Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

An electrochemiluminescence amplification strategy: synergistic effect of electrospun $Ru(bpy)_3^{2+}$/CNTs/ionic liquid composite nanofibers

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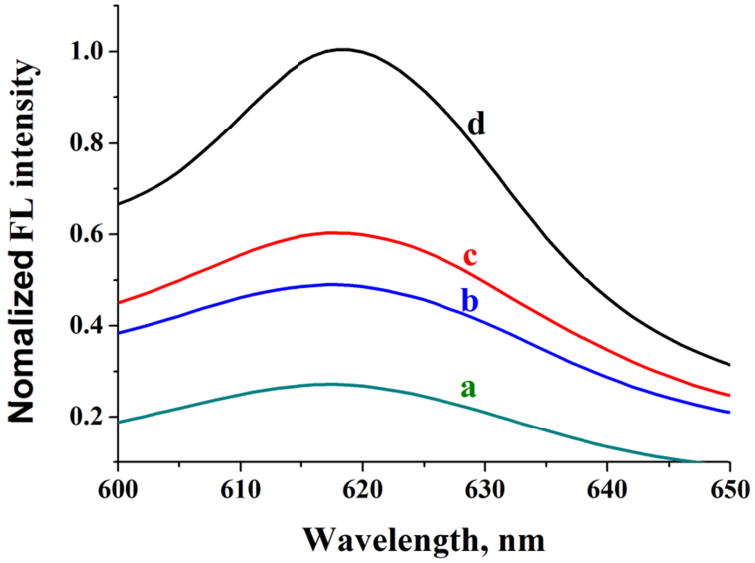

Fig. S1 FL emission spectrum at PAN (a), IL/PAN (b), CNTs/PAN (c) and CNTs/IL/PAN (d) nanofibers modified ITO electrodes in 0.10 M PBS (pH 7.0) containing 1.0 mM TPrA, respectively. (CNTs: 50 μg/mL, IL: 0.7 v/v %, PAN: 10 wt %, $Ru(bpy)_3^{2+}$: 750 μg/mL, the

excitation wavelength was recorded at 456 nm.)

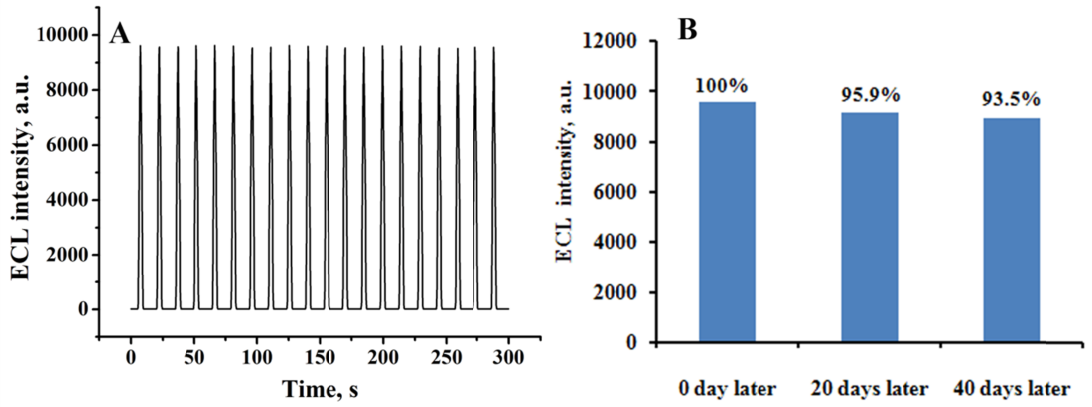

Fig. S2 The ECL intensity-time curve (A) of the CNTs/IL/PAN nanofibers modified ITO electrode in 0.10 M PBS (pH 7.0) with 1.0 mM TPrA under continuous CV scans for 20 cycles. And the ECL intensity (B) of the CNTs/IL/PAN nanofibers modified ITO electrode measured in 0.10 M PBS (pH 7.0) with 1.0 mM TPrA after 20-day storage, 40-day storage, respectively. (CNTs: 50 μg/mL, IL: 0.7 v/v %, PAN: 10 wt %, $Ru(bpy)_3^{2+}$: 750 μg/mL)

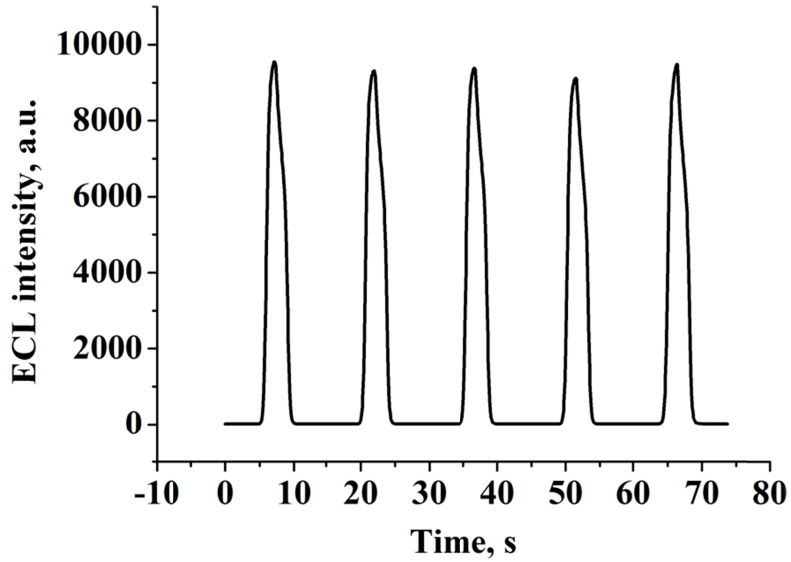

Fig. S3 The reusability of CNTs/IL/PAN nanofibers modified ITO electrode was demonstrated by separately measuring its ECL intensities when it was exposed to five cycles of 0.10 M PBS (pH 7.0) containing 1.0 mM TPrA, respectively. (CNTs: 50 μg/mL, IL: 0.7 v/v %, PAN: 10 wt %, $Ru(bpy)_3^{2+}$: 750 μg/mL)

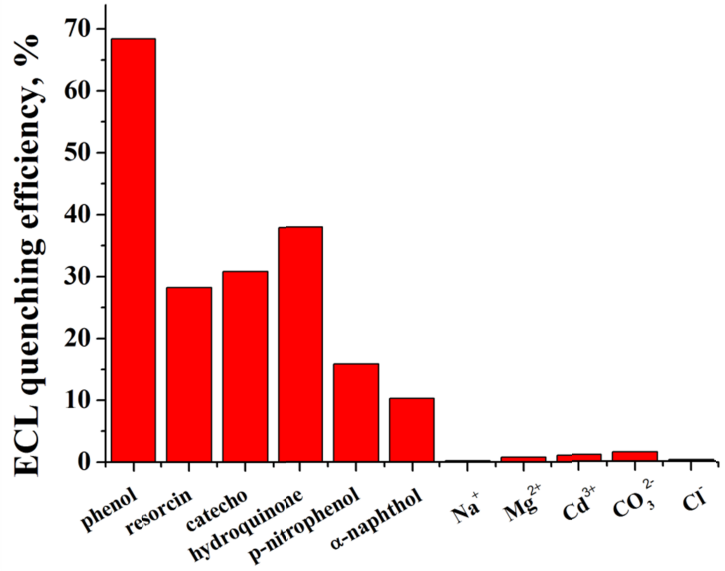

Fig. S4 Comparison of the quenching effects of phenolic compounds (50.0 μM), and other possible interferents (1.50 mM) on the ECL intensity of CNTs/IL/PAN nanofibers modified ITO electrode in 0.10 M PBS (pH 7.0) containing 1.0 mM TPrA. (CNTs: 50 μg/mL, IL: 0.7 v/v %, PAN: 10 wt %, $Ru(bpy)_3^{2+}$: 750 μg/mL).

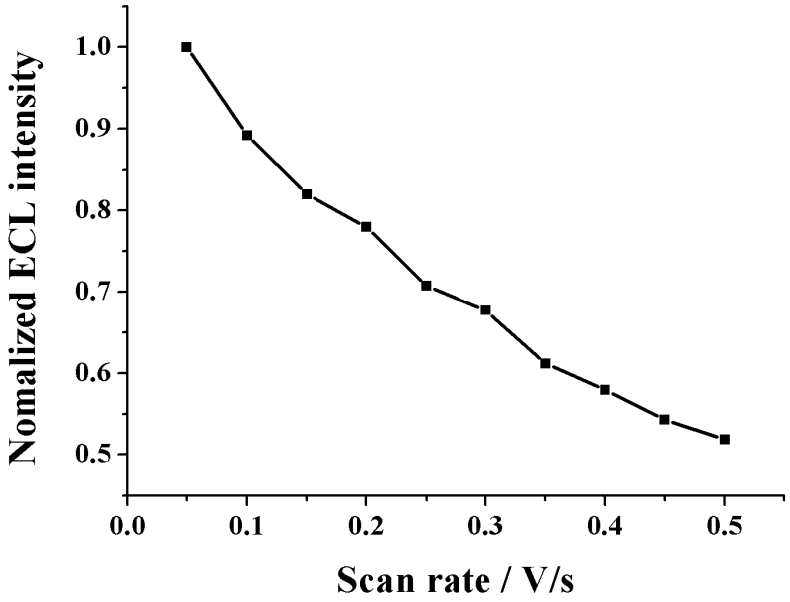

Fig. S5 Effect of scan rate on ECL intensity of the CNTs/IL/PAN nanofibers modified ITO electrode in 0.10 M PBS (pH 7.0) containing 1.0 mM TPrA. (CNTs: 50 μg/mL, IL: 0.7 v/v %, PAN: 10 wt %, $Ru(bpy)_3^{2+}$: 750 μg/mL)

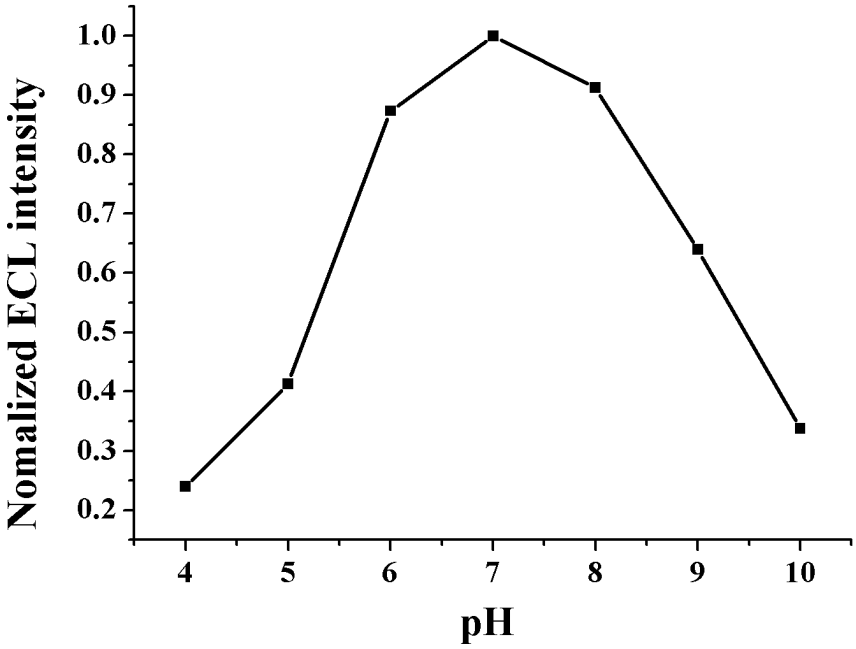

Fig. S6 Effect of pH on ECL signals of the CNTs/IL/PAN nanofibers modified ITO electrode in 0.10 M PBS (pH 7.0) containing 1.0 mM TPrA. (CNTs: 50 μg/mL, IL: 0.7 v/v %, PAN: 10 wt %, $Ru(bpy)_3^{2+}$: 750 μg/mL)

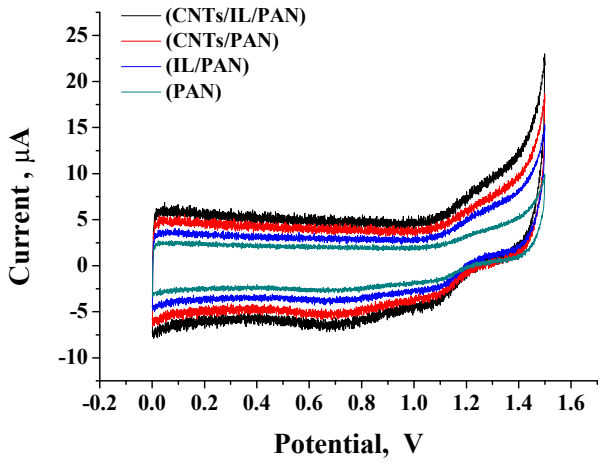

Fig. S7 CV curves correspond to the ECL intensity-potential curves at PAN (a), IL/PAN (b), CNTs/PAN (c) and CNTs/IL/PAN (d) nanofibers modified ITO electrodes in 0.10 M PBS (pH 7.0) containing 1.0 mM TPrA, respectively.

Table S1 Comparison of different nanofibers in electrochemical, luminescence and ECL signals

Nanofibers[a]	Relative electroactive surface area	Relative luminescence signal	ECL signal amplification
PAN	1.0	1.0	1.0
IL/PAN	2.6	1.8	9.8
CNTs/PAN	3.4	2.2	13.7
CNTs/IL/PAN	5.4	3.7	23.4

[a] CNTs: 50 μg/mL, IL: 0.7 v/v%, PAN: 10 wt%, $Ru(bpy)_3^{2+}$: 750 μg/mL