Electronic Supplementary Material (ESI) for RSC Advances.

Carbon Nanotubes based Polymer Nanocomposites: Biomimic Preparation and Organic Dye Adsorption Applications

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In order to measure the concentration of residual MB existed in the aqueous solution after adsorbing by CNT-PDA-PSPSH nano-materials, we must measure the adsorbance of residual MB solution via UV-vis spectrophotometer for evaluating their concentrations. Afterwards, based on Lambert-Beer's Law, we could translate the absorbance into the concentration of the MB solution. Finally, the following formula was adopted to ensure the adsorption capacity as the revised manuscript present, and the MB removal efficiency (R %) was analyzed by the second equation.

$$Q_e = \frac{(C_0 - C_t)V}{m}$$

$$R = \frac{100(C_0 - C_t)}{C_0}$$

Determination of MB using UV-Vis spectrometer

The process for measuring the standard curve of MB solutions could be described by follows. First, A number of MB solutions with different concentrations (1-10 mg/L) were prepared. And then the UV-Vis spectra of these MB solutions were measured. As shown in Fig. S1, the wavelength with maxium adsorbent was located at 665 nm. And based on the adsorption values at 665 nm, the standard curve of MB solutions can be caluculated with high correlation coefficient (R2 = 0.9996). And the concentration of MB solutions can be calculated based on the following formula *C*e = 76.21 × Abs. *C*e is the concentration of MB solution, and Abs is the adsorption of MB solution.

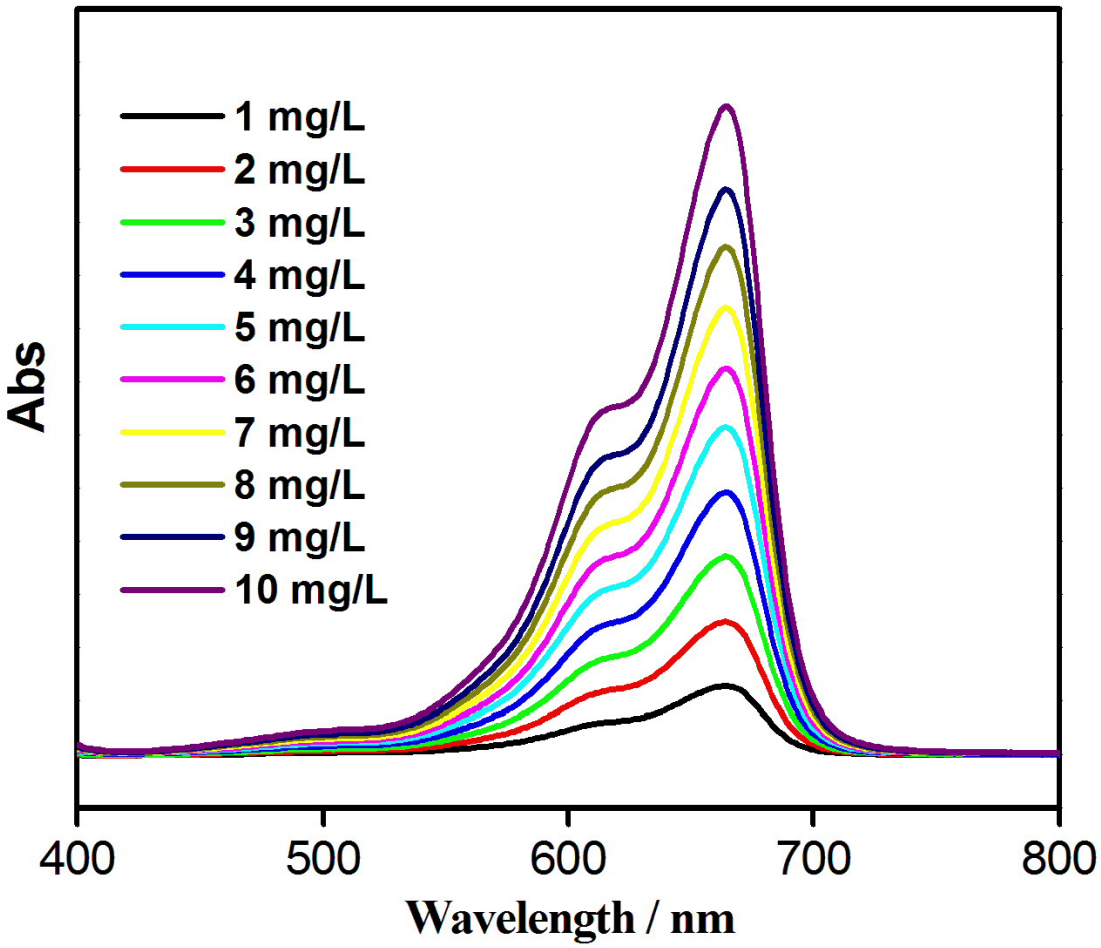

Fig. S1 the absorbance of MB solution with different concentration

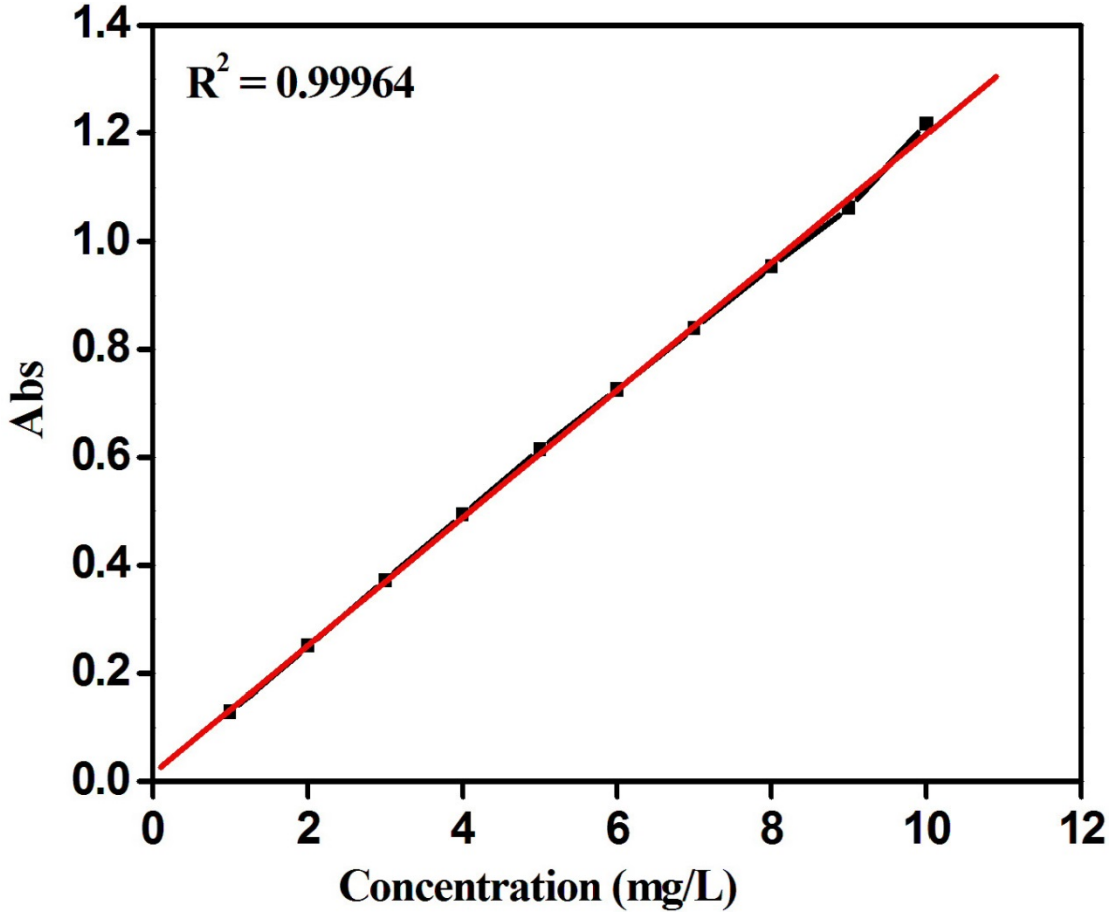

Fig. S2 the curve of linear fitting with different concentration of MB solution

Fig. S3 TEM images of CNTs-PDA, the scale bar = 50 nm.