A low molecular weight hydrogel which exhibits electroosmotic flow and its use as a bioreactor and for electrochromatography of neutral compounds

Shaul Mizrahi, Dan Rizkov, Netanel Hayat and Ovadia Lev*

Supporting Information

Gel preparation: For the EOF studies (Figures 1, 2 and buffer experiments described on page 2) gels were prepared by dissolving the desired amount of gelator in 3mL of hot buffer and poured into the Teflon electrophoresis cell. The cell was 2.6 cm wide and the gel length was 6 cm. Mesityl oxide was spotted onto the beginning of the gel, voltage was applied, and the mesityl oxide was detected with a UV lamp. For the separation and bioreactor experiments, the capillaries were formed by injecting a hot solution of the gelator in buffer into the capillary.

Buffer experiments: In order to determine the exact source of the electroosmosis, the mobility of mesityl oxide was measured in a variety of buffers. The results from phosphate and trisamine buffers at pH 8 at different concentrations are in Table 1. The mobility was identical in all buffers within the experimental error.

Table 1: Mobility of mesityl oxide in different buffers

Buffer type	Buffer concentration	Mobility (10^{-2} cm^2/V min)
Phosphate	2 mM	1.08
	5 mM	1.09
	10 mM	1.11
Trisamine	2 mM	1.08
	5 mM	1.06
	10 mM	1.06

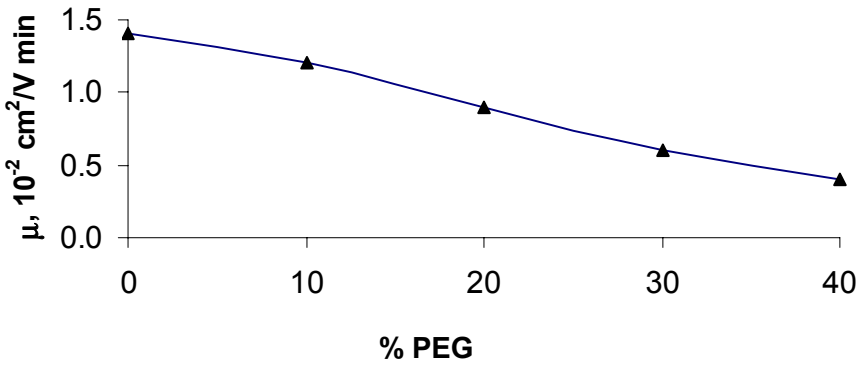

Figure S-1: The effect of adding polyethylene glycol (200) to the run buffer (phosphate. pH 10) on the mobility of mesityl oxide.

Enzyme kinetics: The oxidation of pyrogallol was performed in different length capillaries at different voltages. Each combination of length-voltage provides a different residence time. The results are summed up in Figure S-2.

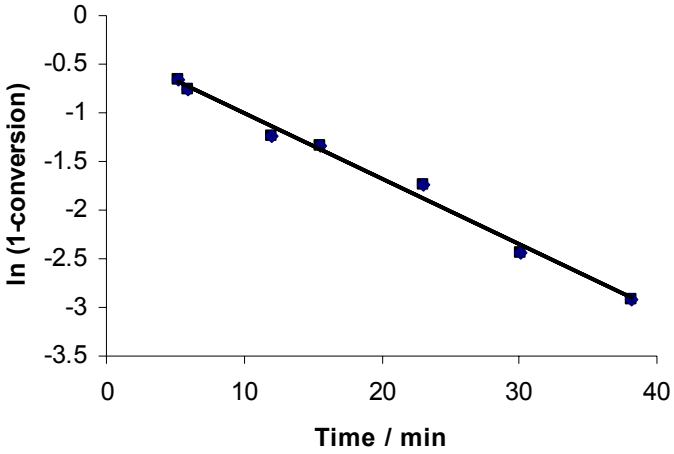

Figure S-2: Kinetic data for the oxidation of pyrogallol