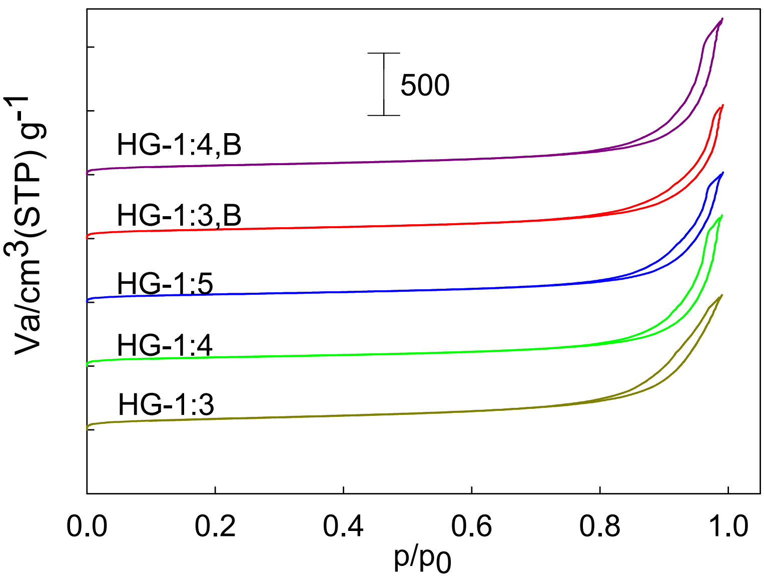
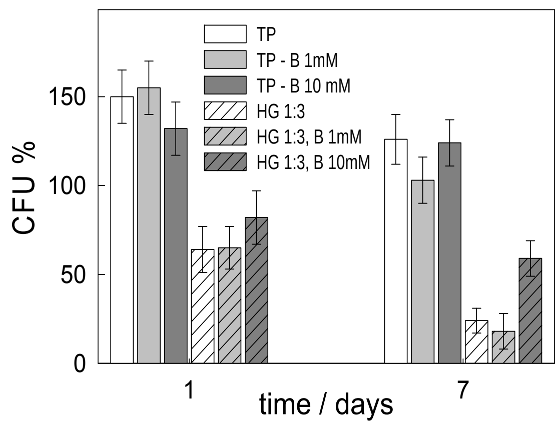


Figure S2. Adsorption isotherms



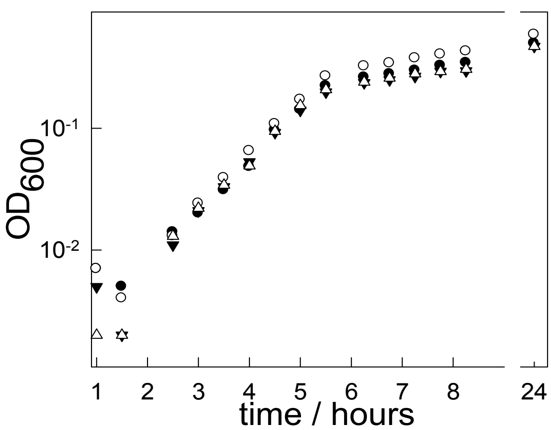


Figure S3a. Viability of *E. coli* encapsulated in HG-1:3 matrices with different concentrations of glycine betaine (0, 1 and 10 mM). **S3b.** Growth of *E. coli* in MMG medium with B concentration 0 mM (●), 1 mM (○), 10 mM (▼)and 100 mM (Δ) GB.

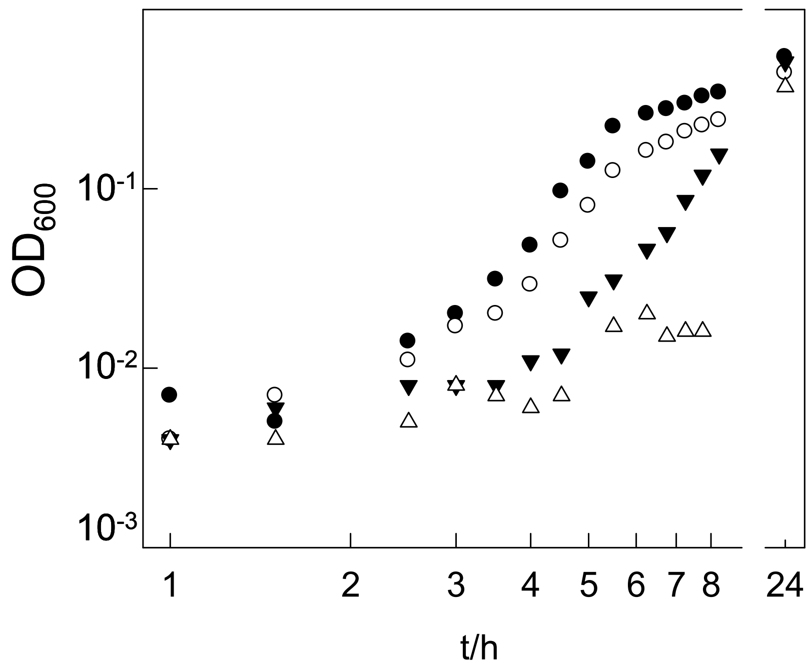


Figure S4. Growth of *E. coli* in MMG medium at the NaCl concentration 0 mM (●), 100 mM (○), 200 mM (▼) and 400 mM (∆).

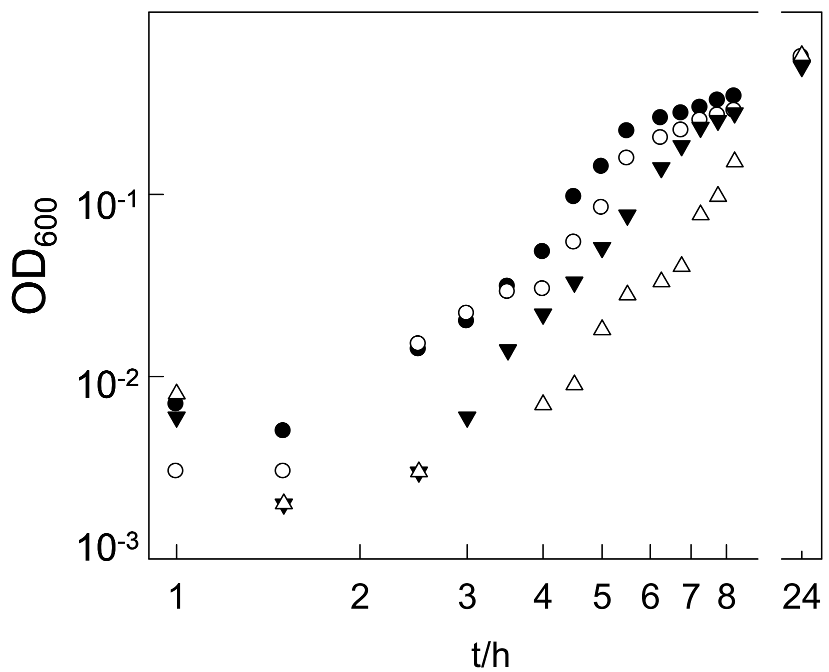


Figure S5. Growth of *E. coli* in MMG medium and B concentration 10 mM, with NaCl concentration 0 mM (●), 100 mM (○), 200 mM (▼) and 400 mM (∆) .

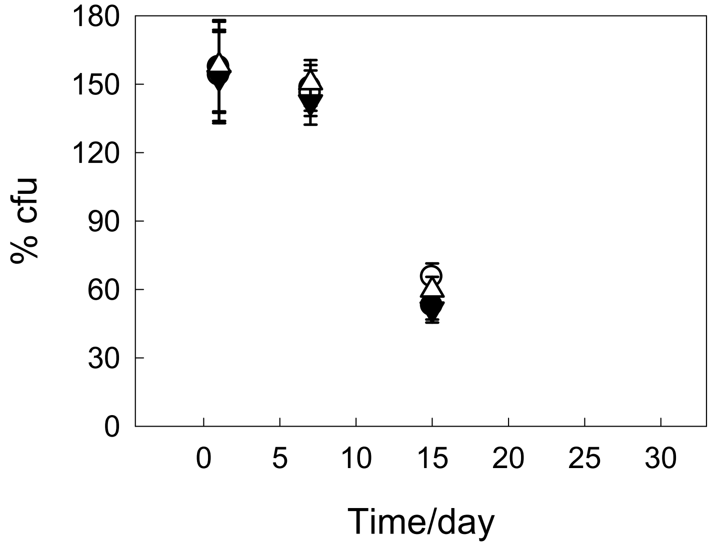


Figure S6. Viability decay of *E. coli* in MMG medium without osmoprotectors (●), with 10 mM B (○), with 10% G (▼) and with 10 mM B + 10% G (∆).