Electronic Supplementary Material (ESI) for RSC Advances

Supporting information

Carbon Nanotube/Prussian Blue Nanocomposite Film as a New Electrode Material for Environmental Treatment of Water Samples

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Competitive reactions that can also occur affecting the total Fenton process:

$Fe^{3+} + HOO\bullet \rightarrow Fe^{2+} + H^{+} + O_2$ $k_3 = 1.2 \times 10^6$ mol L^{-1} s^{-1} (S1)

$Fe^{2+} + \bullet OH \rightarrow Fe^{3+} + OH^{-}$ $k_4 = 3.2 \times 10^8$ mol L^{-1} s^{-1} (S2)

$H_2O_2 + \bullet OH \rightarrow H_2O + HOO\bullet$ $k_5 = 3.3 \times 10^7$ mol L^{-1} s^{-1} (S3)

$HO_2\bullet + \bullet OH \rightarrow H_2O + O_2$ (S4)

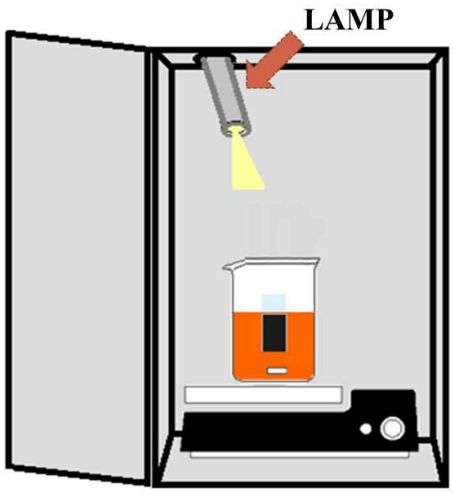

Figure S1. Experimental setup for photochemical-Fenton (PF) process

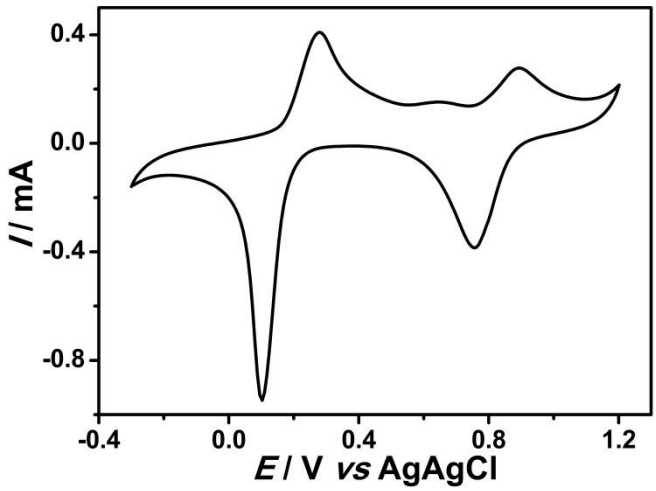

Figure S2. Cyclic voltammogram obtained for a CNT/PB film in a 0.1 mol L^{-1} KCl aqueous solution with a scan rate of 50 mV s^{-1}.

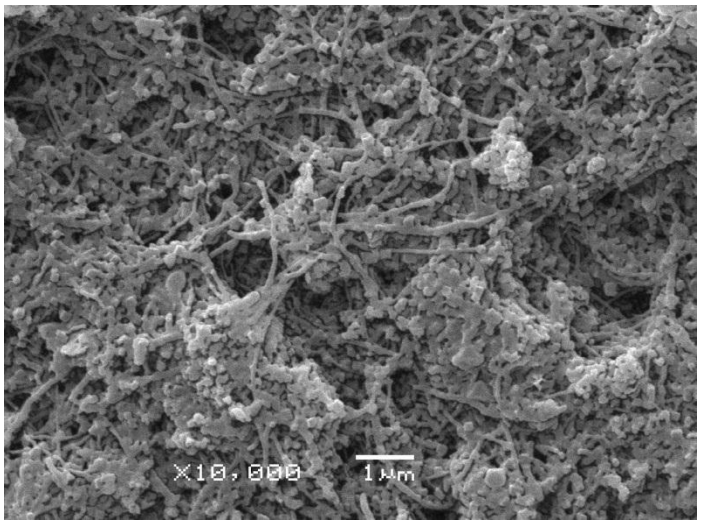

Figure S3. Scanning electron microscopy image obtained from the CNT/PB film.

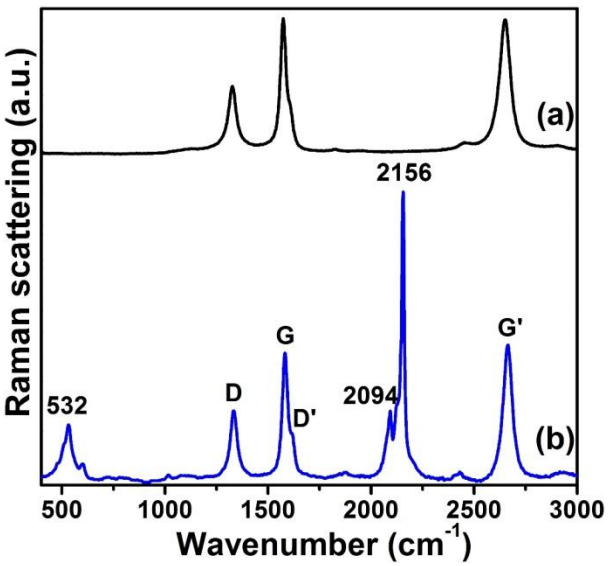

Figure S4. Raman spectra (λ = 632.8 nm) of the CNT (a) and CNT/PB film (b).

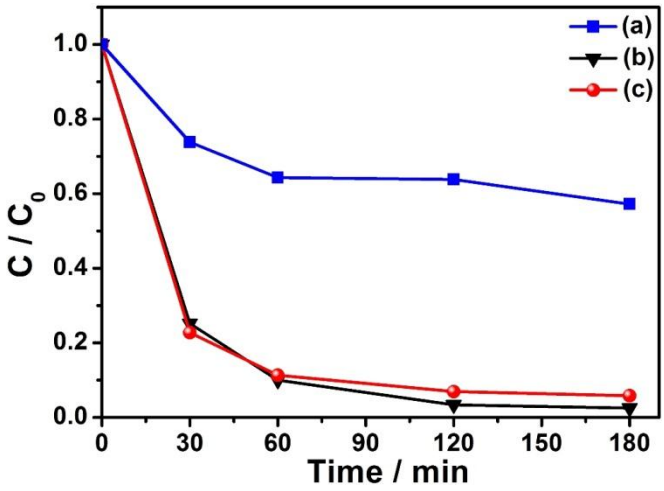

Figure S5. Influence of KCl concentration (a) 0.05, (b) 0.1 and (c) 0.2 mol L^{-1} on MO degradation using a PEF process.

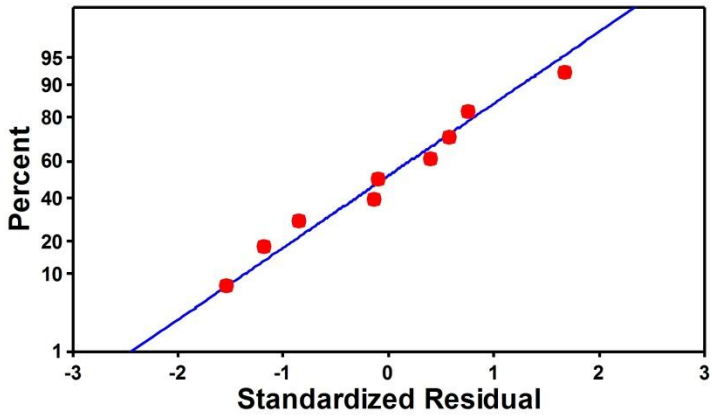

Figure S6. Normal probability plot of residuals *versus* MO degradation percentages.

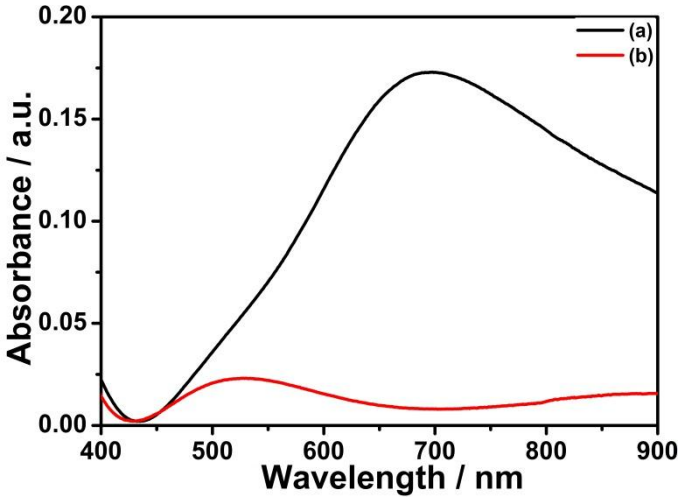

Figure S7. UV-Vis spectra derived from a PB film on ITO before (a) and after (b) MO degradation using a PEF process.