Phospholipid-Templated Silica Nanocapsules as Efficient Polyenzymatic Biocatalysts

Lai Truong Phuoc, Paco Laveille, Françoise Chamouleau, Gilbert Renard, Jullien Drone, Bernard Coq, Francois Fajula, Anne Galarneau*

Supplementary information

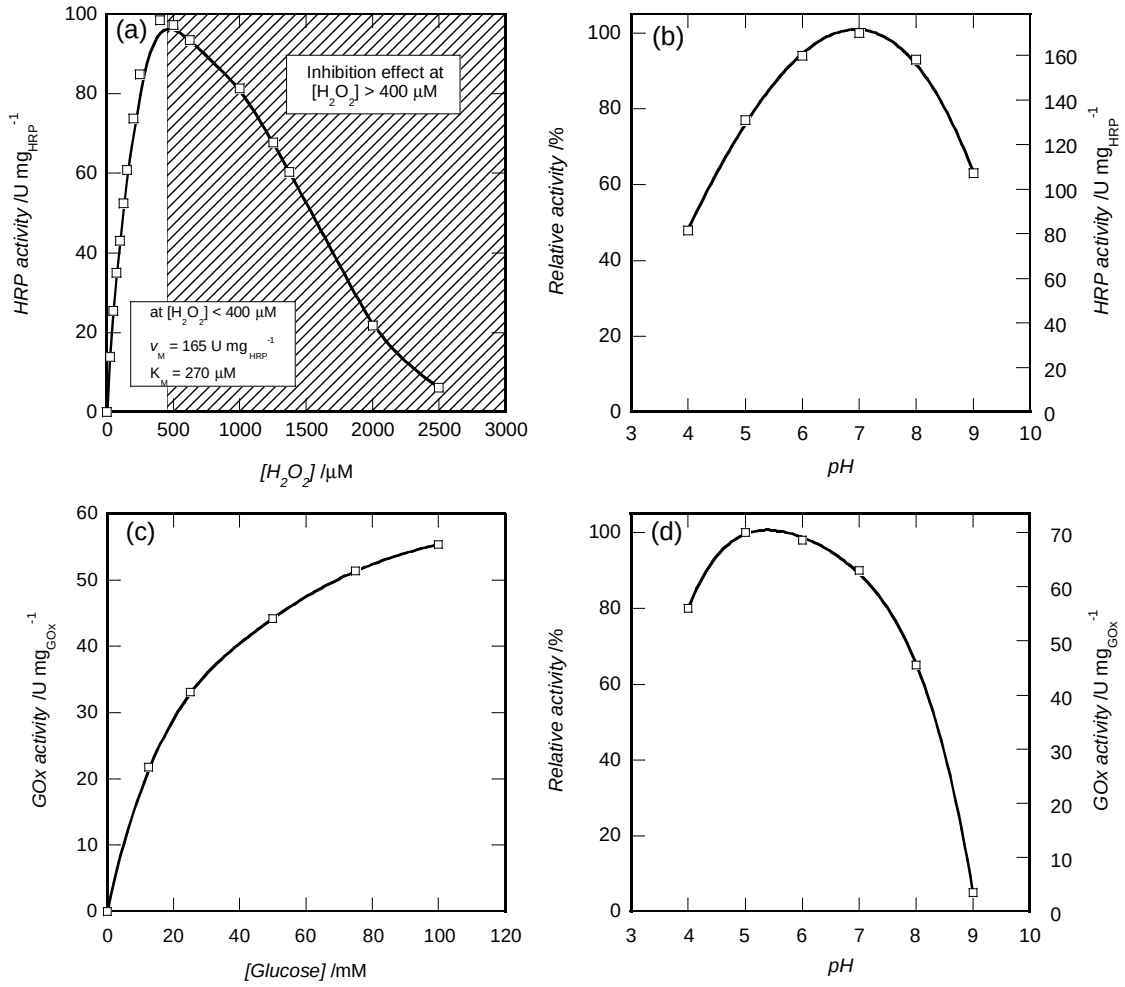

Figure S1. Activities for the free HRP and GOx enzymes. HRP activity as a function of: H_2O_2 concentration (a), and pH ([H_2O_2]: 0.25 mM) (b). GOx activity as a function of glucose concentration (c), and pH ([glucose]: 200 mM) (d).

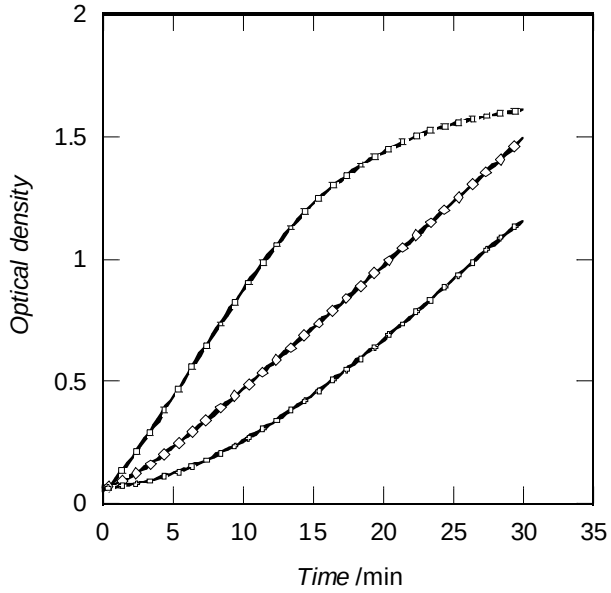

Figure S2. Progress of the Trinder reaction (expressed as optical density) as a function of time for GOx/HRP-NPS biocatalyst (m = 20 mg, activity ratio HRP/GOx = 2.9): (□) with addition of 1 mM pure H_2O_2, (◇) with addition of 200 mM glucose and an excess of free HRP (2.4 U), (○) with addition of 200 mM glucose.

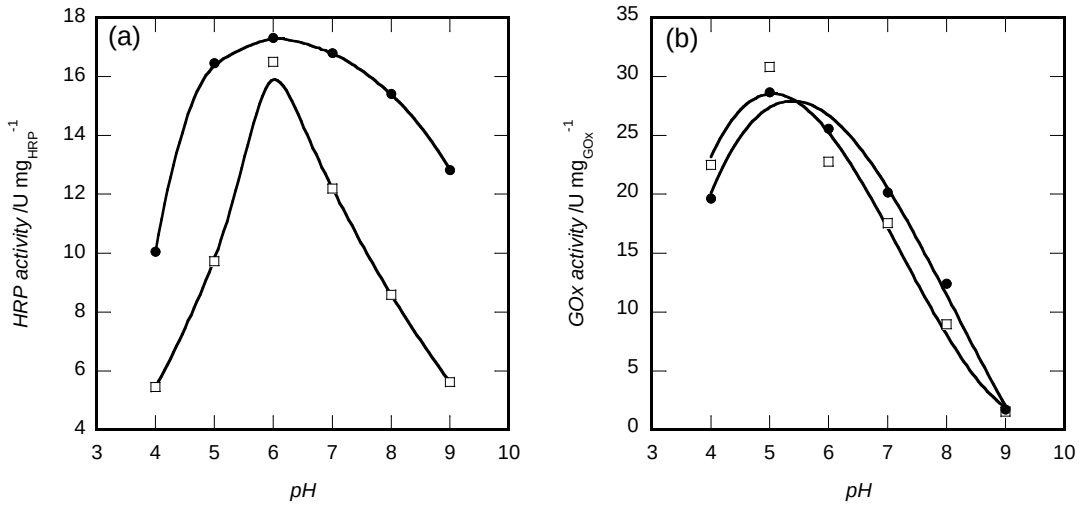

Figure S3. Activities (v_1 and v_2) in the Trinder reaction of GOx/HRP-NPS: (a) HRP activity (v_2) of GOx/HRP-NPS (□) and HRP-NPS (●) as a function of pH; (b) GOx activity (v_1) of GOx/HRP-NPS (□) and GOx-NPS (●) as a function of pH.

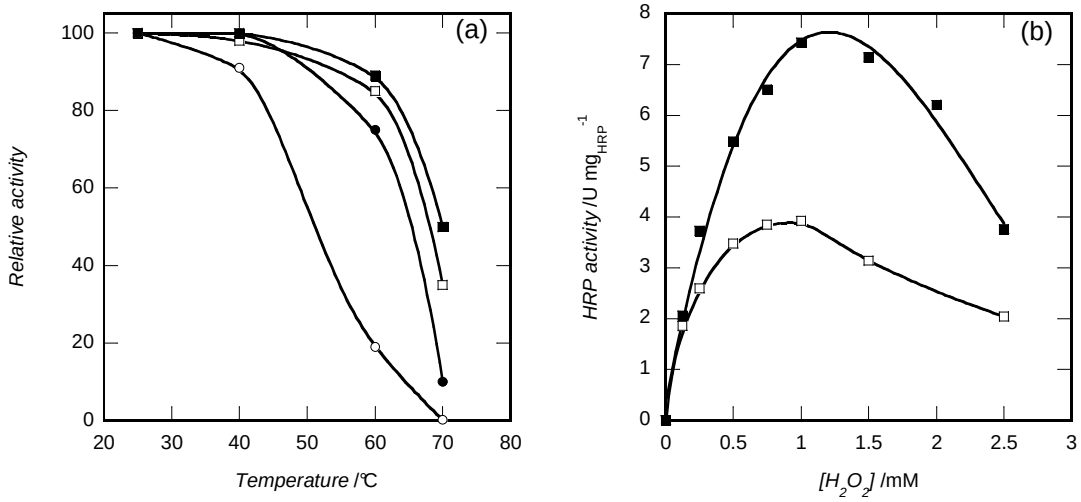

Figure S4. (a) Relative activities, with respect to that at 25°C, of the free and NPS-encapsulated enzymes as a function of temperature: (○) free GOx, (●) GOx in GOx/HRP-NPS, (□) free HRP, (■) HRP in GOx/HRP-NPS; (b) HRP activity (v_2) as a function of H_2O_2 concentration for: (■) HRP-NPS, (□) GOx/HRP-NPS.