

Supplementary Information

From Crab Shell to Solar Cell: A Gel Polymer Electrolyte Based on *N*-phthaloylchitosan and its Application in Dye-Sensitized Solar Cells

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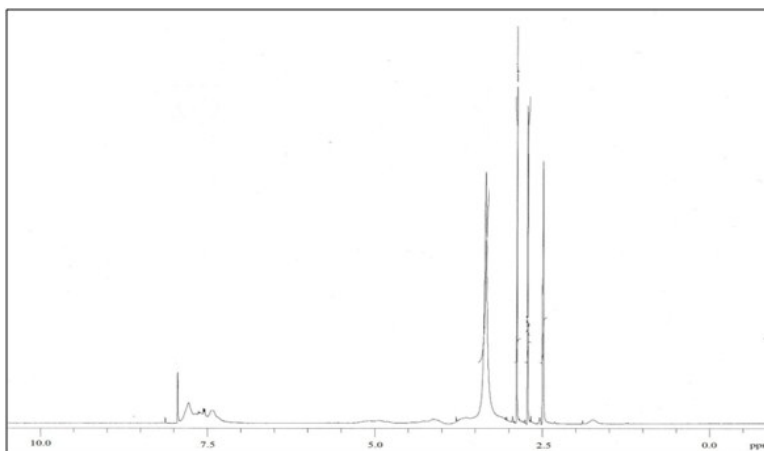


Fig. S1. ¹H NMR spectrum of phthaloylated chitosan

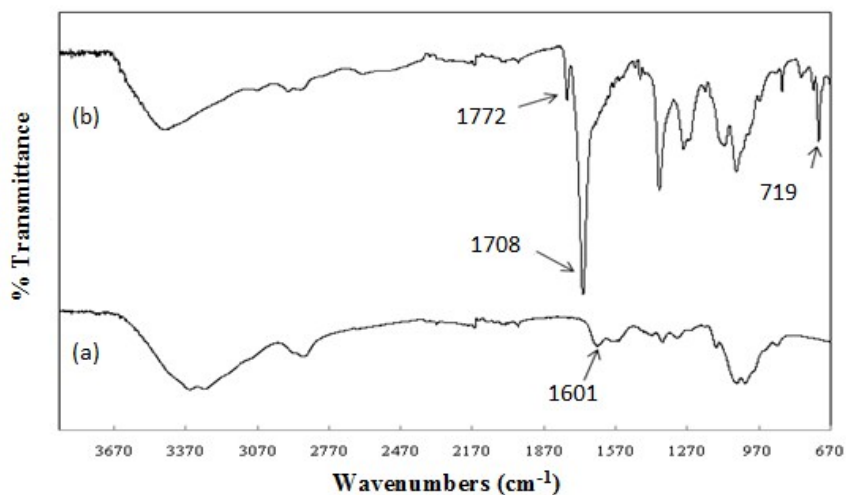


Fig. S2. FTIR spectra of pure (a) chitosan and (b) PhCh.

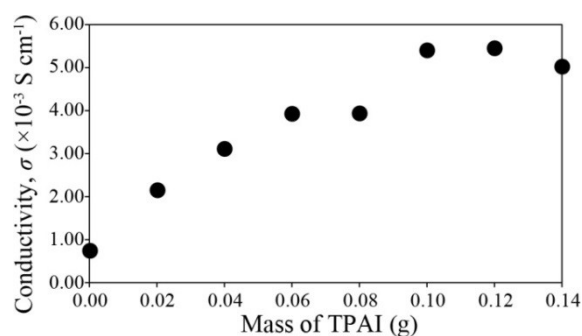


Fig. S3. Effect of varying TPAI mass on the conductivity of the GPE at room temperature.

Table S1. Conductivity-temperature dependence of the PhCh-EC-DMF-TPAI gel polymer electrolytes.

1000/T (K ⁻¹)	log ₁₀ σ							
	A0	A1	A2	A3	A4	A5	A6	A7
3.2987	-3.0986	-2.6396	-2.5793	-2.3956	-2.3524	-2.2781	-2.2485	-2.2525
3.1934	-3.0093	-2.5748	-2.5430	-2.3244	-2.3024	-2.2401	-2.2044	-2.2024
3.0945	-2.9270	-2.5136	-2.5103	-2.2426	-2.2273	-2.1636	-2.1308	-2.1562
3.0017	-2.8577	-2.4416	-2.4066	-2.1826	-2.1520	-2.0913	-2.0757	-2.0834
2.9142	-2.8041	-2.3948	-2.3323	-2.1355	-2.0913	-2.0189	-2.0173	-2.0244
2.8317	-2.7605	-2.3385	-2.2890	-2.1051	-2.0466	-1.9716	-1.9716	-1.9737
2.7537	-2.7110	-2.3008	-2.2313	-2.0661	-2.0139	-1.9291	-1.9688	-1.9269
2.6799	-2.6622	-2.2661	-2.2736	-2.0397	-1.9648	-1.8926	-1.9283	-1.8882

Table S2. Data analysis from the XRD curves of PhCh-EC-DMF-TPAI gel polymer electrolytes.

Samples	Area (a.u)	Peak Center (2 θ)	Height (a.u)
A0	121913	20.73	14458
A1	58708	20.99	6865
A2	49471	20.86	5675
A3	44963	21.01	5401
A4	31438	21.79	3845
A5	26664	21.27	3453
A6	22727	22.26	2874
A7	24896	21.84	3324