Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Materials for "Effect of Electrolytes on the Electropolymerization and Optoelectronic Properties of Poly(3-methylselenophene)"

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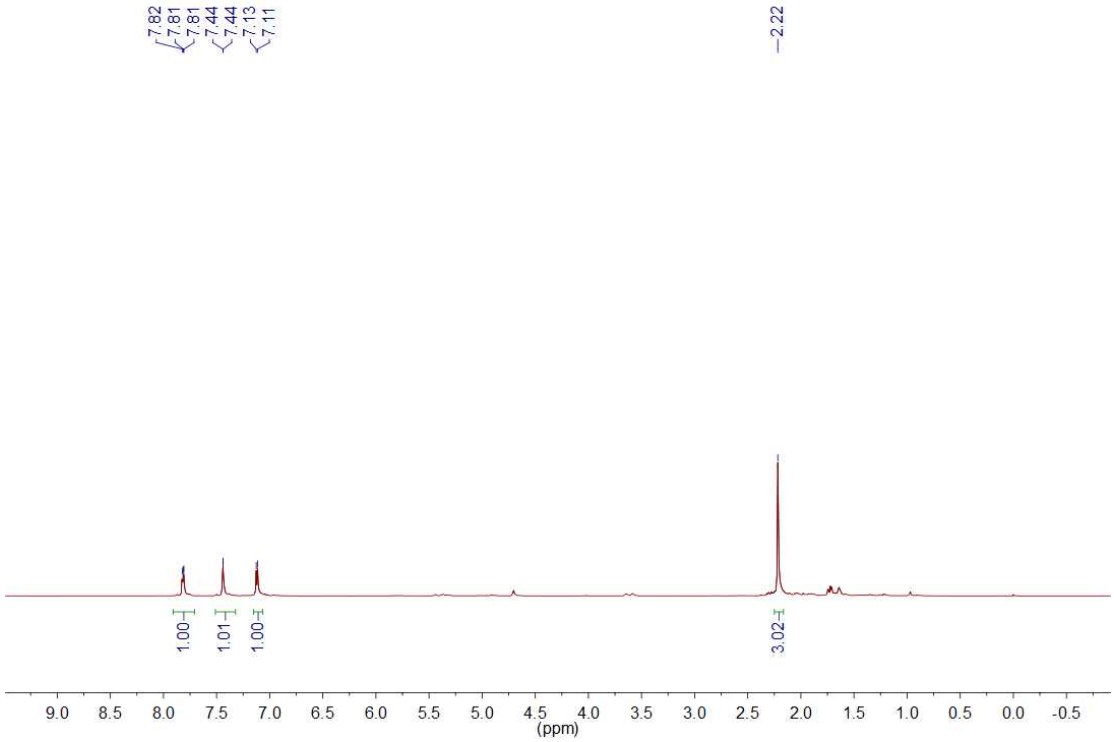

Figure S1 ^{1}H NMR spectrum of 3-methylselenophene.

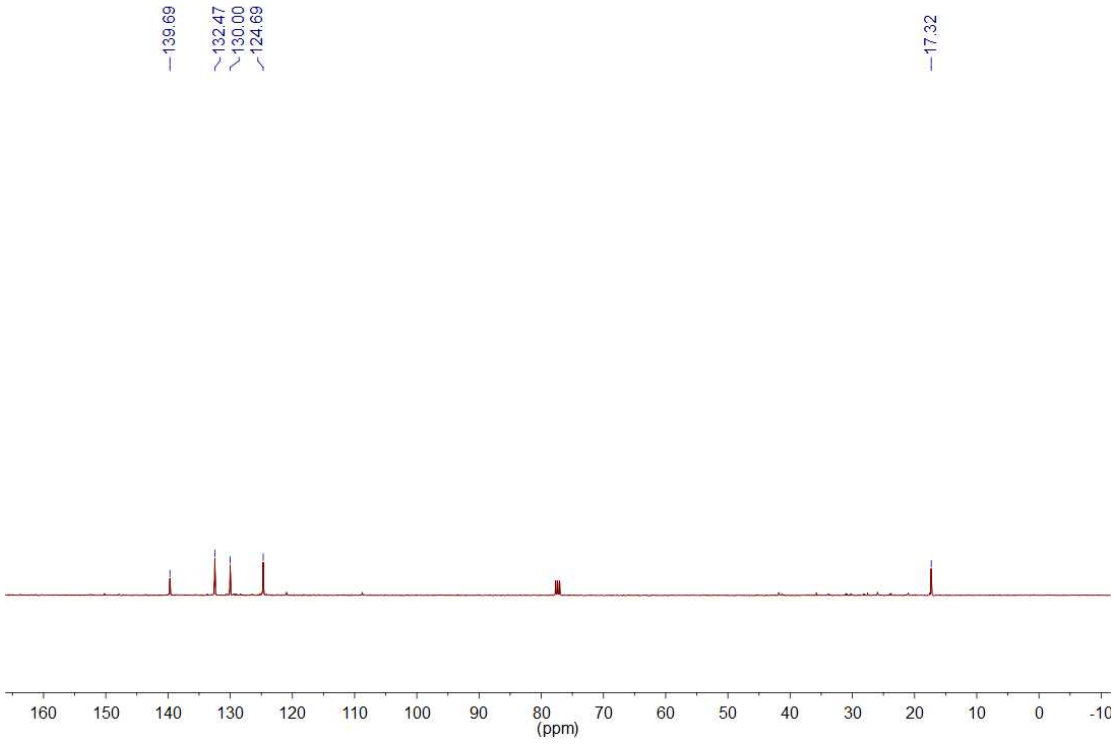

Figure S2 ^{13}C NMR spectrum of 3-methylselenophene.

Table S1 Detailed peak assignments of FT-IR spectra for both the monomer and polymer samples from different electrolytes

Band (cm^{-1})				
3MeS	P3MeS from CH_2Cl_2-Bu_4NPF_6	P3MeS from CH_2Cl_2-BFEE	P3MeS from $BmimPF_6$	Assignment
3078, 3042	3163	--	3172, 3120	C-H stretching vibration of selenophene ring
2964, 2916	2966, 2884	2968, 2879	2968, 2880	C-H stretching vibration of $-CH_3$
1442	1468	1467	1464	skeletal vibration of selenophene ring
1126	1151	1169	1169	C-C vibration of selenophene ring
887	--	--	--	out-of-plane bending vibration of adjacent C-H in the selenophene ring
--	841	844	841	out-of-plane bending vibration 2,3,5-trisubstitution selenophene ring
750	741	746	748	out-of-plane bending vibration of isolated C-H in the selenophene ring
580	555	557	557	C-Se vibration in the selenophene ring

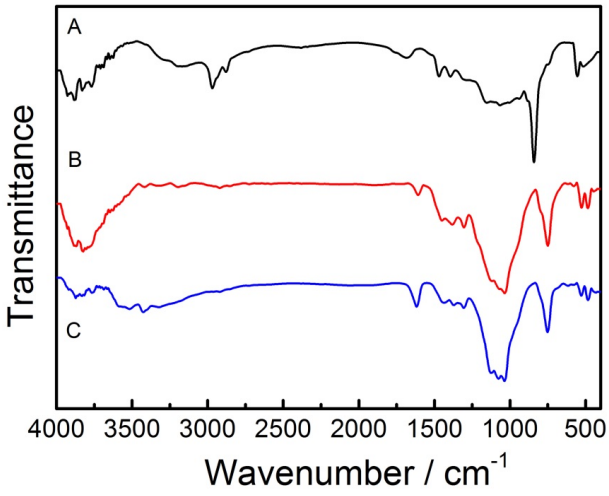

Figure S3 FT-IR spectra of P3MeS electrosynthesized in different electrolytes after CV scanning for 1000 cycles in the corresponding monomer-free electrolytes. CH_2Cl_2-Bu_4NPF_6 (0.10 mol L^{-1}) (A), CH_2Cl_2-5% BFEE (B) and ionic liquid $BmimPF_6$ (C).

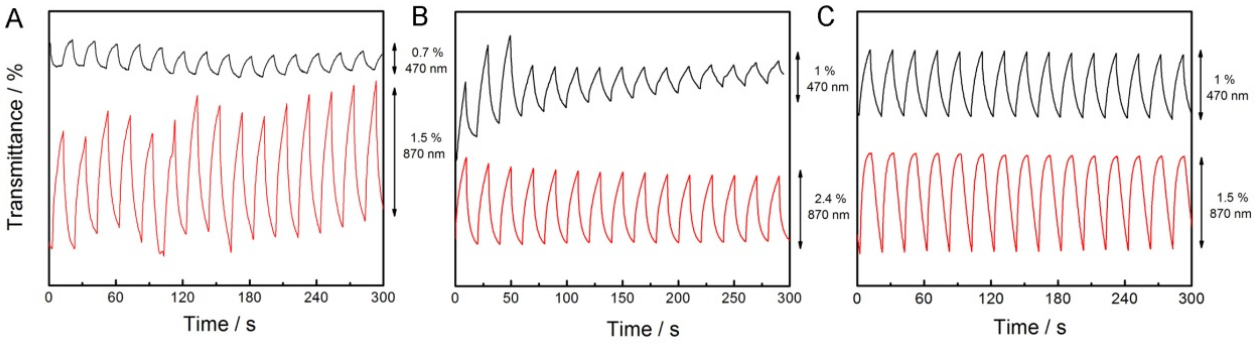

Figure S4 Transmittance-time profiles of P3MeS films recorded during double step spectrochronoamperometry for the switching time of 10 s under the indicated wavelength. A: P3MeS deposited from CH_2Cl_2-Bu_4NPF_6 (0.10 mol L^{-1}) in monomer-free CH_2Cl_2-Bu_4NPF_6 (0.10 mol L^{-1}) between -1.0~1.2 V; B: P3MeS deposited from $BmimPF_6$ in monomer-free CH_2Cl_2-Bu_4NPF_6 (0.10 mol L^{-1}) between -1.0~1.8 V; C: P3MeS deposited from $BmimPF_6$ in monomer-free CH_2Cl_2-Bu_4NPF_6 (0.10 mol L^{-1}) between -1.0~1.8 V.