Supplemental Information

Table A. Conductivity, viscosity, and kinetic constants of the ABTS – veratryl alcohol electrochemical reaction in 0.1 M sodium acetate buffer pH 4.5, and in 5, 15, 30% (v/v) [EMIM][Ac] and [EMIM][$EtSO_4$] solutions as well as ionic liquid equivalent solutions made up from 0.1 M sodium acetate buffer, pH 4.5, with NaCl and PEG_{400}. Scan rates 10 – 80 mV/s, Potential range 0 – 1200 mV, 1 mM ABTS, 0 – 15 mM veratryl alcohol.

Solution	Conductivity [mS/cm]	Viscosity [Pa.s]	k [M^{-1} s^{-1}]
buffer only	12.2	0.00124	335.3
5% (v/v) ionic liquid eqv.	22.0	0.00140	864.5
15% (v/v) ionic liquid eqv.	38.8	0.00182	241.2
30% (v/v) ionic liquid eqv.	46.3	0.00298	0.0
5% (v/v) [EMIM][Ac]	23.1	0.00143	715.1
15% (v/v) [EMIM][Ac]	42.4	0.00201	115.9
30% (v/v) [EMIM][Ac]	47.1	0.00344	0.0
5% (v/v) [EMIM][$EtSO_4$]	20.9	0.00138	373.9
15% (v/v) [EMIM][$EtSO_4$]	35.2	0.00163	366.6
30% (v/v) [EMIM][$EtSO_4$]	45.4	0.00252	0.0

Table B. Concentrations of NaCl and PEG_{400} to obtain ionic liquid equivalent solutions

Solution	% (v/v) IL eqv.	mg PEG_{400} / ml Buffer	mg NaCl / ml Buffer
Buffer	0	0	0
	5	58.1	11.8
	15	113.6	21.7
	30	218	26.4
[EMIM][Ac]	0	32.5	0
	5	61.9	11.8
	15	134.7	21.7
	30	248.3	26.4
[EMIM][$EtSO_4$]	0	34.5	0
	5	54.3	11.8
	15	90.3	21.7
	30	182.5	26.4

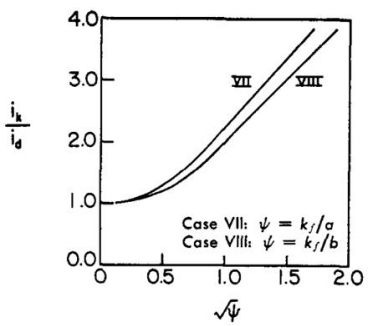

Figure A. Working curves according to Nicholson and Shain – Case for catalytic reaction with reversible/irreversible charge transfer (Ratio of the kinetic and diffusion peak currents i_k/i_d)[33] Reprinted with permission from Nicholson, R. S. and I. Shain (1964). "Theory of stationary electrode polarography -

single scan + cyclic methods applied to reversible irreversible + kinetic systems." Analytical Chemistry **36**(4): 706-&. Copyright 1964 American Chemical Society.

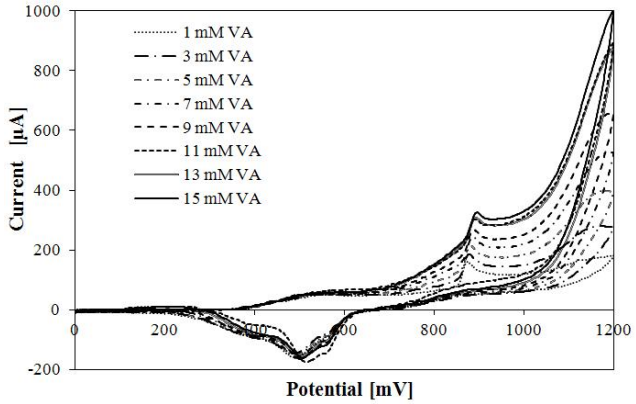

Figure B. Cyclic voltammograms of 2 mM ABTS with 1 – 15 mM veratryl alcohol in 0.05 M citric acid / 0.1 M Na_2HPO_4 buffer, pH 4.9. Scan rate 10 mV/s. Potential: 0 – 1200 mV, T = Room temperature ~22°C.

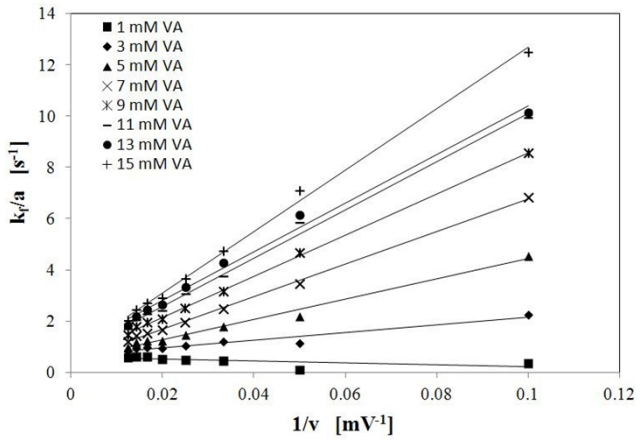

Figure C. Kinetic parameters, k_f/a, at varying substrate concentrations obtained from working curves (Figure A) versus the inverse scan rates (1/v) – the linear regression of the slope at each concentration gives the pseudo-first order rate constants, k_f

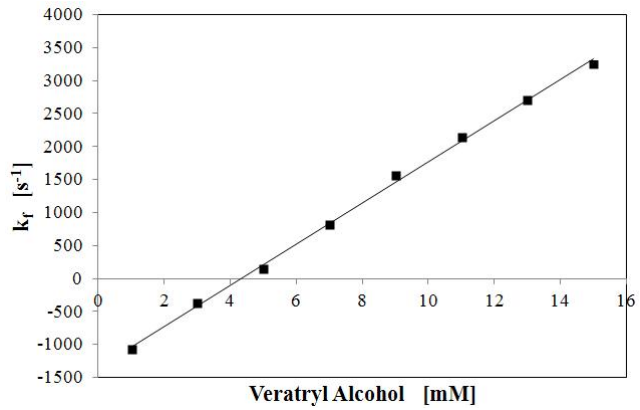

Figure D. Pseudo-first order rate constant (k_f, obtained from Figure C) versus veratryl alcohol substrate concentration – the linear regression of the slope gives the second-order homogenous rate constant, k